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# Foreword

Whether grappling with natural disasters or delivering day-to-day public services as education or healthcare, public bodies increasingly must work with other organizations to get the job done. Similarly, government managers themselves often need to identify and address risks in ways that require cooperating across multiple organizations to reduce the potential for serious harm.

The growth of complexity is a major reason for these developments—that is, increased complexity in the types of services that public bodies deliver; waves of technology; and organizational sprawl. To the extent that complexity leads to problems that extend beyond any one organization’s boundaries, these problems are likely to be with us for a long time.

2017 ICPA will address ways of managing governmental organizations to focus problems or deliver services that require cooperation across organizational boundaries. What kinds of governance work best to ensure collaborative efforts across governmental organizations—or between government and such private organizations as NGOs, for-profit contractors and other third-parties—that ensure effective public service delivery? How should these relationships be structured? Can new technologies help to bridge organizational gaps and provide public services seamlessly? The first ISWAS will address ways of having the issues, challenges and problems facing western African countries in the process of economic and social development settled as Africa is currently one of the most dynamic developing regions worldwide.

The *Proceedings 2017 International Conference on Public Administration (12<sup>th</sup>) & International Symposium on West African Studies (1<sup>st</sup>)* encompass a wide-ranging analysis and examination of excellence and innovation in public administration research and practice. *The Proceedings of Volume II* contain a rich and broad collection of ideas and research findings directed at *Managing across Organizational Boundaries: Innovation and Collaboration* .

The collections of papers are authored by academics and practitioners worldwide, promising to advance public administration research and practice from Governance and Management to Improve Cooperation Across Organizations, Public Private Partnerships, Reducing Complexity When Delivering Public Services, Managing Risk Across Organizational Boundaries, Encouraging Collaborative Behavior by Public Officials, Social Equity and the Quality of Inter-organizational Cooperation, Big Data and Effective Network Management, Theory and Practice on Cross

-boundary Governance respectively and how to promote social and economic development for Western African countries from global perspective.

The submissions of ***2017 International Conference on Public Administration (12<sup>th</sup>) & International Symposium on West African Studies (1<sup>st</sup>)*** have amounted to Five Hundred and Twenty-Eight pieces from both China and abroad by experts, scholars and practitioners to School of Political Science and Public Administration of University of Electronic Science and Technology of China and American Society for Public Administration respectively. After peer reviews by 2017 ICPA Academic Committee, the papers collected in ***Proceedings of 2017 International Conference on Public Administration (12<sup>th</sup>) & International Symposium on West African Studies (1<sup>st</sup>) (Volume II)*** are One Hundred and Forty-One, which offers a wide array of new knowledge and information on subjects that public administrators and scholars should find out some valuable and practical uses.

The ***2017 International Conference on Public Administration (12<sup>th</sup>) & International Symposium on West African Studies (1<sup>st</sup>)*** bring together an array of authors and topics drawn from many countries and regions and attracted international interests and inquiries from scholars and public administration practitioners in China, Ethiopia, Ghana, India, Indonesia, Japan, Macao SAR of P.R. China, Netherland, Nigeria, Philippines, South Africa, South Korea, Uganda, the United Kingdom, the United States and Zambia. The Twelfth International Conference on Public Administration (12<sup>th</sup>) & International Symposium on West African Studies (1<sup>st</sup>) were truly international.

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**Editors in Chief**

*Tang Zhiwei*

*ZHAO Shu-rong*

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## Catching-up or Divergence: The Research Status, Trends and Existing Problems of Smart Cities in China

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**Abstract** Smart city is emerging as a new target for urban development and management across the world. This paper, based on the literatures found in core journals at WOS and CNKI, analyzes 1,174 domestic and overseas literatures on smart city and creates knowledge graphs by Citespace, for the purpose of examining the research status of smart city. Through the quantitative analysis to years, regions, authors, research institutions and keywords of the literatures, it is found that domestic and overseas literatures on the whole resemble each other in quantity, both showing a trend of common concern on many disciplines. With respect to the variation of hot words, however, domestic researches on smart city show no obvious trend and employ single research method with an absence of theory localization. In this regard, it is suggested that domestic scholars should strengthen their cooperation, remain concerned about the foreign research trend, integrate more theories and methods, and probe into the issues of instructive significance to practice.

**Key words** Bibliometrics, Smart city, Trend, Knowledge graph

### 1 Introduction

The pioneering work on the relationship between telecom technology and urban construction conducted by scholars Graham, Marvin and Mitchell in the 1990s formed a concept prototype and laid a theoretical basis for smart cities. At IBM's conference in New York in November 2008, IBM put forward the idea of "Smart Earth", which sparked a global smart cities construction boom. In the past 10 years, China's urbanization rate has increased from 40.53% to 53.73% (Yin, 2015<sup>[1]</sup>). With the floating urban population, urban problems have been becoming increasingly prominent. Confronting with the "urban diseases", the government decided to promote the smart city construction. As of now, the Ministry of Housing and Urban-Rural Development, the Ministry of Industry and Information Technology, Ministry of Science and Technology and the SAC (Standardization Administration of the People's Republic of China) Office have been vigorously carrying out the construction of smart cities in the provinces and municipalities all over the country. At the national level, the high degree of concern has also promoted the rapid development of smart cities, becoming the research hotspot received extensive attention from the scholars. Although relevant literatures have witnessed a rapid growth, only more than ten articles about smart city research are available in China with a large publication time gap and an absence of comparison analysis from the perspective of bibliometrics. On this basis, this paper, with the articles found in core journals at WOS and CNKI as the data source, reviews the domestic and overseas research progress of smart cities through bibliometrics, depicts the development process and status of smart city research, and explores the future research trends, in the hope of providing a reference for domestic research and promoting the further development of domestic smart city research and practice.

### 2 General situation of bibliometrics

#### 2.1 Domestic research

In this paper, "Chinese Journal Full-Text Database" (CNKI) is selected as the source of data collection and the retrieval type "Article Name = Smart City" is made. In order to ensure the quality and credibility of the literatures, the authors define the literatures as Chinese core journals and journal articles included in CSSCI. After eliminating the unqualified data for the research conditions, 399 academic papers were retrieved (as of August 31, 2016). This paper will take the foresaid 399

academic papers as the object of study to carry out quantitative analysis.

(1) Publication year distribution of the literatures

Quantitative analysis, first and foremost, was conducted to the publication year distribution of 399 academic papers. It can be seen from Figure 1 that the first domestic academic paper on smart city was published in 2009: “On Nanjing’s Urban Transformation and Planning Innovation: Foreign Scholars’ Raised Awareness of the Smart City” written by Wu Yuejing. Since 2012, the number of academic papers on smart city has begun to grow at a constant speed every year. By 2014, domestic academic papers about smart city reached a peak — 106. To sum up, the domestic academia, despite its attention to smart city in 2010, witnessed a rapid development.

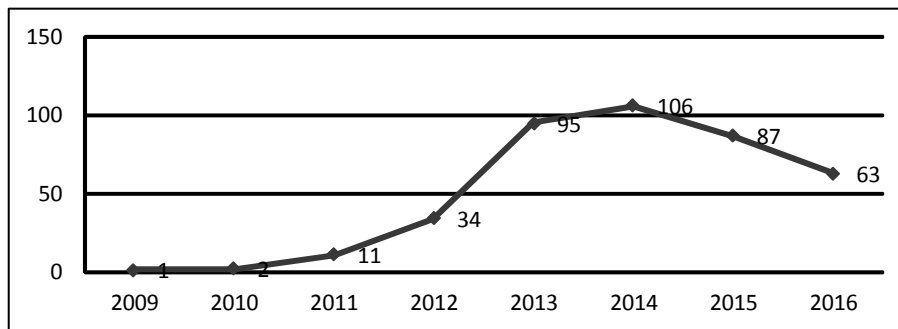


Figure 1 Publication output distribution of domestic researches on smart cities

(2) Discipline distribution of the literatures

Secondly, quantitative statistics were made to the distribution of relevant disciplines in this paper. Based on the statistical data as shown in Figure 2, Management is a primary discipline for domestic researches on smart cities, and there are 156 relevant papers, accounting for 39%; Economics, with 104 papers, ranks the second, accounting for 26%; Computer Applications, with 43 papers, comes next, accounting for 11%. In addition, researches on smart cities have been carried out from the perspectives of such disciplines as Architecture and Civil Engineering, Geographical Mapping, and Journalism and Communication. On the whole, there are multiple domestic disciplines of concern to smart cities, in which Management, Economics and Computer Applications are the most important three disciplines with published papers accounting for more than 70%.

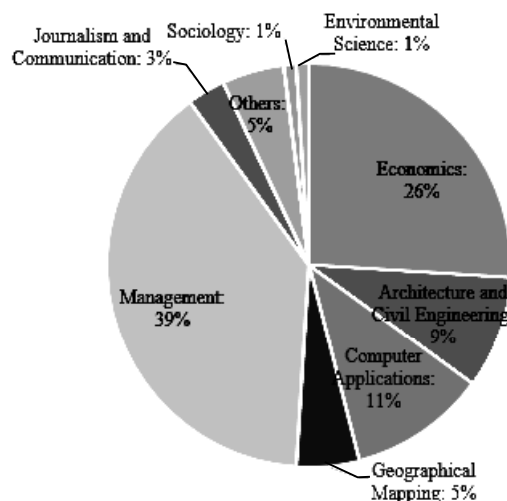


Figure 2 Discipline distribution of domestic literatures on smart cities

Seen from the literatures of various disciplines, the wide range of disciplines enables the topics, the perspectives and the paradigms of domestic researches on smart cities to be diversified and fruitful. In respect of Management Discipline, the researches on smart cities mainly involve public security, information opening, appraisal standards and constructional paths. For example, scholars Li Zeng and Xia Yi-xue (2016) proposed smart city pre-controlled public safety governance model based on the conception of integrating Resource Layer, Organization Layer and Operation Layer through Internet of Things, cloud computing and distributed processing technology (Li, 2014<sup>[2]</sup>). Cong Ya-jing and Cai Ning (2014), through telephone sampling investigation on 3,263 Beijing citizens, carried out a smart city satisfaction survey, and found that Beijing residents were generally more satisfied with smart city construction. However, the satisfaction degree varied among different groups, in which the high-income and highly educated groups showed low satisfaction (Cong, 2014<sup>[3]</sup>). Economics mainly reviews smart city from value, efficiency and other traditional economic perspectives. Based on the theory of city value chain, Zhang Yi, Chen You-fu and Yang Kai-rui divided the connotation of smart city into form value and function value, and then advanced countermeasures for promoting the construction of China's smart cities as follows: the planning and construction of China's smart cities should follow the principles of comprehensive, differentiated and phased value orientation, adopt low-risk value promotion strategies, and formulate full-procedure value constraints and tracking program, and thus perfectly realize the core values of smart cities (Zhang, 2012<sup>[4]</sup>). The concern of Computer Science includes big data applications, public database construction and information search. Chen Rui, Jia Xiao-feng and Zhao Yu (2016), based on the existing problems of simple synergy model, low coordination efficiency and deficiency of effective measurement of cooperative structure in the multi-source information of traditional urban system, constructed multi-source information synergy difference measure model for given confidence intervals by using fuzzy clustering algorithm, explained the cohesive subgroups in collaborative network structures and their correlation, and raised model optimization strategy for multi-source information collaboration from two levels: difference measure and correlation measure (Chen, 2016<sup>[5]</sup>). This multidisciplinary research broadens the vision for domestic researches on smart city, and the exploration into a wide range of topics increases people's understanding of smart city.

### (3) Author distribution of the literatures

Thirdly, quantitative statistics were made to the distribution of authors in this paper of domestic papers on smart city. Among the 399 papers, 164 were written by individual authors, accounting for 41.1%; 125 were co-contributed by two authors, accounting for 31.4%; 68 papers were completed by three authors, accounting for 17%; 42 were accomplished by four or more authors, accounting for 10.5%. In general, most researches have been completed through cooperation, accounting for about 60%. According to the publication output, this paper also identifies the 10 major authors in this field. According to Table 1, Zhen Feng, a scholar from Nanjing University, published the most (8 papers). Moreover, this paper analyzes and summarizes the research results of the 10 major authors, which can be divided into the following two categories: One is how to build and develop smart cities, represented by Zhen Feng, Xu Jing and Wu Yun-jian. Such scholars are mainly concerned about the development status, key technologies and implementation paths, growth mechanisms and other issues about the smart cities. For example, Wu Yun-jian et al. adopted the time series data of Nanjing during 1997 and 2013 to build a quantitative analysis model and applied factors analysis, Granger causality test, regression equation test, impulse response function analysis, etc. to conduct researches. The results show that the city's financial innovation resources, as the main driving force of the growth of smart cities, exert a long-term influence on the growth, and intellectual resources of innovation come next. Besides, the growth of smart cities is conducive to attracting and clustering financial and intellectual innovation resources (Jiang, 2015<sup>[6]</sup>). The other is to figure out the reasons for the construction and development of smart cities, represented by Chen You-fu, Zhang Yi and other scholars. They have been trying to interpret the connotation, value and other aspects of smart cities.

### (4) Institute distribution of domestic literature resources

This paper, in accordance with the publication output, made quantitative statistics to the institute distribution of the resources of 399 papers. Among the 399 papers, 7 papers were from the Urban

Planning and Design Institutes in Beijing and Guangzhou, respectively and the rest are from domestic universities. As shown in Table 2, this paper identifies the top 10 organizations publishing more papers in this field all over the country. Among the 10 universities, Peking University has published the most: 21 papers, far more than that of other universities; Wuhan University, Huazhong University of Science and Technology, Nanjing University, which have published 10 papers, rank the second. Combined with the types and regions, universities in the Beijing, Shanghai and Guangzhou regions are the main force for the study of the domestic smart cities. In addition, this paper has sorted out the papers of Peking University, Shanghai Jiao Tong University and Nanjing University. It is found that Peking University is mainly concerned about the development of smart cities, including the integration of government opening data and smart cities construction, smart city operation and its investment and financing modes, smart city construction evaluation system research and smart city policy analysis. Shanghai Jiaotong University mainly focuses on the problems and development path of the smart city construction. Nanjing University, based on the overall planning of smart city and the top-level design, puts forward the spatial planning and spatial development model.

**Table 1 Key authors for domestic researches on smart cities**

Rank	Name	Number of papers	Rank	Name	Number of papers
1	Zhen Feng	8	6	Long Ying	4
2	Xu Jing	6	7	Qin Xiao	4
3	Wu Yun-jian	6	8	Zhang Nan	4
4	Zhang Yi	5	9	Zhang Zhen-gang	4
5	Tang Si-si	5	10	Zhang Xiao-juan	4

**Table 2 Major domestic institutes for researches on smart city**

Rank	Research institute	Number of papers	Type	Region
1	Peking University	21	Institution of higher learning	Beijing
2	Wuhan University	10	Institution of higher learning	Wuhan
3	Huazhong University of Science and Technology	10	Institution of higher learning	Wuhan
4	Nanjing University	10	Institution of higher learning	Nanjing
5	Tongji University	8	Institution of higher learning	Shanghai
6	Zhejiang University	8	Institution of higher learning	Hangzhou
7	South China University of Technology	8	Institution of higher learning	Guangzhou
8	Renmin University of China	7	Institution of higher learning	Beijing
9	Shanghai Jiaotong University	7	Institution of higher learning	Shanghai
10	Tsinghua University	7	Institution of higher learning	Beijing

#### (5) Research subjects on smart city

Quantitative statistics were made in this paper to the high-frequency keywords in the research papers of smart city during the past five years (2012-2016). According to the above-mentioned data search method, there are 385 papers on the research of smart city during 2012 and 2016, from which 809 keywords were collected. Due to the low word frequency of the keywords, the word frequency  $\geq 2$  times was selected to ensure the quality of the research and finally 25 high-frequency keywords are obtained. During the past five years, as shown in Table 3, researches on smart city focus more on the issue of “urban management”, “information need”, “sustainable development”, “and new urbanization”

and so on. Regarding the frequency of these high-frequency keywords, the annual frequency of occurrence is very low and the distribution is very unstable. During the past five years, to sum up, despite the widespread domestic research subjects on smart city, no research highlight with a high degree of concern or continuous research trend has been formed.

**Table 3 High-frequency keywords for domestic researches on smart city during the past five years**

No.	Keywords	Total word frequency	2012	2013	2014	2015	2016
1	Urban management	6	1	1	1	1	2
2	Information need	4	0	1	0	1	2
3	Intelligent file	4	1	0	1	1	1
4	Sustainable development	3	1	0	1	0	1
5	New urbanization	3	0	1	0	1	1
6	Economic transition	3	0	0	1	1	1
7	Smart grid	3	1	0	1	1	0
8	Urban development	3	0	1	1	1	0
9	Smart city agglomeration	2	0	0	1	1	0
10	Urban economy	2	1	0	0	1	0
11	Spatial correlation	2	0	0	0	1	1
12	Spatio-temporal information cloud platform	2	0	1	0	0	1
13	Internet of Things	2	0	0	1	0	1
14	Industrial upgrading	2	0	0	1	1	0
15	Information security	2	1	0	1	0	0
16	Top-level design	2	0	1	0	1	0
17	Government governance	2	0	0	0	1	1
18	E-government	2	0	0	1	1	0
19	Data sharing	2	1	0	1	0	0
20	Index system	2	0	0	0	1	1
21	Geographic information science	2	0	0	0	1	1
22	Open data	2	0	0	1	1	0
23	Information and Communication Technology	2	0	0	1	0	1
24	Data mining	2	0	1	0	1	0
25	Urban competitiveness	2	0	1	0	1	0

## 2.2 Overseas researches

By selecting Web of Science (WOS) as the data source for overseas research literatures on smart city, the authors searched the literatures of three core humanities and social sciences retrieves sources: SSCI, A&HC and ISSHP, and compiled Retrieval Type TS = (“smart city”) and Literature Type (ARTICLE OR PROCEEDING PAPER) to carry out the retrieval. By August 31, 2016, 775 qualified overseas papers in total have been retrieved.

### (1) Year distribution of the literatures

It is found through database retrieval that overseas research literatures on smart city first appeared on a paper published on IEE REVIEW in 1999. However, foreign scholars’ concern on smart city has been enhanced since 2011 (see Figure 3).

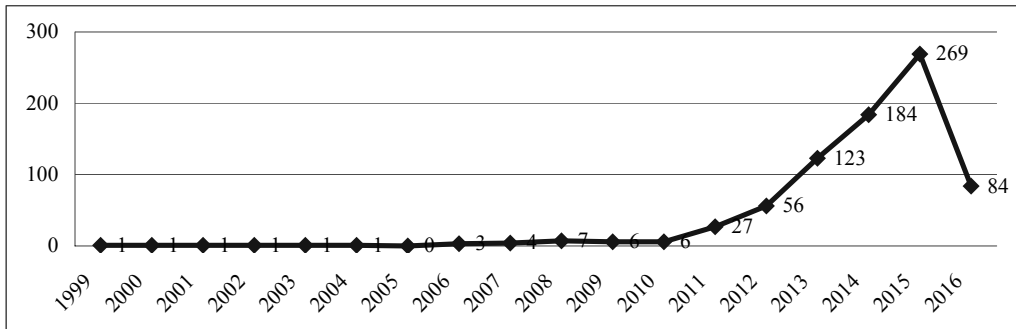


Figure 3 Year distribution for total published articles about overseas researches on smart city

(2) Discipline distribution of the literatures

It can be seen from Figure 4 that overseas researches on smart city also show a multidisciplinary research trend the same as domestic ones. The difference is that discipline with most research on smart city abroad is Computer Science, accounting for 51%. The research topics mainly focus on big data analysis, visualization, and network technology and so on. Electronics and Communications comes in second, with concerns for low-power wireless access nodes, intelligent wireless access networks and wireless sensors. Other disciplines involved in the study include Public Management, Energy Science, Business Economics, Environmental Sciences, and Transportation.

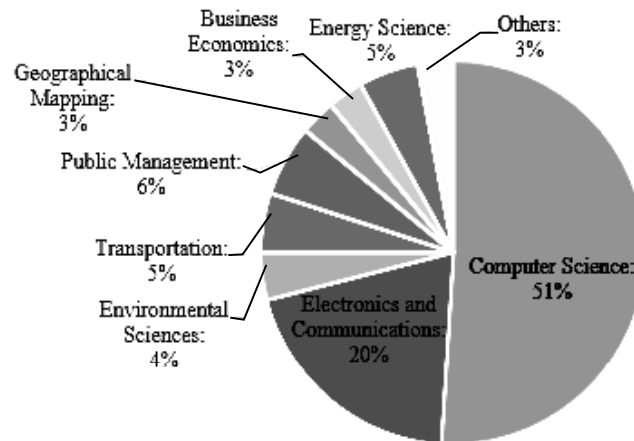


Figure 4 Discipline distribution of overseas research literatures on smart city

(3) Author and research institute distribution

The top 10 foreign authors with most published articles (Table 4) and the main institutes of overseas researches on smart city (Table 5) are identified by statistics.

Table 4 Core authors of overseas researches on smart city

Rank	Name	Total	Rank	Name	Total
1	Jara AJ	9	6	Solanas A	5
2	Zaslavsky A	7	7	Puliafito A	5
3	Sanchez L	6	8	Yamamoto S	4
4	Munoz L	6	9	Santana JR	4
5	Galache JA	6	10	Nakamura M	4

(4) Literature subject distribution

Based on the statistical analysis to the high-frequency keywords in overseas research papers on



smart cities published during the past five years (2012-2016), the authors expect to summarize the research hotspots during the past five years and the future research trends. From 2012 to 2016, a total of 716 papers and 1,518 keywords were selected from WOS on the study of foreign smart cities, and 20 keywords were extracted with the keyword frequency  $\geq 10$  times. In the past five years, as is shown in Table 3, the researches on smart city were more concerned about the issues of “Internet of Things”, “big data”, “sustainable development”, “wireless network”, “urban planning” and so on. From the frequency distribution of each keyword, the year distribution of high-frequency keywords is relatively uniform, showing that the related topics have always been the smart city research hotspots and the frequency of each year is more balanced. In this way, the research hotspots during the past five years are shown clearly. On this basis, the theme of overseas researches on smart city during the past five years is refined, forming research focus with a high degree of attention as well as stable and sustained research trends.

**Table 5 Major institutes of overseas researches on smart city**

Rank	Research institute	Number of papers	Nationality	Type
1	University of Bologna	13	Italy	Institution of higher learning
2	Universidad de Cantabria	12	Spain	Institution of higher learning
3	Royal Institute of Technology	11	Sweden	Institution of higher learning
4	Polytechnic University of Milan	11	Italy	Institution of higher learning
5	Universidad de Malaga	10	Spain	Institution of higher learning
6	Polytechnic University of Turin	10	Italy	Institution of higher learning
7	Czech Technical University Prague	9	Czech	Institution of higher learning
8	University of Oulu	7	Finland	Institution of higher learning
9	Massachusetts Institute of Technology	7	US	Institution of higher learning
10	Vienna University of Technology	6	Austria	Institution of higher learning

**Table 6 High-frequency keywords of overseas researches on smart city during the past five years**

No.	Keywords	Total word frequency	2012	2013	2014	2015	2016
1	Internet of things	39	4	12	7	11	5
2	Cities	30	5	9	8	5	3
3	Big data	28	1	4	6	10	7
4	Networks	20	2	4	3	8	3
5	Sustainability	19	3	1	4	9	2
6	Management	15	2	2	5	3	3
7	Innovation	12	1	3	2	4	2
8	Challenges	12	2	1	3	2	4
9	Wireless sensor networks	12	3	2	1	4	2
10	ICT	12	1	3	4	3	1
11	Governance	12	2	2	2	5	1
12	Urban planning	11	1	1	2	4	3
13	Sensors	10	1	2	1	4	2
14	Systems	10	2	1	2	3	2
15	Smart grid	10	0	3	6	1	0
16	Future internet	10	1	2	4	2	1
17	Cloud computing	10	2	1	2	3	2
18	Privacy	10	0	1	2	5	2
19	Smart mobility	10	1	2	4	2	1
20	Policy	10	1	1	3	3	2

### 3 Research methodology and theory

In domestic and overseas researches on smart cities, not only qualitative and quantitative research methods but also hybrid design were employed. Through the research literatures, it is found that there is more experience research in foreign smart city research. With respect to the choice of qualitative research methods, case studies, especially the cross-case studies, have become the most important

research approach. In addition, some scholars tried to use inductive method to break the shackles of the existing theory on the research field, such as the application of grounded theory to find the problem and development theory (Wang, 2016<sup>[7][8]</sup>). However, few people verified this through large-scale empirical investigation. On this basis, big data analysis to the growth mechanism of smart city has brought a new field of vision to explore for quantitative research in this field (Jiang, 2015<sup>[9]</sup>). For example, Wu Yun-jian et al. collected the time series data of technical innovation, institutional innovation, knowledge innovation and intelligent urban growth in Shenzhen from 1997 to 2013, and established the VAR model. Using the generalized impulse response function, they analyzed the model by variance decomposition so as to obtain smart city growth mechanism (Jiang, 2015<sup>[10]</sup>). In comparison with domestic researches on smart city, overseas studies on it mainly centers on the participatory process and have achieved abundant results, presenting such features and tendencies as diversified theories, multiple methods and practical guidance. With extensive empirical studies on smart city, some of the factors have been identified.

#### **4 Research findings**

By sorting out the literatures regarding the study on smart city, the authors found that there are some problems in the current researches on smart city:

##### **4.1 Absence of research on the concept of smart city and thus ambiguous cognition and orientation of smart city**

As indicated by Jane Calvert, the study of basic concepts will help clarify the meaning given at different historical stages and discover the mystery of the relevant “space” distribution and resource allocation (Calvert, 2007<sup>[11]</sup>). Otherwise, many problems would be overshadowed. Smart city is a foreign concept, the use of which is in accordance with the “hard core- protection zone” model. Construction of smart city requires the understanding of its kernel concept. The three major national ministries and commissions have different definitions of smart city. It can be seen that a consensus on the smart city concept has not yet formed (Zhang, 2011<sup>[12]</sup>). The concept and definitions are not only the starting point of the research, but also the basis of research and development. The lack of common understanding of the concept will lead to the division of research discourse, which is not conducive to the in-depth research and research degree promotion.

##### **4.2 Lack of research on evolution path of smart city**

So far, no one has given the road map of smart city technology development except Komninos et al. Smart city construction is divided into three stages by them: short, medium and long-term stages to analyze the development goals of cloud computing, radio frequency identification technology, sensors and other information and communication technology at each stage (Komninos, 2002<sup>[13]</sup>). However, Komninos et al. only proposed the development of information technology roadmap rather than the evolution path of smart city. The following are still to be explored: How many development stages an ordinary city needs to go through to become a smart city? What are the objectives, key factors and major obstacles for each stage? How are the evolutionary paths of developed and developing countries different from each other?

##### **4.3 A shortage of unified evaluation index system for smart city**

Currently, there are two main ideas for researches on the evaluation index system of smart city. One is to draw the index system of the Vienna Institute of Science and Technology to divide smart city into several types of industries, such as smart transportation, smart health care, smart industry, smart residents and smart Government, and then divide the sub-indicators of a single type of industry to form the final indicator system through the multi-level indicators. The other, as another way out, is to form the evaluation index system of smart city via interpretation and creation by migrating the theories of other disciplines or transplanting other research methods. Generally speaking, there are many studies on the evaluation index system of smart city, but the evaluation method is relatively simple and lack of national unified evaluation index system.

##### **4.4 More qualitative researches but less quantitative researches on smart city**

Taking San Francisco as an example, Scholar Borshook investigated the impact of smart city construction on poor residents in urban core areas. Shapiro studied the relationship between human

capital and employment growth. Caragliu et al. explored the relationship among urban wealth and creative stratum, urban environmental quality and people's awareness of urban environment, the level of education, the accessibility of information and communication technology and its applications. Other quantitative studies have focused on the evaluation of smart cities. So, how will the smart city's various elements affect the competitiveness of a city? How those elements will interact and collaborate with each other? How should the smart city construction achievements and the negative impacts be measured? These aspects require for empirical research.

## 5 Conclusions

It is found from the quantitative analysis to domestic and overseas research literatures on smart cities that researches on smart cities both at home and abroad have shown the trend of common attention of multidiscipline, but the number of foreign literatures far exceeds that of domestic. The domestic research has been carried out within the major discipline fields like management while the foreign research is within major discipline fields like computer science. With regard to the fields of research, domestic research fields can be roughly divided into six areas: Internet of things, spatial planning, city cluster, and information planning, big data and over leverage. The overseas research fields are divided into eight aspects: GIS application, planning and design, smart city system, human capital, open data and so on; by comparing the number and frequency of keywords at home and abroad, the authors suggest that there is a large number of domestic keywords with low frequency and lack of stability in the distribution. Although the domestic smart city research subjects are distributed widely, in recent years, no research hotspot receiving neither high attention nor obvious research trend have been formed. Compared with the domestic researches, the distribution of keywords in foreign countries is centralized and stable, which forms a relatively fixed research content and shows rich theory, diverse methods and practice-oriented features. Compared with the domestic smart city research, foreign smart city research has more diversified methods.

Based on the comparison of domestic and overseas researches, it is clear that domestic researches on smart city have accumulated a considerable amount of research achievements in the past few years and made great contribution to the promotion of China's smart city development. Viewing from the research status over the past five years, however, domestic researches on smart city has begun to stagnate. The study of smart city abroad started earlier and got a series of results. The research has entered the mature stage while the domestic research of smart city started late. Most of the research theories come from foreign translation and introduction and the research is still at the embryonic stage, which contrasts strikingly with the prosperous urbanization construction in our country. On this basis, a question is raised: should the domestic smart city research follow the track of foreign research to catch up or take a road in line without own development needs combined with the actual situation and leveraging advanced technology to achieve a corner overtaking? Based on literature analysis, the authors put forward the following suggestions on the situation and problems of China.

### 5.1 Broaden academic cooperation network and improve research quality

It is necessary to strengthen the cooperation among scholars, institutions, regions and disciplines and involve more social institutions in the study of smart cities for future study. There are many papers on the research of domestic smart cities, which mainly come from the universities in the developed areas such as Beijing, Shanghai and Guangzhou. However, only 40% of these papers have been completed by independent authors and few papers have been finished through collaboration. Besides, the cooperation is mostly within the same institution, indicating the insufficient cooperation between scholars. Second, although the smart city research papers show wide distribution of disciplines, few papers have been finished though interdisciplinary cooperation. Smart city is a topic which involves a wide range of theories and rich connotation. It requires the scholars to combine the different disciplines and comprehensively interpret it from the multi-angle of view to achieve a full understanding. There are many domestic disciplines focus on this field, but a majority of analyses and interpretations have been made from the perspective of individual discipline. In this regard, in future research, scholars need to improve cooperation and complete more papers through cooperation, especially the cooperation between different institutions. In addition, in order to obtain more high-quality achievements and better

promote the development of China's smart city, scholars should break the barriers between the various disciplines, increase the references and cooperation regarding theoretical and research methods and enrich the research in this area so as to achieve high-quality research results.

### **5.2 Grasp the frontier international research and focus on research issues**

It is found from the statistics to the keywords of domestic researches on smart city during the past five years that there are many keywords, but the word frequency is very low and the distribution is very unstable. This shows that in recent years, there are numerous literatures on the study of smart cities in China, but the research hotspots are not obvious. It is worth noting that, in the past five years, 809 keywords in total were obtained from 385 papers, of which only 25 with frequency equal or greater than 2 times. It is obvious that many studies are one-time research and the scholars did not carry out in-depth research on the topics or paid sustained attention. This shows that domestic scholars do not grasp the trend of smart city and the research is lack of innovation. Therefore, the smart city research has hit a brick wall. To this end, domestic scholars need to focus on foreign research hot spots and research trends and learn from or introduce foreign research-related hot spots, theories and methods based on the actual situation in China and the urgent problems, in order to keep research synchronization, enrich and develop the domestic smart cities research themes, research theories and research methods, and promote the internationalization of domestic research results.

### **5.3 Advocate multidisciplinary research perspectives and enrich research methods**

A majority of domestic researches on smart cities are focused on some fundamental problems and the analysis to many problems is only at an introductory level. Such research is difficult to make a comprehensive interpretation of the problems faced by the smart city, especially for some practical problems. The existing research can only carry out descriptive analysis, but not achieve accurate judgments on and analysis to the causes and mechanisms behind to propose feasible and effective solutions according to the actual situation. This also makes the domestic research in the past years has focused on the debate of smart city's evaluation system, the path of development and other issues, while it only has shallow knowledge about smart city's growth mechanism and influencing factors. In recent years, despite the emergence of a number of case studies and quantitative research literatures, but high-quality research results are still too few. To this end, the domestic academia should, based on different problems, apply multiple approaches to explore from multi-disciplinary perspectives to better understand the nature of the problems. Future research should combine qualitative and quantitative analysis and explore issues that are significant to specific practice.

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## The Challenge and Strategy of Chinese Government in Public Service Delivery—A Case Study on Government Affairs Microblog \*

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**Abstract** In an era that informatization develops rapidly, Government Affairs Microblog has been an important platform for Chinese government to provide public service. Government Affairs Microblog not only changed the traditional pattern of public service, but also has an active effect on social management innovation, government image building, communication between officials and the public, public requests admitting and so on. However, Government Affairs Microblog also has many development problems, namely, lack of information timeliness and interaction with public, weak delivering skills, and less attention to public livelihood and interests. Therefore, Chinese government should bring forth new ideas on public service patterns, and takes full advantage on Government Affairs Microblog that can be an effective power of Chinese government for better public service.

**Key words** Government Affairs Microblog, Chinese government, Public service, Strategy

### 1 Introduction

With the development of Microblog, more and more authorities and government organizations have opened Government Affairs Microblog, which plays a positive role in providing public service. It is an effective platform for social management innovation, government information publication, news public opinion guide, listening to people's voice and setting up the image of the government<sup>[1]</sup>.

In 2011, Government Affairs Microblog developed so rapidly that the year is called "The Year of Government Affairs Microblog". In the next year, Government Affairs Microblog became a necessary new platform for representatives and committee members to talk about government and political affairs during the two sessions (National People's Congress and the Chinese Political Consultative Conference, also known as NPC&CPPCC). It is also an important channel for the public to exercise the right of information, the right of expression, the right of participation and the right of supervision. Since then, Government Affairs Microblog has been more popular and widely praised by the public. But Government Affairs Microblog also has many problems which can be destructive and bring harm and potential risks to Chinese government. For example, Government Affairs Microblog lack of publication work, information timeliness and delivering skills, attention to public's livelihood and interaction with public. The government should take measures to solve these problems, and make the Government Affairs Microblog a real effective pattern for public service.

### 2 The connotation and classification of Government Affairs Microblog

#### 2.1 The connotation Government Affairs Microblog

Government Affairs Microblog emerged in recent years as we entered the internet age. Now, there isn't a definite connotation about it. According to the academia, Government Affairs Microblogs are the microblog accounts that the government departments and officers register with their true name and true personal information. It is mainly used to convey the voice of the Party and government, listen to public's advice and social responses, publish the data and events related to governmental work as well as solve the practical problems related to governmental administration. Government Affairs Microblog is a special platform for government to provide public service. It supervises the government's daily work in time and improves the quality of governmental public service.

In terms of the research status, domestic scholars have down sufficient research on the Government Affairs Microblog, with mainly articles. However, the foreign scholars have few studies on that.

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## **2.2 The classification of Government Affairs Microblog**

There are several different classifications about Government Affairs Microblog based on various classification standards. In terms of the Microblog users, Government Affairs Microblog can be classified into government department's Microblog and officer's personal Microblog. Both the two kinds play an important role in social public service. If Government Affairs Microblog can provide high-quality public service, the government has to exploit the advantages of the two to the full.

In terms of the content and application, Government Affairs Microblog can be divided into four types, i.e., publication type, marketing-based type, policy-talking type and synthesizing type. Publication type of Government Affairs Microblog is what is used in the process of providing public service to release official information and work schedule, such as "Little Diplomatic Helper". Marketing-based type represents the way that some government departments in the special region invite investment and develop tourism by Microblog, such as "Friendly Shandong" in Shandong province. Policy-talking type aims to solve public problems through the linkage of official Microblog, talk about the policies concerning public service and put the policy into practice. The typical example is the "Policy-talking Yin Chuan" in Ningxia Hui Autonomous Region. Synthesizing type has the three types' peculiarity mentioned above, and aims to solve the practical issues, for example, most of the Microblogs of the Public Security Bureaus. In real practice, the government should combine the four types of Government Affairs Microblogs together so as to deliver better public services.

## **3 The advantages and influences of the Government Affairs Microblog on government providing public service**

### **3.1 The advantages of the Government Affairs Microblog**

As times changes and information technology improves, the public service pattern is developing towards timely, effective, popular, and convenient one. That is why the Government Affairs Microblog builds a new platform to provide public service. Government Affairs Microblog has the following advantages in terms of providing public service:

Firstly, Government Affairs Microblog enjoys a lower threshold since everyone can register microblog account. Microblog is available to anyone who can use the computer or mobile phone APP. They can talk and scan the information anytime anywhere. The government departments have the ability to operate the Government Affairs Microblog.

Secondly, Government Affairs Microblog can publish information at the first time. The microblog users can transmit the information in a fast way. That is to say, the Government Affairs Microblog can help to solve the emergency and release the information in time.

Thirdly, Government Affairs Microblog is a good platform for public and government to communicate. Microblog users can comment directly to the content, which keeps the connection between public and government departments. Officers can admit public's opinions, satisfy the public's need for information, find common languages with the public, and solve problems for public and improve the effectiveness to provide better public services.

Fourthly, Government Affairs Microblog is an open platform. It can supervise the government officers to issue the real information and release the truth<sup>[2]</sup>.

### **3.2 The influence of the Government Affairs Microblog**

#### **3.2.1 Building the bridge for the interaction of government and the public**

Government Affairs Microblog offers an opportunity for people from all walks of life to take part in government policy discussion. It is the real gathering locations for public's polybasic voices, even the most silent people have the chance to express themselves, to discuss the national policy with social elites or opinion leaders. Government Affairs Microblog can contribute to eliminate public's extremalization and the prejudice to government. Government conveys information, at the same time, responses to public's comments and opinions.

#### **3.2.2 Building up a platform for policy perfection**

Government Affairs Microblog would improve the public service process, and promote the democratization of public policy. Government departments know what the public focus on and what they care about. It is beneficial for government to make scientific democratic decisions. Besides,

Government Affairs Microblog is a platform for policy perfection. Public can follow up and feedback the process of policy implementation. Thus they could offer some suggestion, and find out the shortcomings of the policy. All in all, the openness of Government Affairs Microblog has broken the traditional public service pattern, and has a positive influence on the policy making.

### **3.2.3 Opening the channel for public supervision**

Government Affairs Microblog opens a new channel for government departments to admit the supervision from the public. Meanwhile, it provides some useful clues to anti-corruption cases. To sum up, the Government Affairs Microblog supervises the officers to fulfill their responsibilities, improve the working efficiency, set up a good image and u the public service patterns<sup>[3]</sup>.

## **4 The problems of Government Affairs Microblog development**

### **4.1 Lack of publication work**

The precondition of Government Affairs Microblog comes into a play is that doing a good publication work. Nowadays, Chinese Government Affairs Microblog lacks a propagandizing mechanism which leads to two shortcomings:

Firstly, the name of Government Affairs Microblog is in a mass. The government departments and officers pick up Microblog names as what they like. Some Government Affairs Microblogs were named using the organization's full title, some the short form, and some random names that have no relationship with the originations. The officers' names are more ridiculous. The mass of Government Affairs Microblog name is not easy to be recognized. The authenticity and authority will be weak. As a result, microblog users cannot search and find the Government Affairs Microblog when they tries to look for help. This definitely causes a bad influence on publication.

Secondly, the Government Affairs Microblog has not enough fans, posts and sharing times. Lack of enough sharing means the information cannot be released to a wide distant. This may lead to that the general users' less interested in Government Affairs Microblog. So, it is necessary for the official accounts to attract more fans and fasten the government information spreading.<sup>[4]</sup>

### **4.2 Lack of information timeliness and delivering skills**

Since the government Affairs Microblog emerged in recent years, it has not formed a mature operating mechanism. Government departments have not equipped with sophisticated publishing information skills. So sometimes, the information publication was either timely or regularly. For example, some Government Affairs Microblogs release many posts just within several hours, but not a single one in several weeks. Some Government Affairs Microblogs even have become "Empty Microblog".

Some Government departments cannot understand the characteristics and advantages of Government Affairs Microblog, and that leads to the contents unattractive and unappealing. Many Government Affairs Microblogs are disgusted with the public. In addition, some Government Affairs Microblog often performs badly in terms of emergency response. There is improper information or even no solution in time. Thus Government Affairs Microblog has no significant function in delivering information.

### **4.3 Lack of attention to public's livelihood**

Government Affairs Microblog should be an effective platform for government departments to solve public' problems. Responding to the public's interest demand is the priority in their work lists. Although Government Affairs Microblog could not take place of the real government department, the function of building the channel to public cannot be ignored.

However, nowadays most of the Government Affairs Microblog just mainly publish information related to the government. Few of them have the responsibility to admit the public's opinions and listen to their complaints. Some Government Affairs Microblogs are welcomed and praised by public, but the reason behind is that they deliver interesting and daily news around us. The general public are not satisfied because the government has less capacity to solve the real problems of their immediate concern, such as the rising housing prices, regional education gaps, medical security and so on<sup>[5]</sup>.

### **4.4 Lack of interaction with public**

Although some Government Affairs Microblogs have many followers, some even more than several millions, Government Affairs Microblog has difficulties in effectively appealing public. Some



Government Affairs Microblog have received many reviews, but most of them are blames. As for some social issues, Government Affairs Microblog often suffers doubts and complaints from the public. It reduces the work enthusiasm of the operational staff. It is easier for some consulting reviews to be accepted, but for complaint problems, it is a real trouble for Government Affairs Microblog to deal with. Besides, when there is an emergency, the interaction between government departments or organizations with the public are not in time. It attributes to one more reason why the Government Affairs Microblog has low efficiency and is less attractive to public. How to interact with public and response the negative reviews and how to build the interaction mechanism between the departments are urgent problems for Chinese government departments to solve<sup>[6]</sup>.

## **5 The strategies of Government Affairs Microblog development**

### **5.1 Promote the popularity of the Government Affairs Microblog**

The popularity of Government Affairs Microblog is the precondition for government to provide good public service. On the one hand, the government departments should norm the name of Government Affairs Microblog. The officer's personal microblog also should use their real names. The benefits of the name norm can be concluded as follows: the Microblog's reliability improves; the authority and authenticity can be guaranteed. The scope of business, the phone number, the E-mail and the address of the department should be attached on the introduction column of Microblog.

In addition, strengthening the publication of Government Affairs Microblog is also necessary. Government departments should try different promotion channels, such as web search, web portals, E-mail, and opinion leader concerning to make their accounts more available.

### **5.2 Improve the media literacy of the operational staff**

As the representative of government departments, the information of Government Affairs Microblog development should keep its authenticity, timeliness and perdurability. At the same time, much more attention needs to be paid to the operator's media literacy. The information wouldn't be too random. The government departments should make standards in the information contents and be care for the verbal form when posting a microblog. Even the officer's personal microblog, the improper opinion on public affairs makes a bad influence on image of the government department, or the Party. With the development of information communication technology and the variety of communication channels, improving the media literacy of microblog operators is very important. What they need to do is to strengthen the ability to communicate with the mass media, and the ability to choose, understand, evaluate, and analyze information. In the daily practice, the Government Affairs Microblog operators should have a good command of the characteristic and development strategy of media information. Also, they should have the ability to discard the cross and keep f information finer, and be familiar with state policy, social conditions and public opinion<sup>[7]</sup>.

### **5.3 Strengthen the information issue**

Chinese government departments should do a deep research on the information focus, review of the microblog users, and post the microblog in a proper time, in an active voice, and with a suitable frequency. As there is a great deal of the microblog information, it may occur that Government Affairs Microblog are submerged in the sea of information. How to make the Government Affairs Microblog information attractive and amplify the sharing time is one of the concerns the government should care about. Meanwhile, government should strengthen the Microblog's information publication, communication, and pre-warning function when dealing with the public emergency. Chinese government can learn from American federal government who release an emergency message through Twitter, and report the bad weather, such as snowstorm and tornado, and anti-terrorist information on the social network. Chinese government should also regard the Government Affairs Microblog as one important part of pre-warning system.

### **5.4 Attach importance to public' livelihood and interest and the interaction with public**

Government Affairs Microblog and the officer's personal microblog should pay highly attention to public's livelihood and people's interests. Aiming to provide satisfied public service, the government department should "communicate with public online, and solve the problems offline"<sup>[8]</sup>. They should go on deepening the reformation of Government Affairs Microblog administration system, and

innovating the methods of communicating with public. When post a microblog, the officers need to abandon Mandarin Language, hollow words and stereotypes. Also, they need to express themselves with humanization and personalization. Government Affairs Microblog must have the courage to face the public's criticism, and respect the public's freedom of speech. The Government Affairs Microblog should try their best to not push hard arguments with public. In facing the public's doubt, the Government Affairs Microblog should give reasonable explanation, receive their opinions and supervision, and give a channel to the public to express their ideas. Except for the illegal information, not deleting the public's review is also important<sup>[9]</sup>.

### 5.5 Expand the function application and improve the public service ability

Microblog is a new way for government to provide public service. Government departments should promote the connectivity between the government departments and Microblogs, and accelerate the information sharing between government information system and Microblogs. Microblog business operators should improve the understanding of the government affairs. They should exploit more functional application based on the internet development and public needs, thus improve the ability to provide public service. All these mentioned can help to provide more convenient public service, as well as promote the development of microblog at the same time.

## 6 Conclusions

Government Affairs Microblog is a new mode for public service. It is an important platform for information transmission and sharing, and it has become an important channel for the public to exercise the rights of participation and expression. Chinese governments should solve the microblog development problems and make full use of its advantages to change the public service ideology, and design innovative public service patterns. Through innovation and improvement, Government Affairs Microblog can be an effective tool for Chinese government to provide better public service<sup>[10]</sup>.

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## A Study on the Government's Transboundary Grid Supply of Basic Public Services in China

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**Abstract** With the process of Chinese government's reform, the supply of basic public services has always been the focus of scholars and society. However, at present, the supply of basic public service in China has not formed enough consensus and coordination among governments and the various departments of the government, diametrically, always been in the contradiction and conflict. This article hopes that with the use of ideas and concepts of grid management, relying on the four solution methods of "integration, dispersal, coordination, sharing", the relatively dispersive basic public services resources can be integrated into a centralized state so as to solve the problems of basic public service of the government in the cross-border supply and to further achieve effective supply of basic public service.

**Key words** Basic public services, Government's transboundary, Grid, Supply

### 1 Introduction

With the continuous development of economy and the constant improvement of social system, the level of basic public service in our country is also rising. However, there are some problems in the basic public service, such as imbalance. At the same time, economic globalization, cultural diversity and network informatization have prompted various public sectors to try various cross-border cooperation. Among them, the problems existing in the supply of basic public services in the form of cross-border government have become important factors restricting social development. How to innovate the cross-border supply of basic public services and realize the equalization of basic public services has become an important research project.

Cai Xiu-yun (2011) believes that the five standards of equalization of basic public services mainly include the same equality, narrowing the gap, expanding the scope, balanced distribution, and sharing good quality resources. Ceng Bao-gen (2013) argues that the supply of basic public services affects and restricts the quality, efficiency and cost of the results of basic public service provision. To improve and perfect the basic public service supply mechanism is a solid backing for the party and the country to steadily, continuously and rapidly promote the equalization of basic public services<sup>[1]</sup>. Lv Xin-fa (2011) deems that the government is required to formulate the planning of supply of basic public services in the unified national level. It's also required to develop the standard of equalization of basic public service which is scientific, rational and dynamic and in the form of law to promote and standardize the basic public service. Sun Ying-chun (2014) holds that the government's transboundary is an extensive concept, where the government through the modes of "joint", "coordination", "cooperation" and "cooperation", to achieve the integration of national policy and government management functions and activities, all of which belong to the content of "government's cross-border"<sup>[2]</sup>. Bai Xiu-yin and Zhu Xiao-ning (2016) points out that the grid can prompt a full sharing of resource and a highly collaborative activity. Relying on the idea of grid, public service resource allocation and optimization of operation is the frontier problem to promote basic public supply<sup>[3]</sup>.

At present, there are only a few researches on grid management of basic public services. Although people now mostly understand the principle and mechanism of grid theory, and also gradually find that grid management plays a great role in the government's cross-border supply of basic public service, this theory is still a new research topic. How to function and operate the grid theory in the process of the government's cross-border of the basic public service are still lack of scientific disclosure. This paper will make a more profound study of this issue.

## 2 The problem analysis of government's transboundary supply of basic public services

### 2.1 Status description

The Eighteenth National Congress of the CPC has put forward new challenges and requirements of the reform of our country's public service system when setting development goals of service-oriented government. It also further promotes the Chinese government to attach great importance to increase investment in public services, improve the expenditure structure of public service and increase the level of equalization of basic public services. According to the data, the Chinese government investment in basic public services is roughly divided into three stages: Slow growth phase from 1978 to 1990, the phase of gradual growth from 1992 to 2000, and the period of rapid growth after 2003. The government's devotion and attention to public service has directly promoted the level of basic public service. As of 2016, Chinese social security system has been gradually established, and the achievements in employment and reemployment are remarkable; The level of public health service has been remarkably improved, and the public health and public health care system has been basically established; The basically overall popularization of public basic education, the accelerated development of vocational education and the leaping improvement of higher education, all of which have basically formed a government's cross-border supply system of basic public service featured Chinese characteristics<sup>[4]</sup>.

However, we should also be soberly aware that: although all kinds of investments of the government have been on the rise, it still cannot meet the growing demand for basic public services. The capacity and level of the government's transboundary supply of basic public service are still lagging behind. The supply of basic public services among different governments is serious imbalance. Thus, residents are not satisfied with the basic public service. According to a survey by Zero Research Consultancy, a survey of China's public service evaluation index shows: 24.8% of the residents believe that the level of our government's public service is relatively high, and 41.5% think that in general, 25.9% of the public think that the public is relatively low or very low<sup>[5]</sup>.

### 2.2 Major issues

#### (1) information unconformity leads to the waste of resources

In the course of the supply of basic public services, because the information scope and content of different levels of government are different and the distribution of information is also uneven, there is a unilateral flow in governments at all levels; The lack of interaction between government bodies leads to the inability of governments at all levels to obtain more comprehensive and accurate information about the supply of basic public services. Thereby, it creates the waste of resources. In the reform of the basic public service supply, a common practice is that the central government extends the formatted list of public services to all parts of the country<sup>[6]</sup>, and the governments at all levels invest more in the objectives on the list. The problem is that the preferences and specific requirements of the basic public services in different regions and different ethnic groups are different from that of the public demand. Thus, the unified service list and expenditure model are difficult to meet the diverse public needs.

The dispersive information of basic public service supply of government transboundary causes that the all levels of government cannot fully grasp the basic public service resources and can't grasp the practical public demand for basic public services. In conclusion, considering the issue superficially will only lead to some unnecessary investment while ignore the worthwhile investment so as to exacerbate the waste of resources.

#### (2) Unclear allocation of responsibility and rights causes supply gap

Nowadays, there are many difficulties in coordination and cooperation between the basic public services and the government's cross-border supply: positioning confusion in governments at all levels and unclear responsibilities in government departments, making the supply of basic public services in some areas and some contents to produce overlapping functions in various means, which restricts the effective supply of basic public services; Since the power and financial rights of government at all levels are inconsistent, and the power and responsibility relationship between the government is confusing, it is difficult to effectively ask for the accountability and the public expenditure of basic public services is hard to guarantee; There is a "two level" and even "three level" government between the policy formulation and the real implementation. Hence, the coordination of governments at all levels is tough

and the effect of the policy is difficult to guarantee; It is difficult to unify the policy objectives. Governments at all levels can maintain the basic consistency in the overall policy objectives, but almost the grass-roots government to formulate and implement the short-term policy goals. However, the decision-making of grass-roots government is “temporary” and “self-orientation”, resulting in short-term goals which often deviate from the overall policy objectives.

The blurring responsibility and rights of government’s transboundary supply of basic public services causes that the supply is very easy to concentrate on better economic conditions or convenient area, while the regions virtually real needing investment don’t receive government funding and the supply of services, resulting in supply gap and the reduced equalization of basic public service.

(3) The mechanism does not cooperate, resulting in the overall division

Today, the main problem of the supply of basic public services among governments at all levels is “fragmentation and lack of coordination”, and the supply is fragmented. Because of the scarcity of financial resources, it is impossible to meet the resources demand of all governments while it triggers the competition among governments at all levels and even conflicts of interest. The cross-border consciousness has not yet been established among the governments and the macro-system and supply mechanism are also not perfect. Because of the lack of guarantee of system, it is difficult to sustain the concrete cross-border measures in practice and maintain coordination and cooperation; The tendency of seeking power and interest among government departments hinders the development of the government’s transboundary supply.

The discordant mechanism of the government’s transboundary supply of basic public services leads to the integrity function division. Governments all levels in the exercise of their functions despise the “relevance” of themselves. The independent functions and lack of communication bring about the supply vacuum or resource conflicts in supply of basic public services, which deprives the integrity “functional” of supply of basic public services. Nevertheless, the supply of basic public services is an overall goal and process which requires cross-border coordination of all levels of government to complete. In order to achieve substantive progress of the reform of basic public service equalization, the key is to break the management mode of local segmentation<sup>[7]</sup>.

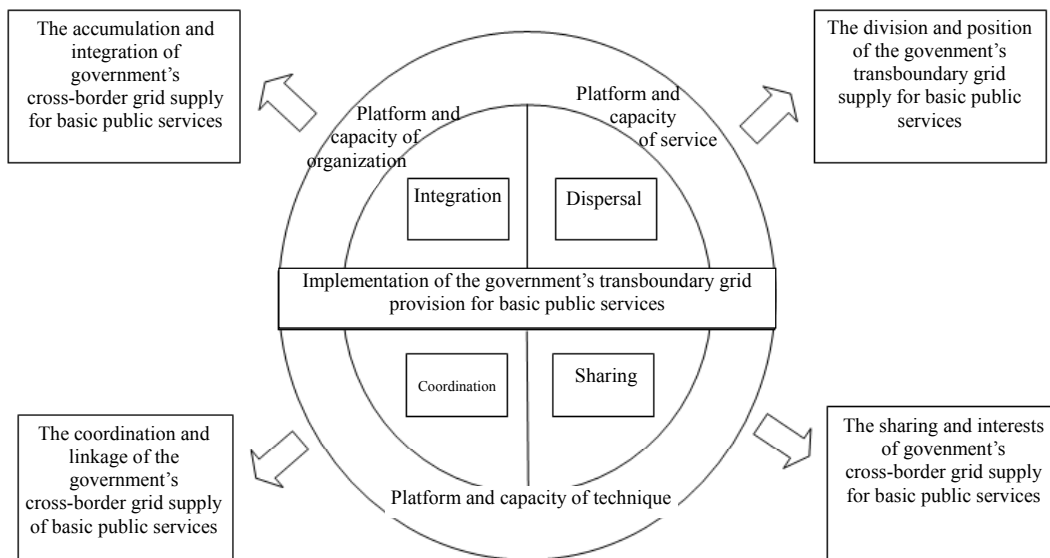
The above analysis shows that the current government’s cross-border supply of basic public services in China showing a state of disorder of loose structure, information asymmetry and weak relevance as well as a lack of mutual cooperation and coordination, low cooperation degree, the waste of resources, all of which restrict the supply of basic public services in China’s development process. Therefore, the initiatives solving the problem of government’s cross-border supply of basic public services are to adjust the disorder state, establish the coordination mechanism between the government and the departments, to establish the effective grid supply mechanism from the overall perspective, and guide the formation of cooperative and close relationship between the cross-border governments so as to promote the construction process of China’s supply of basic public services.

### **3 The solution path of the government’s cross-border grid supply of basic public services**

Currently, the government’s cross-border supply of basic public service faces a series of problems such as the waste of resources caused by information unconformity, supply gap caused by unclear responsibility and rights, and overall segmentation caused by discordant mechanism, all of which are needed the methods conforming to the economic development rule and characteristics of the times to solve. Grid management concept is classified according to certain criteria, and makes multiple dimensions of partition and classification of management object. It sets up the grid coordination mechanism using modern information technology to effectively complete the exchange, integration, arrangement and allocation of information in the government’s cross-border<sup>[8]</sup>. On the basis of the management thought, this study sets up the government’s cross-border supply of basic public services aiming to achieve the sharing of public service resources and information among cross-border governments.

The government’s transboundary supply of basic public service should firstly supply grid configuration, operation and coordination for various resources and service elements. This paper puts

forward the path of government’s cross-border operation and coordination mechanism of grid configuration of basic public service. As shown in Figure 1, it reflects the logic relation between the internal relations of government’s cross-border grid supply of basic public services and various elements, which embodies the integration effect of integration, dispersal, coordination and sharing as the inner core. Moreover, we build diffusion platform through the second circle. At first, we build organizational platform to disperse organization capacity and set up service platform under the leadership of the government to improve service ability. We should be aware that the government should adopt various means to improve the platform for spreading of the grid system, such as the expansion of participation of social organizations for basic public services, and the introduction of market mechanism to hold the activities of public service purchase and the contract. We should undertake what we must undertake and outsource what can be outsourced in order to achieve biggest benefit of the basic public service supply platform.



**Figure 1 The internal links and logical connections of the government’s cross-border grid supply of basic public services**

The process and actions of operation need a logic rule on the basis of the internal and logical relations of government’s cross-border grid supply of basic public services. The main bodies of supply of basic public services including government at all levels and government departments, need to make the right rules and setting of them. Plus, the basic public service objects including the public service resources and grid data, need to add the four parts—integration, dispersal, coordination and sharing—into each contact and operation process of the two objects, to ensure that the rules and constraints on both sides, as shown in Figure 2. At the same time, the space and time elements of government’s cross-border grid system of basic public services need to be reasonably divided in the macro view, which helps the three elements of government functional departments, administrative regional factors and basic public services find their own full positioning and other elements of the relationship in time and space.

### 3.1 The “integration” of the government’s cross-border grid supply of basic public service

“Integration” takes the path of big data, integrates various elements of basic public services, and accumulate and arrange them through the cloud platform. All of these resources, through statistical scheduling and management of central computers, will become a resources pool meeting the demand of clients. Integration aims at solving the problems of the accumulation and arrangement of resources and elements of government cross-border supply for basic public services.

The government’s cross-border grid supply mechanism of basic public services constitutes of the principle of system and integration. First of all, during the overall process of the cross-border supply of basic public services, a systematic theory is needed to guide the summary of all resources. Depending on

the systematic theory, various elements and resources of basic public services are integrated to receive a reasonable allocation. According to the principle of the system, the government's transboundary of basic public services are divided into a list of subsystems, and through the exchange of information and reasonable input to regulate the operation, so as to support the healthy operation of the large system. Furthermore, in the process of the integration of the government cross-border supply of basic public service, each integration process and link needs to be ruled by the principle of integration. What's more, integration means accumulation and arrangement, which also requires the regulation on the level as a whole.

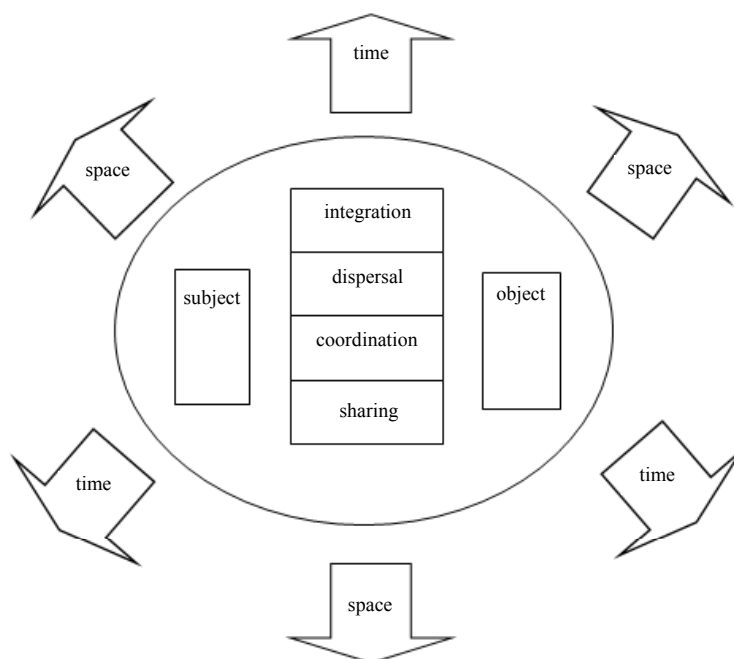


Figure 2 Logic of the government's cross-border grid supply of basic public services

### 3.2 The “dispersal” of government's cross-border grid supply of basic public service

After the integration, on the basis of large pool of resources, “dispersal” divides the space of the factors of the government's cross-border supply of basic public services into various dimensions, and positions it on these dimensions. Dispersal requires that basic public service resources should be put in an environment of integrated computing and resource, and then be divided through the multidimensional positioning of geography, space and time. It is convenient for governments at all levels to obtain resources to use resources on demand, and use resources at any time. Dispersal solves the problem of division and positioning of resources and elements of the government's cross-border supply of basic public services.

The government's cross-border grid supply of basic public services in the process of dispersing needs to make precise division of a variety of cell division of basic public services. Hence, the principle of division and accuracy should be followed. First of all, according to the regulations of dispersing of the government's cross-border grid supply of basic public services, we must firstly clear that we should take the regulatory division of basic public services so that we can standardize units and put them into grids. Secondly, in the process of division, each unit should be a normative individual, so that the grid technology can be used to unify data to realize the docking and operation of resources.

### 3.3 The “coordination” of the government grid supply of basic public services

“Coordination” will solve the collaborative problem of subjects of different levels and regional government in the first two process. Coordination is essentially a corrective mechanism lying in the control of orderly development of the first two process. It is a comprehensive combination of management idea and advanced technology. Through this way, various elements of the government

cross-border supply of basic public service can achieve collaborative linkage depending on the cooperative mechanism, and solve the contradictions and conflicts in resource sharing.

In the process of coordinating the government's cross-border grid supply of basic public services, we must firstly follow the principle of assistance and consistency to mitigate and coordinate the contradictions and conflicts between the groups<sup>[9]</sup>. At first, through the principle of collaboration, the coordination of contradiction, in fact, needs each part to actively play the role of cooperation. At the same time, grid's characteristics multi-dimension also need to achieve a unified standard with the fully assist for each dimension. In addition, from the point of view of coordination, to unify the goal of coordination is the ultimate target of coordination. In any coordination process, we should follow the principle of consistency and move towards a unified goal.

### 3.4 The “sharing” of government's transboundary grid supply of basic public services

Finally, after the realization of the coordinated collaboration among cross-level, cross-domain and cross-region as well as the information acquisition of cross-platform, multi-type and multi-subject, sharing mechanism of the government's cross-border grid supply of basic public services can bring real-time and dynamic exchange of problems with various factors. It prompts all the basic elements of public service elements in the computer environment to achieve the mature integration, division and linkage. The result is that all kinds of resources and elements of basic public services can be fully shared.

The sharing of the fruits of government's cross-border grid supply of basic public service embodies the equality of citizens in power in the public services, and everyone should enjoy fair treatment in the public services. At the same time, the sharing of citizens in the public service achievements needs to be safeguarded. On the one hand, the justice needs a scientific judgment. On the other hand, the sharing needs the guarantee of material.

## 4 Conclusions

Taking to a series of problems into considering including the existing information unconformity in government's cross-border supply of basic public services resulting in a waste of resources, the supply gap caused by unclear responsibility and rights and the overall segmentation caused by uncoordinated mechanism, this paper puts forward four paths of the grid supply for basic public service including integration, dispersal, coordination and sharing, and points out that the important factors of government cross-border supply of basic public services having restricted the equalization of basic public services. Thus, in the process of advancing the supply of basic public services, the supply methods of basic public service must be continuously innovated so as to establish a new government's cross-border supply method—the government's cross-border grid supply of basic public services. Through the grid supply, resources and elements of basic public service scattering in different regions, areas, social space and development level can be integrated as an overall system which is optimized and orderly, to meet the demand of residents for basic public services and improve the sense of gain of the public in basic public services.

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## Study on Optimization of Support Policies for Returning Migrant Workers' Entrepreneurship in China

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**Abstract** The arrival of the public innovation and entrepreneurship age and the adjustment of national policies and strategies set off the upsurge of returning migrant workers' entrepreneurship. The government has introduced a series of policies to encourage migrant workers to return home to start a business, which help to properly solve the problem of surplus labor in rural areas, and promotes the development of rural economy and urban-rural integration. However, due to unsound policy system for returning migrant workers' entrepreneurship, poor policy enforcement adaptability and the lack of an order and standard policy enforcement environment, migrant workers face various difficulties in carrying out entrepreneurial activities in their hometowns. Therefore, this paper takes the optimization of support policies for returning migrant workers' entrepreneurship as the object of study, and explores the problems of these policies, to put forward effective resolutions to the above problems, that is to say, it needs to establish a four-in-one optimization program of "developing sound and perfect government systems and mechanisms, improving the policy system, enhancing migrant workers' professional understanding of policies, and optimizing the policy implementation environment", to optimize and upgrade the support policies for returning migrant workers' entrepreneurship to a more comprehensive, systematic and targeted new level, to accelerate the long term development of returning migrant workers' entrepreneurship

**Key words** Migrant workers, Returning home to start a business, Policy, Optimization study

### 1 Introduction

Migrant workers' entrepreneurship in hometown refers to that migrant workers working in urban areas return to their registered residences and start a business. The support policies for returning migrant workers' entrepreneurship are the relevant documents introduced by the government departments to promote migrant workers to return home to establish their own businesses.

In the history of reform and opening up for more than 30 years, many migrant workers work outside their hometowns to accumulate material and human resources. Some migrant workers experienced a thriving process from accumulating money, solving the problem of food and clothing, saving money to build a house to raising money to run factories, and completed the necessary primitive capital accumulation<sup>[1]</sup>. They began to use the accumulated material and human resources to carry out entrepreneurial activities in their hometowns. In addition, the rural entrepreneurial environment tends to be stable and favorable; the central authorities continue to encourage various industries to transfer to the central and western regions; and migrant workers miss their homeland and eager to return home. All these actors make them become to the primary communicator of modern civilization.

However, as a vulnerable group, migrant workers suffer a lot of difficulties when starting their businesses. On the one hand, migrant workers are constrained by their low overall ability, poor infrastructure and other factors in the entrepreneurial process, so that their plants face severe survival environment. On the other hand, the relevant policies introduced by the government cannot effectively help migrant workers to solve the problems encountered. Therefore, to crack the dilemma, the government should introduce and optimize the support policies and play the control role to continuously drive employment growth.

The study on optimization of support policies for returning migrant workers' entrepreneurship can provide clues to the government and the relevant departments to formulate policies, and provide more help for the development of migrant workers' startups. Therefore, through the use of Maslow's Hierarchy of Needs theory, "thrust-pull" theory and public policy related theories, the paper conducts careful analysis of problems occurred in returning migrant workers' entrepreneurship process, finds out

the reasons for the problems and puts forward suggestions to optimize the support policies, to promote the development of returning migrant workers' entrepreneurship. Only in this way can more migrant workers be inspired to return home to start a business and promote the development of countryside.

## **2 Analysis of the problems in support policies for returning migrant workers' entrepreneurship**

In response to the tide of migrant workers returning hometown to run a business, the government has introduced a series of support policies that create excellent opportunities for migrant workers. In 2004, the No. 1 Central Document paid great attention to "three rural" issues and expressed deep understanding of this issue. In 2008, the State Council introduced the support policies to encourage the returning migrant workers to start businesses. In 2009, the central government proposed to practically implement the support policies. In 2010, the No. 1 Central Document clearly pointed out to take supportive measures to facilitate the migrant workers to carry out entrepreneurial activities in rural areas. In 2012, the No. 1 Central Document emphasized providing financial support for eligible rural youth entrepreneurship and projects. In 2015 and 2016, the government introduced the "Opinions on Supporting Entrepreneurship of Migrant Workers and Other Groups in Rural Regions", and "Views on Supporting the Entrepreneurial Innovations of People Returning and Going to Countryside to Promote the Integrative Development of Rural Primary, Secondary and Tertiary Industries". In 2017, the No. 1 Central Document put forward to improve the employment and entrepreneurship system for agricultural labor force to promote the development of new industries in rural areas<sup>[2]</sup>. However, the support policies for returning migrant workers' entrepreneurship did not achieve the desired effect. The reasons include the inherent defects of these policies, poor policy implementation, and unfavorable policy environment.

### **2.1 Unsound policy system**

Many of the policies have not worked as intended, which is closely related to the inherent defects of these policies. Therefore, identifying and summarizing the defects of existing policies can help to formulate more effective entrepreneurship policies. From the perspective of policies, there are three main problems. First of all, the support policies for returning migrant workers' entrepreneurship do not form a thorough and complete system<sup>[3]</sup>. The entrepreneurial activities of returning migrant workers are very complex problems. However, after the introduction of some support policies, the relevant departments have not established the implementation details, while the rest of the relevant departments have not set up the corresponding supporting policies. Furthermore, some support policies lack of reasonableness in some aspects. Policy formulation must follow the principles of feasibility. Loan-related policies, for example, regulates that migrant workers can borrow RMB40,000 from banks to start businesses in their hometowns, with the term of not more than two years. If they are unable to pay the due debts, the term can be extended accordingly. The loan limit regulated by the provision cannot meet the entrepreneurship needs; the loan period is short, which bring high repayment pressure for migrant workers. Finally, the relevant policies lack of stability and comprehensiveness. Any policy is formulated under certain conditions for a certain problem. The support policies for returning migrant workers' entrepreneurship have many virtues. To make these policies work well, there must be a clear positioning and well-defined measures. At the same time, various subjects face different situations, which should be considered to ensure the comprehensiveness of policies.

### **2.2 Poor policy enforcement adaptability**

Effective policy enforcement is the key to generate excellent implementation effects. From the perspective of policy enforcement, there exists three main problems. Firstly, the government's support is not enough. In the actual implementation process of these policies, some government workers discriminate against migrant workers, who show unfriendly attitude when facing migrant workers and does not effectively handle the problems of them. The functions and responsibilities of various government departments are not clear; the interest disputes between them appear continuously; and the departments' sense of responsibility and working enthusiasm are not strong and high. Secondly, the relevant policies do not get effective and enough publicity. According to a survey, migrant workers do not know some preferential policies at all. The information they know are just learned from the

television or newspaper, and rarely from the government departments' propaganda and communication. Finally, the relevant grass-roots units do not effectively implement these policies. Part of the grass-roots cadres just take these policies as the advocacy task assigned by the superior, ignoring the actual implementation effects among returning migrant workers. According to statistics, only 15% of migrant workers believe that relevant policies have been effectively implemented<sup>[4]</sup>.

### **2.3 Unregulated policy implementation environment**

Good and orderly operation environment is an important guarantee to promote the successful startups of migrant workers; otherwise, it may hinder the development of their entrepreneurship. From the implementation environment, there are three problems. To begin with, the preferential treatment is not equal for different projects. In support of migrant workers returning home to start businesses, relevant institutions despise the poor and small startups and curry favor with the financially strong and big ones, raise the access threshold of pioneer parks without authorization, and set the minimum investment scale in the tax relief policies. These unreasonable requirements lead to migrant workers cannot enjoy the preferential policies when starting a business in hometown. Next, infrastructure construction lags behind. Although the government has accelerated the construction of infrastructure, it is difficult to see a large number of basic projects produce an immediate effect since China has a vast territory. Finally, the tax burden is heavy. According to a survey, 74% of migrant workers who establish a business believe that tax burden is heavy. Industry and commerce, environmental protection and other departments set too many charging items and offer greatly different preferential policies for internal and external companies.

## **3 Analysis of the reasons for problems of support policies for returning migrant workers' entrepreneurship**

By analyzing the practical problems encountered by migrant workers in the process of carry out entrepreneurial activities, combining the actual situation of policy development, the paper analyzes and summarizes the reasons for current policy problems as follows.

### **3.1 Incomplete government management system and outdated philosophy**

The government management system and philosophy has limited the effect of policies, and prevent the policies from playing their roles effectively. In the first place, the government management system is not perfect. This is mainly manifested in the following aspects: the government's political system reform is not complete, which results in epidemic government bureaucracy, low personnel quality, common corruption phenomena, insufficient supervision, etc. Then, the management philosophy lags behind. The government workers are bureaucratic, stereotyped and lacking the consciousness of serving the people. Meanwhile, the government lacks the experience of managing the market economy. Facing industrial transitions and changing economic conditions, the government struggles managing the market effectively. Lastly, the government lacks the capacity to cultivate entrepreneurial enterprises. The government mainly plays a role in the basic areas, such as public order, public goods and environment, and is concerned about the value of society, while enterprises are dedicated to creating meaningful goods or services, with the purpose of maximizing the profit. Therefore, from the different natures of them, the government is not good at helping the migrant workers to start a business in their hometown.

### **3.2 Unscientific policy formulation**

Scientific policy is the basis for guiding the practice properly. Unscientific policies have a negative impact on actions. It is mainly reflected in following three aspects. To start with, the policies are not flexible enough. The policies for returning migrant workers are not in line with the principle of assessing the situation. This principle requires the policies should be changed according to the changes in the situation. But in the practice, many policies are not updated timely, and lose the original guiding significance<sup>[5]</sup>. In addition, the policies are not targeted. Many policies just focus on their identity as farmers rather than returning migrant workers, and have no specific guidance value for them. Eventually, the policies lack integrity. Most policies provide guidance on how to set enterprises at the initial stage, while do not offer much support in the subsequent development of these enterprises. The issue of returning migrant workers' entrepreneurship is a complete problem, and can be resolved only

by interconnected and mutually constrained policies.

### **3.3 Insufficient professional understanding of policies by migrant workers**

Migrant workers are unable to get a professional understanding of policies, which limit their ability to understand policies and solve problems, and hinder the entrepreneurial path. The main reasons are as follows: in first place, migrant workers are incapable of understanding support policies, which limits the effects of these policies. At the same time, due to low educational level, migrant workers cannot get a clear insight into the economic and social environment, as well as the starting point and support policies of the government. In the second place, migrant workers lack of financial skills and knowledge that restricts their ability to generate outcomes. Migrant workers do not have enough financial skills and knowledge, which constrains the effects of policies. They have little financial knowledge and only know some simple banking processes. Meanwhile, due to this reason, they cannot identify and grasp opportunities. It makes it difficult for them to create a desire for entrepreneurship and build sufficient innovation and innovation ability. In the last place, the quality and thought of migrant workers influence the effect of policies. Migrant workers usually have little contact with the government. What's more, influenced by some of injustice events, some of them have some misunderstanding to the government. Most of them do not trust the government and have not seen the progress of the government. They do not take the initiative to understand policies. In the way of information acquisition, migrant workers mainly focus on the news from their relatives and friends, and rarely receive information in other ways.

### **3.4 Poor policy implementation environment**

The poor policy implementation environment has limited the effect of policies. There are three main reasons for that. For a start, the policies cannot play an effective role in a social environment where large and typical projects are chased after eagerly by local governments. Due to the lack of investment and consumption capacity in underdeveloped regions, local governments have put more energy on attracting investment, and are not optimistic about the startups established by migrant workers returning hometown. Coupled with poor financing conditions, the entrepreneurial process of migrant workers is affected. What's more, the economic atmosphere restricts the government's role. In the many areas, market information depends on interpersonal communication. This kind of propagation lacks practicality and credibility. Finally, the government has not conducted enough publicity activities. According to a survey, there are three influencers in this aspect: 1) policies do not get a lot of publicity. Most relevant units in charge of propaganda just take it as a temporary task, rather a long-term effort, making migrant workers have little understanding of entrepreneurial policies; 2) the propaganda means lack of diversity. Most of the time, the government publicize the support policies through television or leaflets. These methods are not popular among the groups with low personal quality and can only make a short-lived publicity effect; 3) the publicity activities lack depth. The activities are not combined with specific local situation, which makes it difficult for people to generate interest<sup>[6]</sup>.

## **4 Analysis of the optimization of support policies for returning migrant workers' entrepreneurship**

The returning migrant workers' entrepreneurship is a phenomenon emerged in the continuous development of the society. The implementation of relevant support policies drives more and more migrant workers to return home to establish a business. However, due to various reasons, there are still many problems faced by returning migrant workers in the process of carrying out entrepreneurial activities. This has prevented migrant workers from returning to their hometowns for entrepreneurship. Therefore, it is necessary to optimize and combine different support policies, to create favorable entrepreneurial conditions for returning migrant workers.

### **4.1 Strengthening and improving government systems and mechanisms**

To improve and perfect the government systems and mechanisms, four imperatives should be taken by the government. To begin with, strengthening the executive organization construction efforts of the government. It is necessary to establish relevant supportive institutions for returning migrant workers' entrepreneurship, and build a system of responsibility and accountability to define their corresponding obligations and responsibilities. Meanwhile, the passive and responsive work mode in

the past should be transformed into a proactive door-to-door service mode, to strengthen research, go to the grass-roots and improve the style of work. Then, perfecting the performance appraisal and administrative supervision system<sup>[7]</sup>. That is to say, on one hand, the government should improve the corresponding performance appraisal system, strengthen the supervision of policy implementation, and give commendation and reward to the units that are outstanding in their work; on the other hand, the government should improve the system of administrative supervision, open the channels for the entrepreneurs to report complaints, set up and publicize tip-off hotlines and email addresses, and accept the anonymous complaints of entrepreneurs. What's more, improving the function of the management organizations. The government needs to establish innovation service windows, release examination and approval guidance, and upload all kinds of information and regulations, to strengthen the information services for returning entrepreneurs, and provide one-stop high-quality help for returning migrant entrepreneurs. At the same time, the government should intensify education and publicity efforts, change the thought of working staff, avoid the behaviors of neglecting or even discriminating against migrant workers, and put an end to the unfriendly and ineffectively work style in past. At last, increasing the technological content and added value of cities, reduce overdependence on labor force, and enable migrant workers to stay at home with a peaceful mind. Meanwhile, the cities should be properly laid out, and medium and small cities deserve proper development, so as to avoid excessive labor flow, and solve the concerns of migrant workers by accelerating the reform of the household registration system.

#### **4.2 Strengthening and improving policy system**

The support policies for returning migrant workers to carry out entrepreneurial activities mainly include policies in financial and tax, land, market, public services, industries and other aspects. The government should focus on strengthening and improving the major policies. First of all, improving support fiscal and tax policies. The government should try to improve the loan guarantee fund system, promote the construction of the entrepreneurship incubators for migrant workers, and establish the guiding organizations through financial support to help returning migrant workers to start a business. At the same time, the government should introduce taxation reducing policies to provide different the economic entities with different tax deductions, and provide assistance to low-income people in accordance with relevant policies. In addition, perfecting support land policies. The land for migrant workers to conduct entrepreneurial activities should be incorporated into the overall land division. Thirdly, completing the policies in aspects of market and public services. The government should expand market access standards to encourage returning entrepreneurs to enter the market, and make full use of all kinds of schools, institutions and all sectors of the community to carry out entrepreneurship education activities. Finally, consummating industrial policies. On one hand, the government should introduce more effective support policies for returning migrant workers' entrepreneurship, visualize the status of all kinds of resources through market research, and formulate the local industrial development guidance and preferential policies. On the other hand, the government should build industrial parks for migrant workers to carry out entrepreneurial activities.

#### **4.3 Deepening migrant workers' professional understanding of policies**

It is the farmers who return home for entrepreneurship. The government should not only improve governmental work, and implement and improve relevant policies, but also should help the migrant workers get a thorough and professional understanding of these policies. First of all, respecting and caring about the innovation of returning migrant workers, strengthen guidance and training efforts, maintain their innovative enthusiasm and create a good policy environment. At the same time, the government should strengthen training for migrant workers, enrich their knowledge structure, and increase technical guidance for migrant workers. Next, implementing proactive talent support policies: 1) improving the quality of the leaders among rural useful talents, which needs to launch a large number of training and education activities targeted to rural talent leaders; 2) attaching importance to the training of modern agricultural talents, which means the government should provide strong support to the excellent talents of agricultural science and technology and encourage them to take the lead in starting businesses; 3) encouraging the college students to start their own businesses in hometown, that is to say the government should introduce more attractive policies to encourage college students to

conduct entrepreneurial activities in their hometowns. Besides, under the background of “Internet plus”, the government should understand the commercial value of the combination between small businesses and the Internet, promote the development of labor service brands, and constantly improve the gold content and market share of these brands. Finally, exploiting rich tourism resources, focusing on building global tourism pattern, and developing leisure agriculture, under-forest economy and rural tourism, to promote the integrative development of rural primary, secondary and tertiary industries in combination with the local features. The local government should consider local resources to create distinctive tourist spots, such as happy farmhouses, health preservation chambers, flowers and fruits stores, ecological fishing villages, creative gardens, minority nationality cultural villages, etc., and develop special tourism products, to do a big job on the existing basis.

#### **4.4 Optimizing policy implementation environment**

It is important for the government to realize that rural migrant workers returning home for entrepreneurial activities can effectively facilitate urbanization construction. The government should improve the policy implementation environment. Firstly, raising the awareness of migrant workers returning home for entrepreneurial activities and build a quality environment. For the newly established enterprises of migrant workers, it is important to guide and help them to integrate into the market, and for the stable startups, it is necessary to give more concern to and help them to overcome the difficulties encountered. The government should create a climate that advocates and encourages entrepreneurship, and help migrant workers to change their self-abased psychology. Governments at all levels should make full use of WeChat, micro-blog and other means to disseminate relevant policies, so that migrant workers interested in returning to their hometowns for entrepreneurial activities can learn about the supportive policies for entrepreneurship timely and fully. Secondly, constructing and improving infrastructure. Government departments should continuously increase the investment in water, electricity and other facilities related to enterprises, and improve the basic conditions for rural development. It needs to promote the progress of rural education and sanitation, and reduce the barriers to entrepreneurship of migrant workers returning to their hometowns. While building the infrastructure, the government should actively guarantee and optimize the ecological and hygienic conditions of rural areas. Thirdly, building a system of policies and regulations for migrant workers to help them start a business in their hometowns. The government should formulate and strengthen laws and regulations on entrepreneurship policies to protect the startups of returning migrants and ensure their legitimate rights and interests. Lastly, accelerating the construction of social endowment insurance system related to the characteristics of migrant workers<sup>[8]</sup>. The development of the pension insurance system of migrant workers is relatively backward and the guarantee mechanism is not perfect, which causes the withdrawal tide in many cities. At the same time, the problem of large number of left-behind elders in rural areas also increases the resistance to migrant workers returning home. Therefore, whether the migrant workers want to live out their later life in countryside or cities, they can transfer their pension rights and interests to the social security system in their living places. That means the government should make endowment insurance personal accounts transfer with the person’s flow, to thoroughly solve the problem of endowment insurance rights and interests of migrant workers.

## **5 Conclusions**

Employment is the foundation of people’s livelihood, and entrepreneurship is the basis of employment. The returning migrant workers’ entrepreneurship will help accelerate the urbanization process, coordinate the balance between the urban and rural areas, and expand the transformation of surplus labor force in rural areas. The policies for supporting migrant workers returning home to start their own business are the formulation and implementation of a kind of social system. The policies encouraging returning migrant workers to carry out entrepreneurial activities are a breakthrough in the previous system of employment and entrepreneurship, a guarantee for migrant entrepreneurs, and also an effective measure to coordinate employment between urban and rural areas.

For many reasons, however, migrant workers face much more difficulties in the process of entrepreneurship, which requires the support of government policies. The support policies for returning migrant workers’ entrepreneurship are necessary to maintain social stability. The study on these

support policies is significant and difficult, but we believe that with the continuous optimization of the support policies, returning migrant workers' entrepreneurship will become an important force to promote the development of the economy.

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## The Value Construction of Social Governance System under the Background of Big Data in China

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**Abstract** From the perspective of the construction of the national governance system, it is necessary to increase the large data to the national strategy and make the data wealth become the national consciousness. In this paper, through the interpretation of the connotation of social governance under the background of big data, puts forward the eighteen since the new social governance connotation and social governance mechanisms, explore the decision model of construction of social governance, improve governance analysis of big data value to society, in order to form a social governance system of our country, effective help.

**Key words** Social governance, Big data, Public service, System innovation

### 1 The first, a summary of the theory of social governance in the background of big data

#### 1.1 Literature review of big data social governance research

Through the literature, as early as 1980, foreign countries began to study the field of big data governance, which in the book of “The Third Wave”, the famous futurist Alvin Toffler vividly compared to the “The colorful movement of the third wave”. Until today, western countries such as Europe and the United States are still in the world’s advanced ranks in the research of big data governance, Areas of concern are very extensive, through the inductive analysis, we know that the related research focus on the following aspects: First, sustainable and environmental protection, through the use of data identification to prevent and reduce pollution energy consumption; Second, the field of employment and employment, make full use of big data identification to make up for skills ditch, to promote entrepreneurship to provide support and protection; Third, the field of education and teaching, through big data analysis to rationally configure education resources to provide support for education development and student growth; Fourth, the field of social security, through the integration of big social data, provide service for social vulnerable groups; Fifth, the field of urban construction, through big data planning to strengthen the use of public facilities to enhance the taste of urban construction positioning; Six, the field of public security, through big data analysis and judgment, to achieve early warning, anticipation and prevention of security precaution, so as to better maintain social stability and public safety<sup>[1]</sup>.

#### 1.2 The value dimension of the big data social governance system

First, the justice dimension of big data governance. Rawls thinks that “justice is fair, as long as the implementation of prior equality policy, in order to achieve the goal of justice.” Because of the irrational expansion of utilitarianism and the utilitarianism of governance, big data governance can not achieve the criterion of equality of justice, and there is no sufficient value argument and deep value appeal of governance ethics. The justice attribute of big data has not got political social identity<sup>[2]</sup>. In the good of justice, the governance of big data is not the priority of rights over good, but the procedural justice and data good governance based on limited government. Therefore, big data management is not simple tools technology and the instrumental rationality, the governance of science and technology is undergoing a transition, and conceive the reform development of productivity and production relations, justice values of science and technology of the realization of justice in the form of cooperative governance is good and proper good, take the pursuit of Shared interests to achieve good governance.

Second, the fair dimension of big data governance. At present, the public space, the public economy, the public force and the creation of culture have become a normal and a force. As a community of wisdom, big data provides a technical platform for co-construction and sharing of social governance systems. The public relies on common values to participate in social governance. The

formation of such values is voluntary and not compulsory, obligatory and obligatory. Whether urban or rural residents, or regional differences, big data governance promotes the development of social justice ethical values, this non institutional standards have a natural justice.

Third, the efficiency dimension of big data governance. From the national point of view, big data is an important strategic resource, from a social point of view, big data is a necessary capital of management and management tools. With the rapid increase in data sources, the number of applications for data is also increasing substantially. Among these data, there are massive historical records such as social needs, consumer behavior, market trends and so on. These key data are of great importance to government governance, business management and social development. Therefore, the core of large data use is the processing of key data in large data, and after processing to create enormous economic and social value, that is, the data has become a new factor in the production of a new type of social capital and economy element.

Fourth, multidimensional dimensions of big data governance. In the big data governance, public participation has his ethical value, beyond the government standard and self-centeredness and form the co-governance culture, however, the coexistence of liberalism and pan-subjectivism tends to lead to the segregation mode of value level<sup>[3]</sup>. In fact, the pluralistic governance is not deny the impact of the government, market and social individual, but to try to establish a wide range of social and environment, to realize social justice in the subject identity and social work value. At the same time, the scientific and rationality of this kind of multi-interactive value dimension lies in transcending the epistemology, subject theory and methodology of self-centeredness, optimizing the cooperative relationship of society, strengthening the internalization of external justice of synergistic subject, and emphasizing the priority of social co-governance.

## **2 Second, the value analysis of social governance system in the context of big data**

### **2.1 The value change of the big data social governance system**

First, from the “experience of governance” to the “precision governance” across. The advantage of large data is to change the way of qualitative empirical governance, to abandon the path dependence of traditional simple decision-making, to form the level of precision management ability with data decision, to realize the intelligent, related and dynamic data, so as to avoid the government’s governance Experience to rely on and absence of offside, to correct the information recessive, disorder and static and other defects, so that policy adjustment more targeted, so that social governance more accurate. Form with data precision governance decision-making level, to implement the intelligent of the data, correlation and dynamic, so as to avoid the government governance rely on experience and the absence of offside, correct information hidden, disorderly and defects such as static, let more targeted policy changes, make social governance more precision.

Second, from “static governance” to “dynamic governance” leap. In the current information age, social governance faces all kinds of complex risk tests, and conventional emergency measures can not predict the existence of prejudgment risks completely rationally. However, big data governance is clever, from closed to open, it can conduct to advance, from terrorism to conduct all-round three-dimensional public security prevention and control to protect, in a timely manner to guide the public policy adjustment, in order to better cope with social irregular flow of factors of uncertainty fluctuations and<sup>[4]</sup>. In addition, the big data management pay more attention to advance warning, predict, forecasting, prevention, by sharing data resources, improve the sensitivity of social governance and forward-looking, true take prediction analysis, safety control and risk prevention management responsibilities, to really build up full-time social governance dynamic monitoring system.

Third, from “fragmentation governance” to “holistic governance”. Under the condition of the traditional information, local data and sampling data is easy to lead to fragmentation and liquidity problems, information variable control and measurement also needs to face the reality of information layered threat, and thus control error and increase the sample becomes the realistic need of innovation of social governance. Rely on big data means, therefore, traditional human society through information network and connection to big data society, information explosion and quietly emerging mobile

revolution, public opinion demands and political ecological comprehensive upgrade, economic transformation and industrial upgrading by deep mining, interests blocking, data block, information barriers such as resistance to change is fully broken, government interagency coordination management gradually replace the department management, promote the integration of the depth of the government function change and open.

## **2.2 The value dispute of big data social governance system**

First, the paradox of public participation. Big data as a high-level auxiliary technology, effectively promote the human society of data survival, and with all kinds of social results fusion, showing the technology of human subjectivity and social technology generalization. However, the development of technology contains cultural connotation, when the government performance evaluation is not complete, lack of data driven, massive data will enter a dormant state, in this case the data explosion will not increase the expression of public opinion, and it will exacerbate social disorderly participation and governance value confusion. Therefore, to realize the social participation from the “symbol” to “essence”, the traditional management mode must overcome the path dependence, strengthen mass data decision support, in order to really broaden cooperation path of society, reduce the disorder of public participation.

Second, the question of governance efficiency. With the openness of the information network, the technology platform of large data provides a great deal of valuable information, promotes the solution of social problems and the utilization of social resources. However, data security and crisis management is not accidental, Such as, operating conditions, privacy, property information and other aspects of data leakage, making big data governance is facing the impact of market demand and share of the concept of deviation, the formation of bad money to expel the risk of governance of good money. In response to the crisis of social governance, the government need to use big data to predict early warning and to find the law, reduce management risk, enhance the control ability, make full use of big data means to improve governance predictability, improve risk can be resolved.

Third, the bottleneck of data governance. Even today, data isles, data cuts and data fragments are still a regulatory and technical challenge for social governance. At present, the lack of available data and the co-existence of unusable data explosion are embarrassing, exposing the shortage of high quality data and the existence of data protectionism. However, the openness of data is not unconditional and it is a trade-off. Government decision-making is a limited rational state, and the key point of guiding effective decision-making is basic information and empirical facts<sup>[5]</sup>. Therefore, to ensure the depth of the social governance data analysis and the social trend and is very necessary, only minimizing the restrictions of information processing, can we truly achieve the development strategy of data driven decisions.

## **3 The value construction of social governance system in the background of big data**

### **3.1 Co-building: Enhancing the justice of big data and promoting good governance in all areas of national society**

In the future, data mining and predictive analysis will be the key to determining the success or failure of national governance, social governance and corporate organizations. Should actively promote social governance platform construction and application of the network infrastructure construction covered all aspects of social governance, we will accelerate the establishment of a perfect social management information system, promote the “digital fair” among different areas, narrow the “digital divide” between urban and rural areas, by big data applying arouse the vitality, social autonomy gradually increase large data social governance platform on the basis of good governance and the value of multiple work. To set up information sharing platform, increase the government’s dynamic collection and analysis of large data information early warning ability, promote intelligent huge amounts of data, dynamic, be made explicit, associated, improve risk early warning, decision evaluation, question investigation, public opinion guide and social interaction of technological innovation, build up the function is all ready, dynamic tracking, unicom Shared governance network, comprehensive coverage of big data.

In addition, information security protection is an urgent problem to be solved in the period of big data governance. Therefore, we should fully promote the development of large data security strategy to meet the challenges of all kinds of risks in the big data management actively, strengthen the network security protection technology, strengthen the supervision and management of the field of social network security, speed up the construction of risk early warning and big data network monitoring system, by making full use of policy coordination, upgrade technology, improve the comprehensive means such as law, public opinion analysis, improve the efficiency of big data management risk prevention and control, to ensure that the state and society in various fields of information security. At the same time, the government should strengthen the supervision and switch between virtual and real two Spaces, make seamless connection between online and offline supervision, and focus on improving the depth and breadth of supervision.

### **3.2 Sharing: Strengthening the ethics of big data equity and promoting the establishment of social equality values**

This kind of equal value is no longer one-way, single dimension value ethics, but it needs to form a pluralistic interaction mode between the governance subjects, and construct a complex collaborative network and an equal coordination relationship. From the analysis of political philosophy, the equal value of big data governance reflects more scientific and technological autonomy and social autonomy, and through the empowerment of data to promote equal governance relations, through sharing responsibility to achieve social governance goals.

On one hand, we should manage the correct and equal values of all social members. Because of the different situation of each subject, the different governance subjects will have different artistic conception for the understanding of correct and equal, which will directly affect the allocation and supply of social resources, and the establishment and realization of governance objectives<sup>[6]</sup>. Therefore, it is necessary to make scientific and effective large-scale data decision-making in the front, middle and later stages of the management process. Scientific decision-making can be used to scientifically diagnose and effectively manage the sharing degree of the country, social organization and individual members of the society. Promote the transformation and upgrading of social values, and enhance the value of all levels of society.

On the other hand, the sharing of the right and equal values should be managed. The key to realize scientific and effective social governance, is through the use of big data security operation and social governance, deepen the implementation of shared values: one is through the use of big data to all sectors of society members of the correct values of equality sharing changes in degree of dynamic monitoring; two is through the use of big data in different sectors of social norms for the management of state led mission and value system, and set up a supply of resources so as to promote the goal of governance rules.

### **3.3 Opening up: Improve the efficiency of big data governance, and promote the optimal allocation of public resources**

Balancing efficiency is the core of the value of big data governance, and the development of social economy is inseparable from the improvement of governance efficiency. Big data can create online integrated service management system, make the implementation of one-stop, one-stop services, release the added value of government functions and promote the public service of fine, sunshine and efficient, further reducing management costs, optimize the governance ability, improve the efficiency of governance.

The adaptive management of public resource supply and allocation includes two aspects: supply adaptation management and configuration adaptation management. Constructing scientific and effective social management system, it is necessary to meet the public demand for public resources, set up different levels of data open platform, effectively promote share data information, promote social governance mechanism innovation<sup>[7]</sup>. In particular, it is through the use of big data to form scientific and effective social governance mechanism, social mobilization mechanism (social forces integration, social subject motivation), social trust mechanism and social development mechanism.

At the same time, the social resource allocation and the social public demand have detailed and comprehensive data statistics, data analysis, data diagnosis and decision making, Therefore, it is

necessary to manage the personality consensus of setting rules for the supply and allocation of public resources. Specifically, first of all, first of all, we should establish the rules of the target process, that is, through the big data decision-making. In the process of establishing a goal for the scientific allocation of social public resources, the rules of the state, the social organization, and the individual rights of citizens. By effective management, to enhance the appropriate nature of the country's lead in establishing goals and avoiding changes or deviations; Secondly, it concerns the establishment of the rules on the rights of social public resources. This requires government decision-making on large data, from the source to avoid system supply shortages, by strengthening the legal system of rights and interests, the government promotes the legitimate and proper access of public resources to the public.

### **3.4 Co-governance: Focusing on the multi-interaction of big data and promoting the equality of civil rights**

Judging whether the effectiveness of social governance reform or the pattern of social governance is perfect is not the specific content of the dominator, leader, partner and participant, but whether the social governance system has a high degree of personality consensus. Therefore, it can be seen that the core of ensuring a vibrant and harmonious society is to improve the well-being, security and satisfaction of the masses, thus realizing the equality of real rights.

First, it is effective to prevent the difference of rights of members of different strata of society.

The construction of public crisis prevention system in big data times includes two aspects: hardware and software. Hardware construction, in addition to build modern disaster prevention and mitigation system, modern energy security system and modern environmental ecological system, increasing investment to build modern data collection, analysis and operation system has become a must; The software construction, in addition to all kinds of public crisis and the introduction and improvement of relevant laws and regulations, the construction of a unified and efficient public crisis response command system, strengthen the risk prevention and emergency handling ability of substandard construction, In view of the use of various disaster related data tools and data decision bases and reports corresponding to the government, social organizations, public crisis command systems and the masses, normative and normative reporting mechanisms should be formed.

Second, make the conflicts between members of the same class of society effectively resolved. For the resolution of the contradictions of the individual, database should be set up for common social individual, upgrade, improve and share the illegal crime database, through data analysis and early warning, to improve the prevention and control system, effectively to realize the interview docking, to ease the pressure of petition work. Through big data management, the members of the same rights and interests can enjoy equal access to the right of policy and law. For the settlement of public crisis, we should establish crisis early warning mechanism, information collection mechanism, emergency disposal mechanism, promotion mechanism, public opinion guidance mechanism and crisis decision mechanism based on large data application so as to avoid the problem of resource allocation imbalance in social governance process.

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## The Impact of Population Spatial Mobility on the Allocation of Public Service Resources in Chengdu, China\*

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**Abstract** Based on Industry undertake policy made by the government, the population overflowed into the western China. Chengdu as the center city of the western region in China, its population change is significant. therefore, choose it for the study. Compared with the previous research literature, this research's angle is based on human characteristics, analyzing with which kind of the people are more prone to migrate. By studying the structural changes of population space, this paper analyzes its influence on the adjustment of public resource allocation, so as to improve the way that government supply public service. There are two main points of innovation in this paper. Firstly, it is mainly based on the factors of the floating population itself, and its influence on population movement behavior. More scholars stand in the position of social factors affect the level of the population flow, and this research is based on the Chengdu sixth population data, stood in the floating population their own condition influence the level of population movement. The second is to put forward the suggestion that allocation of public resource and services should base on population changes, and adjustments are made accordingly.

**Key words** Population spatial mobility, Public services , Allocation of public service resources

### 1 The spatial structure and movement of population in Chengdu

#### 1.1 General situation

The permanent resident population presents the characteristics that most citizens lived in the city center. According to the results of the sixth census in November 1<sup>st</sup> of 2010, Chengdu resident population almost reach 14.0476 million, accounting for 17.5% of Sichuan province, the statistics showed a net increase of 2.9391 million within 10 years, the average annual growth rate of 2.4%, emerged a smooth and continuous growth. Chengdu, the city which has the fourth largest population in our country, ranked behind Chongqing (2884.62 million), Shanghai (2301.91 million) and Beijing (1961.20 million). According to the population census data of the urban area of Chengdu, Jinjiang district has a population of 690,422, Qingyang district has 828,140 residents, Jinniu district of 1,200,776 resident, Wuhou district has 1,375,699 residents, Chenghua district has 938,785 people, Longquanyi district has 767,203 people, Qingbaijiang district has 381,792 residents, Xindu has 775,703 people, and Wenjiang has 457,070 people. What's more, there are about 1.2 million people in Jinniu district, ranking the administrative region of the most people in Chengdu; On the contrary, Qingbaijiang district has merely about 38.0 million people. The distribution of permanent population is mainly concentrated in the main urban area. The population of other towns is small, which is basically in line with the economic development of the whole city. The economic infrastructure of the two circles has been improved, the service industry is developed and the population has settled more. The three circle cities and other areas are relatively backward, with more basic farmland and ecological land, slow economic development and less dynamic population.

The foreign population has grown steadily. Generally, people chose to immigrate to areas with high levels of industrialization and its urbanization rate is faster. The western region is being used as the industry of the eastern region. In the process of the eastern industry, its industrialization has also been developed rapidly. Since the reform and opening up, the industrial transfer in the central and western regions has experienced two stages of development: from 1978 to 1997, it was the preliminary

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exploration stage of industrial transfer in the central and western regions. From 1997 to 2007, it was the rapid development stage of industrial transfer in the central and western regions. Based on previous research, the layout of industrial industry is connected with the structure of population space. The density of the industrial layout is relative to the general situation, and the density of industrial layout is positively correlated with population density. The eastern region' industry is shifting to the western, which is mainly energy intensive and highly consumables industry, including petrochemical, natural gas chemical industry, coal chemical industry, metallurgy, building materials, etc. With the increase of such industry in the western region, contributed to the large-scale exploration of western resources, its development also demands to increase the number of workers. In the industrial undertaking stage, Chengdu's growth of urban permanent population shows obvious volatility. what's more, the population growth rate starts to accelerate, and the foreign population is still the main driving force of population growth.

### 1.2 Spatial distribution of floating population

In recent years, the direction of people's movement which is inconsistency in Chengdu, causing the population of the city spatial structure out of balance. Some area bears the population which is beyond its maximum range, while the population is insufficient in some area, the development of economic stagnation. The following statistical figure is about the distribution of floating population in nine administrative districts of Chengdu in 2010 (see Figure 1).

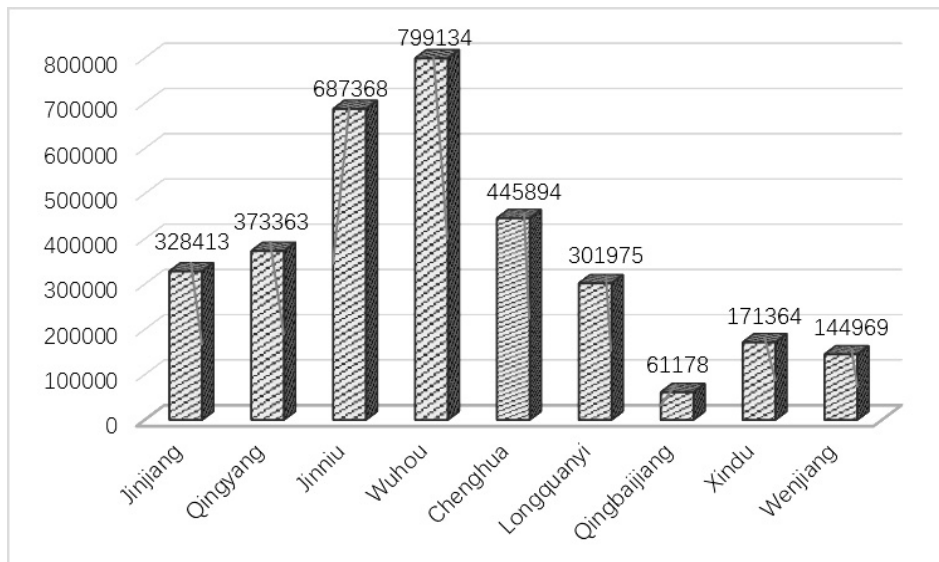


Figure 1 Chengdu's floating population in 2010

According to above figures, the number of floating population in Wuhou district is the most, almost up to 799,134 people. The number of floating population in Qingbaijiang district is relatively small, with only 61,178 people, and the whole floating population according to trend that people tend to central urban area. The total number of floating population in Chengdu is 4,697,445, with 4,096,146 people floating within province, with 601,299 people floating outside the province. There are 328,413 people in Jinjiang district, 373,363 in Qingyang district, 687,368 in Jinniu district, 79,9134 in Wuhou district, 445,894 in the Chenghua district, 301,975 in Longquanyi district, 61,178 in Qingbaijiang district, 171,364 in Xindu district and 144,969 in Wenjiang district.

**The population gradually gathered in the central urban area.** Floating population is mainly focused on the urban area or economically developed areas. But floating population growth of third circles and farther area of Chengdu is slow. The population of the central urban area is relatively large, and its economic development and urbanization are the main driving forces for floating population. The census results showed that the number of permanent residents in the main urban area reached 529.54 million, added up to 182.49 million compared to 34.705 million in 2000. Which accounted for



the population in the whole city increased from 31.2 percent to 37.7 percent within 10 years. The districts in second circle which are close to city center (Longquanyi district, Qingbaijiang district, Xindu district, Wenjiang district, Shuangliu district) have 429.63 million permanent residents, an increase of 113.45 million compared with 316.18 million in 2000, accounting for 30.6% of the total population of the whole city. The districts in third circle which are far from the city. (Jintang, Dayi, Pujiang, Winjin, Dujiangyan and Pengzhou, Qionglai) have 4.4762 million permanent population, 20300 people less than in 2000, accounts for the proportion of the population of the city was 31.7%, down to 8.6%.

**The density of population decreases from the center to the surrounding area.** The density of population in the city is 1159 people/km<sup>2</sup>, and the population density of the main urban areas is the largest in the various circles, which is 11,388 people/square kilometers. The second circle is 1338 people/km<sup>2</sup> and the third circle is 528 people/km<sup>2</sup>. The population density of Wuhou district is 14451 people/km<sup>2</sup>, and Dayi county has a population density of 391 people/km<sup>2</sup>. The direction of population migration is specific. On the one hand, because amounts of job opportunities are often concentrated in certain areas. On the other hand, due to migration tend to follow the route and direction of pioneers who shared experience and information to reduce the obstacles when immigrating. At the same time, the reverse flow of migration is occurring synchronously with each mass migration. The reason for the backflow maybe the driving force of the immigrant is less than the out-migrating places, or the migrants reassessed the immigrant areas and out-migrating places. In addition, some social causes may cause population backflow.

## **2 Analysis of population changes in Chengdu based on population characteristics**

Everett suggests that the migration is selective, that the socio-economic structure of the migrants is very different from the random sample composition of the residents. The reason for the selectivity is that different people have different evaluation on the positive and negative factors of the areas they chose to move in or move out, whose ability to overcome the intermediate obstacles is different. The selection of migration has two polarity tendencies. That is, some of the characteristics of the migrator are either j-shaped or u-shaped. The cultural degree and occupational characteristics of the migrants have a large proportion of the people at the poles. Based on sixth census data of Chengdu, this paper analyzes the influence of human being own characteristics on its immigration without considering external factors. This paper has selected three main factors that affect the population flow, including age structure, gender structure and marriage structure.

### **2.1 Age structure**

According to sixth census data of Chengdu, the people who immigrated because of employment accounted for 52.93 percent of the population. Labor force transfer is the main part of the population flow of Chengdu. Therefore, young and middle-aged is the main body of floating population, mainly in the group of 15-59 age, which accounts for 74.64% of the floating population. Generally speaking, the greater the proportion of people aged 15-59 in the population, the greater the probability of population flow in the region.

As can be seen from the picture, the population structure of the Chengdu administrative region is mainly composed of people of the age of 15-59, the remainder consists of the age 0-14 and 65 or above. The total number of population of Chengdu is 14,047,625, the population of 0-14 years old is 1,536,850, the population of 15-59 is 10,485,207, and 2,025,568 people over the age of 60. The floating population is mainly composed of people aged 15-59. The main reason of the most floating population stems from the job or business, which is mainly composed of the labor force between the ages of 15 and 59. The number of people in the 15-59 age group in the districts which in first and second circle is greater than those in the third circle. Basically, accord with the floating population in first and second circle is greater than in the third circle or beyond it. Therefore, it can be concluded that there is a certain correlation between the population flow momentum of a region and the proportion of middle-aged and young people in the region. In general, the more people in young and middle-aged (between the ages of 15-59), the greater the probability that the population will flow.

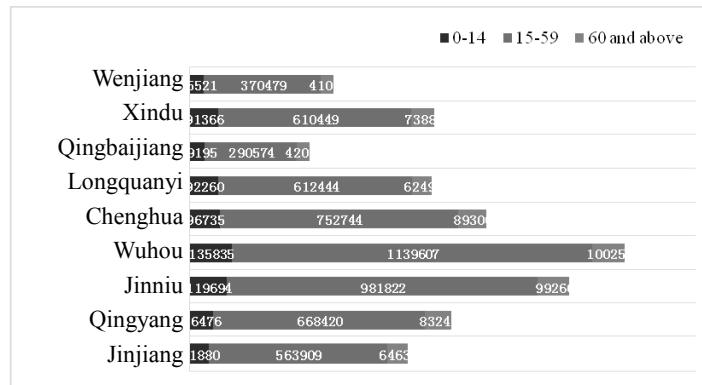


Figure 2 The composition of population age structure in Chengdu

## 2.2 Gender structure

Based on the analysis of sixth census data of Chengdu, there were 2,626,674 people in Chengdu, with 135,451 males and 1,271,223 females. The total number of male population in other towns and villages in Chengdu was 1,476,657, with a total of 248,085 males in the provinces. In Chengdu, the total number of male population in other towns and villages was 1,476,657, while total number of 248,085 males out of Sichuan Provinces. The migrant population is mainly male, and the gender characteristics of migrants is obvious. Moreover, the proportion of males is higher than that of women. The probability of migration is relatively large in regions with large proportion of males.

Table 1 The gender structure of districts in Chengdu

	Floating population	male population	female population	proportion of male
Jinjiang district	328413	166313	162100	50.64
Qingyang district	373363	184305	189058	49.36
Jinniu district	687368	362975	324393	52.81
Wuhou district	799134	424022	375112	53.06
Chenghua district	445894	234877	211017	52.68
Longquanyi district	301975	152007	149968	50.34
Qingbaijiang district	61178	32290	28888	52.78
Xindu district	171364	90921	80443	53.06
Wenjiang district	144969	77032	67937	53.14

The male population in the administrative districts of Chengdu is fairly evenly distributed, and the proportion of male in floating population is roughly 50 percent, with no obvious difference. However, because of the large population base of the first and second circles, which number of male population is greater than that of third circle and beyond. The average number of male migrant workers in the main urban areas was 274,498, while the average number of male migrant workers in other areas was just 8,063. The number of male migrants in the main urban area is significantly higher than the other administrative region. The corresponding number of floating population in the first and second circle is higher than that of the third circle and beyond. The reasons for male to immigrate in the Chengdu Respectively as follows: 1309264 migrants for business; 177,578 migrants for family members; 111,813 migrants for friends and relatives; 196,431 migrants for relocation; 118,953 migrants for Job mobilization; 332,439 migrants for Learning and training; 4,350 migrants for registered permanent residence; 49,287 for Marriage; Other 169,948. The main reason for male migration is still the business, followed by the study of training, and the relocation of family and relocation. The main income of the average family earned by male, and the main purpose of male migration is to obtain better employment opportunities or improve their labor skills.

**Table 2 The male migrant population of the household registration in Chengdu**

Male's household registration	Sichuan Province		Out of Sichuan Province	
	urban areas	rural areas	Urban areas	rural areas
Total	1,315,644	86,452	223,931	12,676
Jinjiang district	144,809	0	21,054	0
Qingyang district	127,249	0	22,520	0
Jinniu district	292,012	0	56,562	0
Wuhou district	357,171	235	66,509	107
Chenghua district	187,970	16,044	28,775	2,088
Longquanyi district	91,745	35,731	11,553	5,849
Qingbaijiang district	21,746	6,078	1,599	599
Xindu district	53,444	12,079	9,073	1,705
Wenjiang district	39,498	16,285	6,286	2,328

According to above table, the male population in Chengdu is mainly distributed in five main districts. The total number of male migrants in the five main districts totaled 132,3105, with 315,598 in other districts. Moreover, the male migrant population in the main urban area is mainly moving between cities. Male migrants tend to move between cities more than move between cities and villages. About 1,315,644 numbers of men in other cities of Sichuan Province have immigrated to Chengdu, which is far higher than the number of men in other villages of Sichuan Province. In Sichuan Province, about 223, 931 numbers of male migrants who lived in urban are also higher than those lived in rural provinces. Male migrant population mainly composed by Sichuan men. The male migrant population in the Chengdu districts mainly focuses on the flow within Sichuan Province. The number of men immigrated within the province totaled 1402,096, compared with 236,607 for that immigrated outside the province. In addition, the number of men in the province is about six times than the number of men outside the province.

### 2.3 Marriage structure

According to the sixth census data of Chengdu, Jinjiang district, Qingyang district, Jinniu district, Wuhou district, and Chenghua district, these five main districts. The average number of unmarried people in the main districts is 20,478, the average number of unmarried people in Longquanyi district, Qingbaijiang district and Xindu district is 10,367 people. The unmarried rate of the district in the first and second circle of Chengdu is significantly higher than that of third circle and farther areas.

**Table 3 The marriages of population in different districts in Chengdu**

Districts	marital status					
	Population aged 15 and above	unmarried	married	divorce	Lose partner	Unmarried rate
Jinjiang district	628,542	15,648	36,943	1,340	2,246	2.49
Qingyang district	751,664	16,333	21,640	1,810	2,283	2.17
Jinniu district	1,081,082	26,956	72,122	2,490	3,682	2.49
Wuhou district	977,058	23,922	64,387	2,022	2,626	2.44
Chenghua district	842,050	19,531	57,151	2,222	3,216	2.32
Longquanyi district	495,456	13,398	45,290	1,135	2,900	2.70
Qingbaijiang district	332,579	5,059	24,693	869	2,253	1.52
Xindu district	684,337	12,644	50,429	1,491	3,662	1.85

According to Chengdu's 2010 marriage statistics, the number of people aged 15 and above in the five main districts is far greater than that in the suburbs. Basically, the number of married people is affected by the population aged of 15 and above. A larger population means that social behavior has increased, which promotes the increase of the number of marriages. The married statistics from above table includes the marital status of permanent and floating population. Therefore, the number of married people includes the local population and the floating population due to the movement of family members and their relocation. The average unmarried rate in the five main districts was 2.38%, compared with 2.02% in the suburbs. (because of the data statistics of the Wenjiang district, which has

no data about marital status, it is mainly the average unmarried rate added up by the suburbs of Longquan, Qingbaijiang and Xindu districts).

This paper argues that, assuming other factors remain unchanged, the higher the unmarried rate, the greater the probability that the population will flow. Compared to the flow of the floating population in Table 2 above, the flow of population in first and second circles is more than those in the third circles and farther areas. The marital status of the population of each administrative district is consistent with the change of its population. Marriage is also proving to be one of the most important factors affecting migration. Divorced or unmarried families are more likely to migrate; The single person's preference for migration is generally depending on their employment where is optimal for it. And married family migration flow is mainly based on their relatives or relocation, whose choice of the places they will move is generally considered the optimal for the public infrastructure construction, including schools, hospitals, malls, and other public facilities.

### **3 The population spatial mobility requires allocation of public service resources in Chengdu**

The total number of floating population in Chengdu is 4,69,7445, with 249,0338 population floating in the five main districts and 108,898 in suburbs areas. According to the classification of the migration reasons, 2,275,318 migrants for business, 211,009 migrants for their careers, 657,809 migrants for learning and training, 396,420 migrants for the transferred families, 253,676 migrants for the relatives and friends, 39,200 migrants for relocation, 332,168 migrants for other factors.

According to the above data shows that the floating population of Chengdu mainly consist of workers engaged in business (refers to the age of 15 and above who engaged in all kinds of labor or commercial trade activities, leaving their household register), followed by people learn or train (refer to who is more than six years old , admitted by schools of various levels or to participate in local units of various classes, workshops, and leave their household register), the third group that people follow their families (refers to who transferred their job or work with his family to leave their household register) and the last group that people relocate (because of the moving house and leave their household register). Based on sixth census data analysis of Chengdu, the main factors affecting population floating are employment selection, the distribution of education resources and residence protection, etc. Therefore, when providing public services, the government should provide targeted public services according to the actual situation of the floating population of the different administrative districts. Chengdu government should base on the following social problems of floating population to make properly macroeconomic regulation, adjusting the policy of public service supply, improving the coverage of public service, protecting the legitimate rights and interests of the floating population. Firstly, government should distinguish the service demanding group according to their different age, paying attention to supply of employment opportunities and legal guarantee of their wages. Secondly, improving the teaching quality of children and accelerating the construction of education department. Finally, meet the needs of the elder. We will set up a comprehensive protection mechanism for the elderly, especially the emergency response system.

#### **3.1 The imbalance of labor supply and demand between regions**

Young and mid-age people are the main members of floating population, and migrant for business are mainly between the age of 15-59, which accounts for 74.64% of the whole floating population. On the one hand, as the out-migrating places, youth labor force will make its industrial production lack of labor force, which will greatly hinder local economic development and affect the transformation of industrial structure. On the other hand, as the immigrant areas, due to the short term, when there are a lot of labor flowing in, some job seekers who lack of skills unable to find suitable jobs, the shortage of jobs available to the society don't adapt to abundant of labors. Chengdu government should focus on the development of public employment services, helping workers to understand their psychological and physical characteristics, supporting with information about career opportunities and professional characteristics, assisting workers make the most suitable career choice, training workers professional consciousness and professional ability. What's more, enforcing the support to the economic development of the out-migrating places, absorbing the leading enterprises in the out-migrating places

to develop, guiding the labor from out-migrating places rational flow, reducing the degree of labor imbalance between regions.

### **3.2 The inequality of public education resource distribution between regions**

The distribution of education resources is roughly in line with the level of economic development. Teachers' level of education in economically developed regions are higher than those in other regions. Since the main districts mainly focus on development of services industries where economic development is developing rapidly, while other districts are dominated by agriculture and manufacture industries development where economic development is relatively slow. As a result, there are more education resources distribute in the main districts than other districts. 401,178 migrants for learning and training, including 251,198 in the main districts and 149,980 in the other districts, accounted for 63 percent of the total population. According to the pattern of migrant distribution who are driven by learning and training, this group is mainly composed of migrants aged 5-65 years. The population of 5-24 years old is 653,187, with a population of 41,791 between 25-65 and above. Because the optimal time for average person's being educated is between age 5-24, the group mainly composed by student. The reason for the migration is more chance of getting a better education or exercising employment skills. On the one hand, government should balance education resource supply between urban and rural; on the other hand, should base on floating population conditions for learning, training and academic interest. To increase primary or adult schools in immigrant areas and invest in high-quality training institutions. The policy encourages the introduction of talents to meet the age structure adjustment needs at the education level. In addition, the development of the education industry will be accelerated in the relatively developed administrative districts, which will promote the numbers of migrants for education and cultivate high-quality talents for the development of urban economy.

### **3.3 The demand for social infrastructure services is gradually increasing**

With the slow growth of the vulnerable groups, the demand for social security services has expanded. According to the sixth census of Chengdu, the future population of Chengdu is abundant and still in the demographic dividend stage. As of 2010, the total population of Chengdu was 14,047,625, according to the classification standard of the population reproduction age structure of the Swedish demographer, of which the population aged between 0-14 were 1,536,850; the population aged 65 and above was 58,778. In 2010, the proportion of the population aged 0-14 in Chengdu was 10.94%, which was strongly reduced. The population aged 65 and above accounted for 4.13% of the total population, belonging to the strongly increasing type; The ratio is 37.75%, which is a weakly increasing type. This shows that in the past ten years, Chengdu has started to transition from the weak type to the strong type, the population expansion is obvious, especially the growth of the vulnerable groups. The groups of aged 0-14 and aged 65 or above groups belong to the migration patterns of path dependence, along with the family main labor migration. These two groups required public service supply is mainly about education service, pension service, social security and so on. Therefore, they are more inclined to consider the medical service resources configuration needs and improve the social infrastructure. Moreover, in the context of the household registration and the policy of birth control, more emphasis is placed on the provision of service facilities for women and children and the construction of the center for old-age care, and the most important thing is the equalization of services between regions.

## **4 Conclusions**

The population of Chengdu is growing steadily. The age structure of the population is young, but the proportion of the elderly population is gradually increasing. What's worse, society is lack of high-quality talents; The employment structure of the population is not matched with the level of industrial development; The floating population is concentrated in economically developed regions. However, population growth is still growing, which has further demand for the allocation of public resources. Due to the choice of work is a major cause of the population migration, guaranteed labor employment is the most significant part of public service supply. In particular, we should increase the support to the vulnerable groups in employment, and continue to raise the level of low-income. Gradually adjust the existing social welfare policy, including the housing subsidies, retirement pension,

medical insurance, compulsory education which is aimed to help low-income people. Through the social security of redistribution that effect of narrowing the gap between rich and poor, and improve the laborer's social security coverage. Encourage whole society to make all kinds of economic types of workers are covered within the safety net, because it is not only enhancing the security of laborer, also is conducive to the rational flow of the workers.

With the rapid growth of the floating population in Chengdu, the allocation of public service resources in the context of national industry policy adjustment need to be further adapted to the trend of population growth. The demographic age structure transition to the growth model, that is, the allocation of public service resources should consider more about the age structure adjustment needs. From the growth analysis, the demand for education and health care should be further improved. Among them, the proportion of people with high school education and above has increased, and in the talent structure, the age structure adjustment needs are met at education level through policy encouragement. On the other hand, in terms of medical and health care, we should tend to consider more about the configuration of the medical service resources. Significantly, under the background of the household registration and fertility policy adjustment society should put more emphasis on maternal and child health services configuration.

The diversity of population space distribution requires higher demands on the space allocation of public service facilities. The population distribution of permanent residents is concentrated in the central urban area and the urban area of the second and third circles, which is the same condition as the economic development of the whole city. Through more efficient allocation of public service facilities, the effective configuration of public service facilities will guide the reasonable distribution of population space, and in line with the economic development, realizing the efficient use of public service resources, avoid waste.

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# Historical Investigation and Realistic Introspection of Rural Political Trust in China

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**Abstract** Since the reform and opening-up, the rural political trust in China has experienced the historical change from high political trust to the “inverted pyramid” structure and the loss of trust in government officials. Generally speaking, China’s rural political trust is still at a high level, but the “inverted pyramid” political trust structure may conceal political risks. We should actively seek a reasonable boundary between political trust and doubt and promote system trust with system construction to achieve changes in modernity of our rural political trust.

**Key words** Rural community, Political trust, Historical changes, System trust

## 1 Introduction

As a kind of incremental political capital not as economic resources, political trust will not be less and less with consumption, and on the contrary, can produce a specific amplification effect with increase of usage frequency.

As lubricants of political system, political trust is of great significance to promote political democracy, and maintain the legitimacy of governance. However, any country in development will be faced with a certain degree of trust dissipation problem; this phenomenon in the process of intense social transformation is particularly prominent, “political legitimacy or the root of government trust crisis, must be found from the nature of modern social transformation”.<sup>[1]</sup>

At present, China’s rural areas are in a critical period of social transformation. The adjustment of rural social structure, the transformation of interest patterns and the changes of rural customs, not only profoundly affect the distribution and level of rural political trust, but also endow rural political trust with time characteristics, together constituting the analytic framework of Chinese rural political trust.

## 2 Connotation of political trust framework

The definition of political trust connotation is the prerequisite and key of political trust research. Western scholars tend to be unanimous in the concept of political trust, and its connotation refers to “the citizens have belief that the operation result of the government or the political system consistent with their expectations.”<sup>[2]</sup>

However, the domestic scholars have different opinions on the connotation of political trust. In general, political trust has narrow sense and broad sense. In narrow sense, political trust is the citizen’s trust in the government, on which the academic circles basically reached a consensus. The broad sense of political trust is generally divided into the following concentrated tendencies:

The first is that political trust is closely related to the political proposition of the political system. Political trust is not only “about the political system and the ruling system<sup>[3]</sup>”, but also “includes trust in political organizations<sup>[4]</sup> (such as political parties), government agencies (government, Congress), the military etc.”, and fundamentally speaking, “is identity and dependence of the political system, political values and ideology.”<sup>[5]</sup>

Secondly, Xiong Mei-juan as the representative of scholars who define the political trust from the perspective of interaction theory, thinks that political trust is “an interaction between citizens and the political system.”<sup>[6]</sup> The interaction theory overcomes the shortcomings of the straight thinking, emphasizing the counteraction the political system has to shaping people’s political trust, and plays an important role in understanding political trust comprehensively, historically and dynamically.

The third is to introduce social trust into research category of political trust, which supposes “political trust not only refers to citizens’ trust in government, but the government’s trust in citizens and the trust between citizens.”<sup>[7]</sup> This view tries to distinguish political trust and government trust. At the same time, it is caught in another predicament where “political trust and social trust are not two

aspects of a thing, and on the contrary, two are different origins.”<sup>[8]</sup>

In summary, political trust is trust, entrustment and expectation to public power objects, such as the country, political system, government and its public officials etc. based on rational doubt.

### **3 Historical changes and time characteristics of rural political trust**

There is no doubt that to explore the issue of political trust in rural areas, we must pay attention to governance and governance in rural areas during each period. The level of rural political trust shows great differences accompanied by different rural governance model. Moreover, under the governance model of each period, the rural political trust also has obvious time characteristics, which constitutes the analytical framework of rural political trust in China.

#### **3.1 Rural political trust in Early PRC township (village) regime model**

In early PRC, to consolidate the fragile new regime, in December 1950, the State Council promulgated two administrative regulations on the basis of the actual situation of the rural areas at that time, which clearly stipulated that as a first-class regime, the administrative village coexists with township as important components of grassroots government. Thus, “township (village) regime” model was produced.

Through the “rural (village) regime” model, a new benign complementary relationship between farmers and the state was build. In this period farmers economically owned the land, and politically became the owner of the country, making them in a high degree of trust and gratitude to the party and the government in general.

The reason for this includes the following aspects. First, the CCP led the peasants to overthrow the oppression of the Three Great Remould, proved their own ability and responsible attitude towards the people through practical action, winning people’s high trust. Second, after the founding of new China, Three Great Remould was implemented to change the situation of poverty and backwardness. The living standards of farmers have been improved in a certain degree, and farmers confirmed the new regime. In addition, our party also attached great importance to the corruption governance efforts, effectively striking abusing public power for corruption of government public officials. Third, the new regime attached great importance to the integration of the system construction to society, especially the constitution promulgated in 1954, which established a relatively rationalized legal system and the relevant political system of the state, maintained the order of society and integrated the interests of all social classes tightly together.

During this period, due to the high trust in CCP of the peasants, the whole political system has shown a high degree of trust and a high political legitimacy foundation.

#### **3.2 Rural political trust in “integration of commune and government administration” model**

After the implementation of the Three Great Remould, due to the lack of experience of our party in the socialist construction and the erroneous estimation of the domestic and foreign situations at that time, since 1958, the people’s commune movement was all round implemented in the vast rural areas of our country. The “township (village) regime” governance model was replaced by “integration of commune and government administration” governance model. During this period, the rural political trust presented a significant cult of personality.

From 1958 to 1978, especially during the Cultural Revolution, farmers showed their honest and simple qualities to the extreme, transforming the trust of the state and the government into national leader worship, which brought the high degree of political trust in this period with a significant cult of personality. The worship of national leaders became an important source for the government to maintain legitimacy or political trust.

In general, the inner logic of leadership worship can be divided into two categories. One is the endogenous leadership worship (produced by the leader’s personal qualities). Second, exogenous leaders worship (shaped by political propaganda and other conscious activities). By military talents, personal charisma and the exogenous political propaganda, which were mainly manifested in the political slogan (long live the Great Proletarian Revolution, and long live Chairman Mao), literal political propaganda (quotations from Chairman Mao Tse-tung) and ritualization(reciting Chairman Mao Quotations during work, eating etc.), won the early leaders of the Party farmers’ a high political



trust, making the period of political trust show significant leader worship.

### 3.3 Rural political trust in “countryside politics and village governance” model

After the reform and opening up, in our country’s vast rural areas household contract responsibility system typical of household based fixing output quotas appeared. At that time, “integration of commune and government administration” governance model has been unable to adapt to the needs of rural social and economic development. Therefore, end Rural areas to form a national administrative management and “countryside politics and village governance” model characterized by national administrative management and rural self-management was formed in rural areas.

In general, “countryside politics and village governance” model has played an important role in promoting rural social and economic development and social order construction. However, due to the market economy and the continuous erosion of urbanization, acquaintance society of close relationship and the trust model in rural traditional society is constantly disintegrating. Farmer group events and petition events continued increasing, during which period political trust drained seriously. Specifically, political trust of this period has the following characteristics.

#### (1) The trust in governmental officials lost seriously

“Only the actors can really be trusted, because they are the only individuals that can be given trust”.<sup>[9]</sup> Therefore, the quality, service attitude of public officials and so on in shaping the political trust of farmers is particularly important. Relevant survey found that after 2002, the trust level of government officials dropped constantly. In 2002, the trust level of government officials was still high, and the proportion of government officials who could be trusted was 84%, but continued declining from 2002 to 2008 51%. By 2012, the government public officials who could be trusted can only accounted for 40%.<sup>[10]</sup>

With the spread of market economy development and urbanization in rural areas, rural customs and rural identity continue to be eroded by urban culture and market economy. Farmers become synonymous with “backwardness” and “poverty”, and endure indifference from other groups in the whole society. To change their backwardness and poor situation, hard-working and strong-minded Chinese farmers go out of their hometown which they depend to live from generation to generation into the city society. “Leaving their family” migrant workers in the city bear unimaginable pressure and difficulty. On the one hand, migrant workers were owed payments, happened various types of extreme events caused by demanding payments. On the other hand, the rural arable land was expropriated and the house was demolished. Thus, the material support for retreat and spiritual home for migrant workers is also lost or even no longer exist.

At this time, the disadvantaged farmers could only rely on the government to preside over justice. If the government officials could not solve problems timely and effectively, even there was disordered administrative and omission, the political trust of farmers would inevitably seriously be damaged. In addition, with the development of mass media, especially the Internet, it undoubtedly seriously affected the farmers’ trust in government officials because of the tendency to attract audiences to deliberately spread and enlarge the negative news while made great contributions to anti-corruption.

#### (2) Significant characteristics of “inverted pyramid” structure in government trust

In the traditional rural society of our country, “as a stone thrown into the water ripples circles of the wave, the far the distant, and the thinner the circle is.”<sup>[11]</sup> According to Fei Xiao-tong’s description, Chinese rural society determines the relationship between people and give trust in accordance with consanguinity and geography.

People with a tie of kinship or geographically close are trusted, and on the contrary, are not. According to the interaction logic of this difference pattern, farmers should have higher trust in local governments with close geographical position and frequent contact, and show a low level of trust to the central government, which is far from its own geographical position and has little interaction.

However, this is not the case. The so-called “inverted pyramid” structure of political trust is that there is a positive correlation between the government level and the trust of the government. That is, farmers tend to believe in government of relatively high level, rather than that of lower level. This creates a “distance paradox” that trust in government is less in closer geographic position, and is more in further geographic position. “The village leadership is a foe and the government at the township

level is a villain, while the county government is a goodman, the provincial government is a kinsman and the central government is a benefactor”, “The higher ups have policies while the lower downs have their own ways of getting around them.” and other folk proverbs are true portrayal of the “inverted pyramid” structure of political trust.

From the four-time follow-up investigation data (Table 1) on the five provinces of 60 villages in 10 years of Chinese scholars Xiao Tang-biao, this “inverse order pattern” type of government trust is always there. In 1999, 2002, 2005, 2008, that the credible ratio of central government was 50.3%, 65.1%, 78.5%, and 80.2% respectively. During the same period, farmers’ political trust of local governments (including the provincial government, county government and township government) is significantly lower than the central government, which will drop by about ten percentage with hierarchy dropping every level.<sup>[12]</sup>

**Table 1 Changes in peasants’ trust in different hierarchy government (percent, %)**

	1999	2002	2005	2008
Central government	50.3	65.1	78.5	80.2
Provincial government	39.3	50.9	67.0	66.5
County (city) government	23.1	24.4	44.3	45.1
Township government	14.1	16.8	34.0	35.0

#### **4 Realistic enlightenment of rural political trust change**

Through the change of peasants’ political trust in different rural governance models, the political trust of peasants in our country presents a basic situation of the transition from personal trust to institutional trust, which is of great significance to the change of modernity of political trust in the new period.

##### **4.1 Seeking reasonable limits of political trust and doubt**

It is found that the high degree of political trust before and after the reform and opening up did not bring about the development of our democratic politics. On the contrary, after the reform and opening up, with the increase of political trust pressure, China’s democratic politics unexpectedly developed rapidly. So, in the choice of political trust and political doubts, it is necessary to clarify the reasonable limits between the two. While emphasizing the need for political suspicion, we must try to avoid some possible misunderstandings. First, political doubts can not be quantified, that is, the political doubts can not be understood as part of the political decision-making and political behavior of the trust and part of the doubt or in a period of trust or a period of doubt, these “moderate” tendencies are misunderstood about political doubts. Second, political doubts are not blindly questioning everything, but rational and reasonable doubts. At present, a key problem is that farmers do not have enough confidence in the political system. Instead, political suspicion based on rationality and public interest is what farmers lack. At present, the reason why a political trust crisis appeared is that we do not dare to put up with reasonable doubts. In conclusion, the healthy development of rural democracy and the effective governance of the rural order requires not only the political trust, but also a certain degree of political criticism on the rational basis, which the reasonable limit of should be within the government, government officials and public policy doubt and criticism, and should not spread to the political values, political system and the country’s mistrust. Because these micro-level, medium-level political doubts are easy to repair, they don’t lead to violent political turbulence.

##### **4.2 The “inverted pyramid” structure of political trust may hide political risk**

At present, although the political trust of our peasants is still at a high level, the prevalence of the “inverted pyramid” structure in the peasants may conceal the greater political risk. First, the distrust of local governments may extend to central government, which then affects the level of trust in the entire government system. The “trust difference” formed between the local government and the central government is bound to strengthen and stimulate the peasants’ petitioning willingness to a great extent.

The rural problems and conflicts (such as house demolition, land acquisition and so on) are transferred to the higher government, and finally assembled on the central government. However, governance capacity and resources of central government is also limited, which will cause great

unevenness between psychological expectations and real situation, and ultimately will gradually erode the level of trust in the central government and the loss of central authority. The farmers' trust in the central government and the number of petitioning are negatively correlated. The more they petition, the lower the degree of trust they have. Second, the "inverted pyramid" structure of government trust may affect other aspects of political trust. First, the situation of "trusting the central government but not believing in the local" will eventually affect the trust and authority of the central authorities, and then extend to distrust or doubt about the country, political values and political system which are at the core of political trust factors. Second, the low level of government trust may affect the validity of public policy implementation, increasing the cost of public policy implementation.

#### **4.3 Promoting political trust by system construction**

The great social change that rural social experiences has remoulded the basic logic of peasants' political trust. Rural political trust began to shift from the traditional worship of leaders to these fundamental vectors that measure rural political trust, such as the realization interests, the maintenance of rights and pursuit of fairness for peasants.

At present, if government relies on simply economic growth to win the political trust of farmers, it will be faced with the so-called "performance dilemma", dissipating farmers' political trust greatly. If the personality trust is a specific support, then the system of trust is distributed support, often with strong stability.

In this regard, to strengthen the system construction, establish a normative and effective system is the fundamental choice to repair and improve the rural political trust. Since the reform and opening up, the rural political ecology has undergone profound changes. Political trust construction can not and need not completely eliminate farmers' mistrust from many underlying causes. On the contrary, the key lies in the establishment of a set of expression channels for political distrust based on rational skepticism, so that political doubt or political distrust among peasants can be expressed through certain institutional channels and promotes the growth of institutional trust as the core of modern political trust. To a certain extent, the problem is not the lack of political system, but effective implementation system. The omission, chaos of implementation and the selective implementation of the system can not make system supervise public power, dissipating the authority of the system.

To this end, we should firmly establish the principle that all people are equal before the law, and no exception will be made before regulations, enhance the rationality, legitimacy and equality of system implementation, and reinforce the institutional basis of rural political trust.

## **5 Conclusions**

Through the analysis of rural political trust in different rural governance modes, we can see the rural political trust presents a basic picture of transition from personal trust to institutional trust. Before the reform and opening up, the farmers' high degree of political trust based on leadership worship has brought negative influence to the rural society. It can be seen that excessive political trust is not good. Besides, the fact that the central government is trusted but the local governments are distrusted by farmers may imply the factors of political instability. So we should strengthen the construction of grassroots regimes. Since the change from interpersonal trust to institutional trust is the basic schema of modern social development, we should strengthen institutional construction to promote political trust.

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# The Top-Level Design and Local Path Differences in Chengdu-Chongqing Economic Zone Urban System: Analysis Based on Urban Positioning and Industrial Layout

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**Abstract** The construction of Chengdu-Chongqing Economic Zone is of great significance to China's West Development Strategy. Firstly, this paper illustrates the text of *Chengdu-Chongqing Urban Agglomeration Development Planning* and the descriptions of the urban positioning of related cities in the overall urban plan; secondly, this paper explores the relationship between the gross regional product (index) and urban positioning in Chengdu-Chongqing Economic Zone according to the high-frequency word, "industry", and then concludes that fierce competition exists in the prefecture-level municipal government in the Chengdu-Chongqing Economic Zone, which is especially true among second and third tier government; lastly, according to the successful experience of urban agglomerations from home and abroad, and by combining the characteristics of Chengdu-Chongqing Economic Zone, this paper proposes that appropriate urban cooperation modes should be explored for the development of Chengdu-Chongqing Economic Zone, that is: strengthening functional complementation in the Economic Zone and establishing governmental coordination mechanism.

**Key words** Chengdu-Chongqing Economic Zone, Top-level design, Local path, City positioning

## 1 Introduction

In 2016, the State Council officially approved Chengdu-Chongqing Urban Agglomeration Development Plan and 15 prefecture-level cities in Chengdu and 27 counties (districts) in Chongqing, with the total area of 185,000 square kilometers, are included in Chengdu-Chongqing Urban Agglomeration. From the perspective of top-level design, the cities within the Chengdu-Chongqing Economic Zone will be bonded closely together in the next decades. The active coordination of local government is essential to the realization of Chengdu-Chongqing Economic Zone, therefore, the significant issue to consider for the development of Chengdu-Chongqing Economic Zone is to consider how to grasp the opportunity when the country is adjusting its urban layout and is dynamically integrating the top-level design of Chengdu-Chongqing Economic Zone and the local paths so as to achieve regional economic growth. This paper will analyze the differences between the top-level design of Chengdu-Chongqing Economic Zone and the local path from the perspectives of urban positioning and industrial layout chain and summarize the dilemmas in the governance of Chengdu-Chongqing Economic Zone and offer countermeasures for the greater development of Chengdu-Chongqing Economic Zone.

## 2 Cities in Chengdu-Chongqing Economic Zone and the status quo of their industrial positioning

### 2.1 City positioning

The overall urban plan offers the direction for the future development of the cities. The approval of the overall urban plan from the superior government has defined the nature of the cities on a legal basis. Through comparing the documents approved, including Chengdu-Chongqing Urban Agglomeration Development Plan and the overall urban plan approved by the upper government for 16 cities within the Chengdu-Chongqing Economic Zone, the paper explores their differences in the discourse of "urban positioning" and summarizes the differences between the top-level design of Chengdu-Chongqing Economic Zone and the local path. Meanwhile, according to Chengdu-Chongqing Urban Agglomeration Development Plan, cities are divided into three tiers, including core functional cities, regional hub cities and important node cities, which represent first, second, and third tiers and stand for the status and role of the cities in Chengdu-Chongqing Economic Zone, as illustrated in Table 1.

**Table 1 Comparison of the urban positioning of prefecture-level cities  
in Chengdu-Chongqing Economic Zone**

City	Urban nature approved in the overall plan	Rank	Urban positioning in Chengdu-Chongqing Urban Agglomeration Development Plan	Rank
Chengdu	The provincial capital of Sichuan province, a famous national historic and cultural city, an important national high-tech industrial base, a business logistics center and comprehensive transportation hub, an important central city in western China	1	National central city	1
Chongqing	One of the important cities central cities in China, a famous national historical and cultural city, the economic hub of upper reaches of the Yangtze River, an important modern manufacturing industry base, a comprehensive transportation hub in Southwest China	1	National central city	1
Zigong	A famous national historical and cultural city, characteristic cultural tourism city, modern industrial city and regional central city	2	a famous national historical and cultural city, characteristic cultural tourism city, a modern industrial city (important node city)	3*
Luzhou	China's wine city, central city of Sichuan, Yunnan, Guizhou and Chongqing Joint Region, a famous national historical and cultural city, southern Sichuan comprehensive transportation hub and a garden city	2	Regional central city in riverside urban belt	2
Deyang	A modern industrial base dominated by major equipment manufacturing and high-tech industries in China, an important regional central city and landscape livable city in Sichuan	2	An Important major equipment manufacturing base, and new material, fine chemicals base (important central node city)	3*
Mianyang	China high-tech city, an important economic center and livable city in western China, a famous historical and cultural city in Sichuan	2	Regional central city in Chengdu-Deyang-Mianyang-Leshan urban belt	2
Suining	A regional central city in Chengdu-Chongqing Economic Zone, secondary comprehensive transportation hub and the modern industrial base of Chengdu, a modern ecological garden city	2	An important comprehensive transportation hub and a modern industrial base, a modern ecological garden city ( important node city)	3*
Neijiang	A regional central city in Chengdu-Chongqing Economic Zone, a comprehensive transportation hub and modern industrial base, a characteristic waterfront livable city	2	An important comprehensive transportation hub and modern industrial base, a waterfront livable city (important node city)	3*
Leshan	A famous national historical and cultural city, the Chengdu-Chongqing-southwest central city, a modern industrial technology base, an international ecological and cultural tourist attraction	2	A regional central city in Chengdu-Deyang-Mianyang-Leshan city belt	2
Nanchong	A regional central city in Chengdu-Chongqing Economic Zone and northeast Sichuan, a mountainous city rich in regional industries, science and education, business logistics and financial center, a transportation information hub	2	A regional central city in Nansuiguang town concentrated area	2

City	Urban nature approved in the overall plan	Rank	Urban positioning in Chengdu-Chongqing Urban Agglomeration Development Plan	Rank
Meishan	A regional central city in Chengdu metropolitan area, a historical and cultural city featured by Dongpo culture and a modern ecological garden city	2	A historical and cultural city featured by Dongpo culture and a modern ecological garden city (important node city).	3*
Yibin	A famous national historical and cultural city, China's wine city, a regional center in the upper Yangtze River Sichuan-Yunnan-Guizhou joint region	2	A regional central city in riverside city belt	2
Guang'an	Hometown of Deng Xiaoping, a mountainous ecological tourism city	3	The transportation hub of northeast Sichuan, a demonstration city for mountainous garden city under the cooperation between Sichuan and Chongqing (important node city)	3
Dazhou	Western China natural gas energy chemical base, the transportation hub of Sichuan-Chongqing-Hubei-Shaanxi joint region, the cultural and business center and ecologically livable regional central city	2	Western China natural gas energy chemical base, transportation hub of Sichuan-Chongqing-Hubei-Shaanxi joint region, and ecologically livable city (important node city)	3*
Ya'an	The west Sichuan hub and regional central city, an international tourism ecological city, a famous Sichuan historical and cultural of provincial level	2	The Tibet material distribution center, West Sichuan characteristic industrial base, a transportation hub, an international ecological tourism city (important node city)	3*
Ziyang	Newly emerged regional city in Chengdu-Chongqing Economic Zone, the manufacturing base of locomotive and automobile industry, the green food processing and distribution base, an ecological livable city featured by hills	3	An important advanced manufacturing base, an ecological livable river town featured by hills (important node city)	3

Note: according to Chengdu-Chongqing Urban Agglomeration Development Plan, cities are divided into three tiers including core functional cities, regional central cities and important node cities, which are represented by 1, 2 and 3 respectively. “\*” means that the ranks of the compared cities do not match.

In Chengdu-Chongqing Urban Agglomeration Development Plan approved by the State Council, Chengdu and Chongqing are the two cores in the Economic Zone, and unsurprisingly, are the first tier cities in Chengdu-Chongqing Economic Zone. Chengdu and Chongqing are not only the core cities in this Economic Zone, but also positioned as a “national central city”. Because of the approval of Chengdu-Chongqing Urban Agglomeration Development Plan by the State Council, Chengdu's position has been raised directly, which ensured its position as the sixth central city in China. In the discussion of Chengdu-Chongqing national central cities, the word “establishing” was used for Chengdu, while “finish establishing” was used for Chongqing, which means, to some extent, that strategically speaking, Chongqing is slightly more important as one of the national central cities. As the top-level design, Chengdu-Chongqing Urban Agglomeration Development Plan explicitly stated their positioning. While, in fact, the two places do not share the same local path. They did not reach an agreement on what kind of center the two cities represent, for example, agreement has not been made as to which city is the financial central city and which city is the transportation hub center, which will directly influence their choices in local paths in the development of Chengdu and Chongqing.

From the urban positioning of the second and third tier cities, differences exist between the urban nature defined by the superior government and the Chengdu-Chongqing Urban Agglomeration Development Plan approved by the State Council, so there is a fierce competition as to which city is the regional central city. Only five prefecture-level cities including Luzhou, Mianyang, Leshan, Nanchong and Yibin are approved as regional central cities in Chengdu-Chongqing Urban

Agglomeration Development Plan, while according to the approval of the superior government on the overall city plans, 12 cities in total are defined as regional central cities. The differences in the two texts show that the top-level design of urban positioning and local paths in Chengdu-Chongqing Economic Zone do not match, while the local paths will directly influence the overall state of the development of Chengdu-Chongqing Economic Zone. Chengdu-Chongqing Urban Agglomeration Development Plan points out that the major function of regional central cities are to share the functions of the core cities and strengthen the regional radiating and driving function, while the functions of important node cities are merely to demonstrate their characteristics of urban development and use professional and characteristic industries to promote the development of the cities and the Economic Zone. To some extent, it weakened their radiating and driving function to the region, but strengthened their function to assist the development of the Economic Zone with their own development characteristics. The five regional central cities of municipal level defined in Chengdu-Chongqing Urban Agglomeration Development Plan have clear radiating areas, which are mostly related to city belts. For example, as the central cities in Chengdu Plain area, Mianyang and Leshan is the special node radiated to north and south from the Baoji-Chengdu & Chengdu-Kunming belt; as the regional central city of northeast Sichuan, Nanchong brings along the harmonious development of cities and towns in northeast Sichuan; as the regional central cities of south Sichuan, Luzhou and Yibin bring along the development of cities and towns in the hilly areas and those along the Yangtze River economic belt. Except Chengdu, which serves as a sub-provincial city, the overall plans of the 14 prefecture-level cities in Sichuan are all approved by the People's Government of Sichuan Province with legal force. Therefore, an issue worthy of our consideration is that when there are differences in the nature of the cities regulated in the overall plan and the top-level design of Chengdu-Chongqing Urban Agglomeration Development Plan approved by the State Council, how to adjust the urban positioning in the overall plan of urban development so as to be better involved in the development of Chengdu-Chongqing Economic Zone and to combine the top-level design with local paths.

## 2.2 Industrial development

Urban positioning, urban leading industry, urban characteristics, and the formulation of urban development strategy are major issues which impacts the future development of a city<sup>[1]</sup>. Through the analysis made on the statistics of the words frequency in Chengdu-Chongqing Urban Agglomeration Development Plan, the text of the top-level design with legal force in Chengdu-Chongqing Economic Zone, it is found that the top 10 words that were used most frequently are: industry, ecology, cooperation, resources, innovation, base, equipment, transportation, integration and hub (as illustrated in Table 2). In other words, in Chengdu-Chongqing Urban Agglomeration Development Plan, "industry" was put at the top, which highlighted the importance of industry positioning, which are shown in the text as industry layout and industry cooperation. Industry layout refers to the fact that the local governments give full play to their local advantages and shore up weak spots and remove bottleneck, and meanwhile, strengthen coordination and optimize layout to realize regional growth level; industry coordination means that local governments should summarize their advantages and disadvantages according to the top-level design and their own condition to find their industry positioning that matches the top-level design. Therefore, industry positioning is of great influence to the development of a city and an economic zone. According to the regional development theory, the city in the Chengdu-Chongqing Economic Zone should define their roles and then choose an industry to develop according to their advantages, disadvantages and development potential in the region<sup>[2]</sup>.

**Table 2 Statistics on the high frequency words in Chengdu-Chongqing Urban Agglomeration Development Plan**

Key words	Words frequency	Rank	Key words	Words frequency	Rank
Industry	135	1	Base	63	6
Ecology	114	2	Equipment	49	7
Cooperation	75	3	Transportation	48	8
Resources	70	4	Integration	40	9
Innovation	64	5	Hub	36	10



Industry is the key for the development of Chengdu-Chongqing Economic Zone. Then, does the industry development status match with the urban positioning? Through the comparison to the gross regional product (index) of the municipal cities in Chengdu-Chongqing Economic Zone and their city ranks, it has been discovered that, as the core functional cities, the per capita GDP of Chengdu and Chongqing is much higher than other cities in the economic zone, and the per capita GDP of Chengdu is higher than that of Chongqing, while Chongqing performs better in the secondary and tertiary industry. The per capita GDP of the regional central cities including Luzhou, Mianyang, Leshan, Nanchong and Yibin, rank 12, 6, 5, 16 and 9 respectively; while Deyang, whose per capita GDP only next to Chengdu and Chongqing, are not included in the regional central city (as illustrated in Table 3). So it can be concluded that, industry positioning is an important reference indicator for urban positioning and the urban positioning rank in Chengdu-Chongqing Economic Zone does not match with the industry development status, which shows that the urban industry layout need to be further adjusted in the development of Chengdu-Chongqing Economic Zone and the industry positioning made by the local government should be adjusted to match with the top-level design.

**Table 3 Gross regional product (index) in Chengdu-Chongqing Economic Zone (RMB100 million) (preceding year)**

Region	Gross regional product	Primary industry	Secondary industry	Tertiary industry	Per capital GDP (RMB)	Rank
Chengdu**	10801.16 107.9	373.15 103.9	4723.49 107.2	5704.52 109.0	74273 106.6	1
Zigong	1143.11 108.4	127.97 103.8	664.42 108.2	350.72 110.5	4144.7 107.8	4
Luzhou*	1353.41 111.0	167.84 103.8	806.74 112.5	378.83 110.5	31714 110.5	12
Deyang	1605.06 108.2	208.18 103.7	903.27 108.3	493.61 110.0	45701 108.4	3
Mianyang*	1700.33 108.6	260.05 103.8	858.93 109.3	581.35 109.4	35754 107.5	6
Suining	915.81 113.2	141.66 103.6	514.32 116.3	259.83 112.0	27868 113.0	14
Neijiang	1198.58 108.0	191.15 103.9	717.78 116.3	289.65 112.0	32080 113.0	11
Leshan*	1301.23 109.1	142.50 103.9	797.05 109.8	391.68 109.4	39973 109.1	5
Nanchong*	1516.20 107.6	335.46 103.8	741.11 107.9	439.63 109.6	23881 107.2	16
Meishan	1029.86 110.2	159.64 104.0	578.14 111.4	292.08 110.8	34379 109.8	8
Yibin*	1525.90 108.5	216.35 103.9	899.89 108.6	419.66 110.3	34060 108.1	9
Guangan	1005.61 110.6	163.31 103.8	520.19 111.6	322.11 112.0	31046 110.2	13
Dazhou	1350.76 103.1	290.82 103.9	657.52 99.8	402.42 109.6	24343 102.6	15
Yaan	502.58 109.0	72.44 103.9	280.92 110.2	149.22 108.9	32523 108.5	10
Ziyang	1270.38 108.8	250.93 103.9	702.93 109.7	316.57 110.0	35702 108.8	7
Chongqing**	15717.27 111.0	1150.15 104.7	7069.37 111.3	7997.75 111.5	52321 105.5	2

Note: \*\* represent first tier cities, \* represents second tier cities.

Source: Statistical Yearbook of Sichuan Province in 2016, Statistical Yearbook of Chongqing in 2016

### **3 Differences between the top-level design of the urban system and the local paths in Chengdu-Chongqing Economic Zone**

As a regional strategic thinking, Chengdu-Chongqing Urban Agglomeration Development Plan has to be implemented with not only the management of Chengdu and Chongqing government, the core functional municipal governments of national central cities, but also with the regional central cities strengthening the radiating and driving role of the core cities and connect and smoothen urban development in the urban belt, and in addition, those important node cities should cultivate and development their own characteristic advantageous industry. While in reality, during the development of Chengdu-Chongqing Economic Zone, in order to fight for administrative resources, local governments were actually making decisions from their benefits instead of from the regional strategic development of the Economic Zone, which have made the coordinative management between local governments in the Chengdu-Chongqing Economic Zone even harder<sup>[3]</sup>. The differences between the top-level design of Chengdu-Chongqing Economic Zone urban system and the local paths are shown in the following aspects:

Firstly, different urban positioning leads to clear difference between top-level design and local paths. A city's position determines its political resources and the improvement of the city's position will bring the increase of its political resources. Through comparing the urban positioning in Chengdu-Chongqing Urban Agglomeration Development Plan and the city natures regulated in the overall plan, there is a fierce competition for the title of the second tier cities, that is, the regional central city. The five cities which were finally selected are Luzhou, Mianyang, Leshan, Nanchong and Yibin do not have obvious advantage in industrial development, which made it hard for the cities, such as Deyang, who were originally defined as regional central cities but were ultimately defined as the third tier cities, to accept the result. Meanwhile, as to these five regional central cities, it is a challenge for them to find their urban positioning and fulfill their duty as the regional center of the Economic Zone. In addition, those important node cities which fail to be selected as regional central cities should also consider the issue of adjusting their overall urban development strategy and find their own characteristic industry as soon as possible.

Secondly, the development of secondary cities in Chengdu-Chongqing Economic Zone will be influenced because of the mutual competition between the two national central cities and their overflow effect to the secondary cities will be hard to realize. As national central cities, the per capita GDP of Chengdu and Chongqing is far greater than other cities. Therefore, the future development of Chengdu and Chongqing should take how to exert their radiating and driving function and guide the development of the secondary cities into consideration. Meanwhile, given the current situation, competition exists between the two core cities on urban development positioning. For example, both cities want to be the financial center, cultural and creative center, but which city can become the one? In the Chengdu-Chongqing Economic Zone, the competition of the two core cities will surely turn into competition for internal resources within the Economic Zone.

Thirdly, there is no agreed platform of negotiation to ensure the smooth implementation of the top-level design<sup>[4]</sup>. Despite the fact that Chengdu-Chongqing Urban Agglomeration Development Plan has been approved by the State Council, it is still in preparation and coordination period with no relevant policies been issued to implement it, which remains to be considered in actual practice. During the implementation process, due to the facts that cities of different tiers are fighting for their own benefits and local governments all have their own position, a smooth communication and coordination platform is badly needed to provide a platform for governments to negotiate<sup>[5]</sup>. This is an important method to ensure that the top-level design and local paths in the Chengdu-Chongqing Economic Zone match with each other.

### **4 Countermeasures for the differences in the top-level design and local paths in Chengdu-Chongqing Economic Zone**

At present, the research of Megalopolis by J. Gottman is a relatively mature definition and identification criteria for urban agglomeration. He believed that there are six kinds of urban agglomeration in the world<sup>[6]</sup>. Based on the development characteristics of urban agglomeration from

home and abroad and the issues in the development of Chengdu-Chongqing Economic Zone, this paper offers the countermeasures as follows:

#### **4.1 Exploring on the coordination mode among local governments**

As the two cores in Chengdu-Chongqing Economic Zone, the performance of the core functions of Chengdu and Chongqing will influence the local paths of other cities. At present, the urban integration development of the two cities takes in three modes. The first mode is that two cities being completely merge into one city. For example, Dalian and Lvshun can be merged into “Dalian mode”. Due to the fact that Chengdu and Chongqing have their own development characteristics, it is obviously inappropriate for the two cities to merge completely. The second kind is the “Greater Los Angeles Area mode”, that is, close coordination relationship is formed in the cities in the area, and the major issues in the area have to be discussed and negotiated among the cities in the area. The third mode is “two-city mode”, which means that local governments sit together to discuss issues involving the agenda and development plan of the two cities without changing the original administrative level. At present, the connection and coordination in the Chengdu-Chongqing Economic Zone are still subject to administrative division, and complicated and diversified coordination division of labor system remains to be established, which need the specification and guidance of the policies. It can be said that Chengdu-Chongqing Economic Zone, with Chengdu and Chongqing as its core, is still in its infancy in terms of coordination between local governments, and the innovation in system and policy have to be made to ensure smooth coordination in more fields among the local governments in the Economic Zone in resource sharing, environment building, urban intercommunication, industry interaction and policy reciprocity to jointly increase the competitiveness of the Economic Zone<sup>[7]</sup>.

#### **4.2 Strengthening functional complementation in the Economic Zone**

One of the important symbols for the maturity of an economic zone is to see whether the urban function division system is accomplished to deepen and develop the division and cooperation between the core cities. Only the competitiveness of cooperative type can reflect the overall strength of the economic zone and the cooperation within the economic zone is the key for the economic zone to obtain competitive advantage<sup>[8]</sup>. As the element in urban positioning, industry layout is the key for establishing the development pattern of different layers and characteristics<sup>[9]</sup>. The successful experience of urban agglomeration from abroad can be learned to formulate the industry layout of Chengdu-Chongqing Economic Zone and adjust measures to local conditions so as to set up the development pattern of different natures based on their own advantages. For example, a heavy industry development area complementary to each other from Mianyang to Leshan can be established with Mianyang as the “national high-tech city”, Deyang as the “national heavy equipment center” and Leshan, which is rich in mineral resources. As to the cities along the Yangtze River, such as Yibin, Luzhou and Chongqing, a logistic belt for the Chengdu-Chongqing Economic Zone can be established with their geographical advantage. A red tourist route from Chongqing to Dazhou can be developed with their unique historical background; in addition, an industry belt with comprehensive service function can be created from Chengdu to Chongqing to provide high-end services for other industries<sup>[10]</sup>.

#### **4.3 Establishing government coordination mechanism**

In order to solve the regional contradictions and issues in the Economic Zone, it is a must to conduct effective regional coordination. To ensure the development of Chengdu-Chongqing Economic Zone, it is required to establish a smooth communication and coordination mechanism between local governments, such as establishing government coordination mechanism. America has made many explorations on the communication and negotiation among metropolises. A case in point is making appropriate adjustment on administrative division: one is to change the administrative level of the city to realize the “merge of cities and towns” to unite central cities to suburban counties as one. Resources sharing within the economic zone can be realized through defining the urban positioning and industry layout from administrative level and then ensure the unification of path in local governments in quantitative terms; the other is to establish a regional government with authority, which will ensure the smooth implementation of the top-level design and strengthen the regional cooperation among cities, such as setting up “Metropolitan United Council”, like in America, the local government united

organizations, or unitary special zones and their coordinating bodies, etc. Based on the specific development background of Chengdu and Chongqing, the successful experience of the Great Lakes can be used for reference, that is, to set up a special agency with no administrative boundary to be responsible for the coordination among local governments within the Chengdu– Chongqing Economic Zone and meanwhile, push forward its development.

## 5 Conclusions

Through content analysis, this paper makes a contrastive analysis on the text of *Chengdu-Chongqing Urban Agglomeration Development Planning* and the descriptions of the urban positioning of related cities in the overall urban plan, and explores the relationship between gross regional product (index) and urban positioning in Chengdu-Chongqing Economic Zone. It is discovered that fierce competition has been witnessed among second and third tier governments within Chengdu-Chongqing Economic Zone. Thus, it is proposed that proper urban cooperation modes should be explored to facilitate the development of the Zone, and functional complementation should be strengthened. In addition, government coordination mechanism should be established. This Planning stands for the top-level design of the government to a certain extent and its effect still needs to be tested by practice. Therefore, attention should be paid to the implementation effect of the policy in the future research of Chengdu-Chongqing Economic Zone.

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## Study on the Service Mode of Smart Pension in Zhongshan City from the Perspective of the Supply-side Structural Reforms in China \*

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**Abstract** In the era of “Internet plus” big data, smart pension has become a new type of pension service model with the aging of population increasingly severe. Taking Zhongshan City of Guangdong Province as an example, this paper analyzes the contradiction between supply and demand of Zhongshan’s smart pension system, which lack of systematicness on its policy, lack of wisdom on its system platforms, and lack of normative on its operation mechanism, in the view of the supply-side status that Zhongshan City have covered pension services products widely and is planning pension information service platform. This paper puts forward three aspects of the service mode of smart pension in Zhongshan City from the perspective of the supply-side structural reforms: to promote the construction the smart pension system on the perspective of institutional construction, to build a platform for smart pension service information on the perspective of technology support and to regular the service operation mechanism of smart pension on the perspective of mechanism guarantee.

**Key words** The supply-side structural reforms, Zhongshan City, Smart pension, Service mode

### 1 Introduction

With the rapid development of social economy, the problem of population aging in China has attracted more and more attention. According to the data of National Bureau, by the end of 2015, there are 222 million people aged 60 and above in China, which accounting for 16.15% of the total population, and there are 143 million people aged 65 and above, accounting for 10.5% of the total population.<sup>[1]</sup> It is estimated that the number of elderly people will reach 480 million by 2050.<sup>[2]</sup> China will facing the situation of accelerated aging, and there is a huge challenge for the pension service industry. The Chinese government devotes itself to constructing the “9073” model in the field of pension service, it focusing on the structure of old-age beds and community-based pension service system, and forming the social pension system which is oriented by life care of the older, medical services, emergency assistance, spiritual comfort and other needs and is supported with family self-care, community home pension, institutional pension-based, public health services and other health supports.

In the background of big data and “Internet +”, wisdom endowment emerging and becoming an important breakthrough to solve the pension problem. In recent years, both domestic and foreign government gradually conduct the exploring practice of intellectual endowment, which have formed a distinctive wisdom pension model. In foreign countries, the United Kingdom government take an intelligent pension base care mode for the elderly; while the Japan government provide self-care housing products for the elderly. In China, Beijing century City community health care center used the intelligent equipment to tracking and recording the physical condition of the elderly in real-time, is also equipped with a special child care system; Wuzhen of Zhejiang province sets up a wisdom pension service platform and establishes a data model, to achieve pension information Interconnection. This is important for the development of China’s wisdom pension service, and we can see the wisdom pension has caused great concern in China’s decision-making.

On November 10, 2015, General Secretary Xi Jin-ping presided over the eleventh meeting of the

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Central Leading Group for Finance and Finance, and put forward the “supply side reform” for the first time, stressing that, while moderately expanding the aggregate demand, our efforts should be made to strengthen the supply side structural reform, to improve the quality and efficiency of supply system. With the increasing demand of diversification, specialization and individuation of the pension service, the existing pension service supply is still facing the problems of total amount shortage and structural contradictions. published by the National Bureau of aging, China’s urban home care service research shows that 48.5% of the elderly in the City have the actual needs of various pension services, while the satisfaction rate of urban home care services is only 15.9%.<sup>[3]</sup> Therefore, the main problem to solve the balance between supply and demand of intelligent pension service is how to optimize the structure of the wisdom endowment from the perspective of the structural reform of supply side and increase the effective supply.

## 2 The overview on present situation of supply side of wisdom pension in Zhongshan City

Zhongshan City of Guangdong Province, is located on the West Bank of Pearl River Estuary, with a total area of 1783.67 square kilometers. As early as 1990, Zhongshan has entered into the aging population<sup>1</sup>, which is 9 years earlier than the country’s aging standard of aging: 60 years of age or older population accounted for 10% of the total population, or more than 65 years old population accounted for 7% of the total population.<sup>[4]</sup> According to Zhongshan latest statistics, by November 30, 2016, Zhongshan City have a total population of 1,612,485 people, the 60 years old and above household registration are 252,555 people, accounting for 15.66% of the household population.<sup>[5]</sup> Compared with 12.9% in 2010, it increase 2.76%. The number of elderly registered residents has reached a record high, and the aging of the population is becoming increasingly serious.

12<sup>th</sup> Five-year plan of Civil Affairs development in Zhongshan put forward clearly, to establish and improve the old-age service information platform which focus on the old-age care and service network, and to promote the home care services, and achieving that 90% of the elderly to enjoy home support Service, 7% of the elderly to provided day care and care service by the community, 3% of the elderly to enjoy the agency pension services. Since 2010, Zhongshan City pushes forward the old-age pension information work which focus on the home-based care, which has been promote and use intelligent old-age products initially in the township. The following describes the status of the supply side of the wisdom pension in Zhongshan City.

### 2.1 The extensive coverage of intelligent pension service products

At present, intelligent pension service products including “Push to Talk(PTT)”, “Charity Courtesy Ring”, “Courtesy Ring APP”(Mobile Client), community service terminal equipment, intelligent home interconnection system.

#### 2.1.1 “Push to Talk”(PTT)

In August 2010, the project of “Push to Talk” has officially put into use, which offers appointment, medication reminder, gas distribution, domestic service, household maintenance, hose clean, door-to-door visit, legal advice, tourism, entertainment, community service, weather report, public transport, etc. The project has been awarded as one of the top ten livelihood projects for three years in Zhongshan City. Now PTT has covered 24 townships and extended for surrounding communities. Until December 2016, there were 296 organize and participate PTT’s green key activities in various townships, 40 series of theme activities, and 267,000 elderly people served.

#### 2.1.2 “Charity Courtesy Ring”

On 2016, “Charity Courtesy Ring” provided 86,772 types of services including “Red Key” emergency rescue, “Yellow Key” health service and “Green Key” living service. The scope of services covers 16 townships and concentrates on Shiqi District, Eastern District, Western District, Shaxi Town, Sanxiang Town, etc, which account for 72.75% of the total. As shown in Table 1, ten items involving chat service, home interview, gas distribution, consulting service, communication with family, error

1 The standard of aging: Elderly population over 60 years accounts for 10% of the total, or elderly population over 65 years accounts for 7% of the total.

recording, rescue tracking, medical examination, appointment, etc., account for 47.75%. As shown in Table 2, according to statistics, there were 304 cases of emergency assistance in 2016 followed, of which 295 cases were successfully rescued and 9 cases were lost. The successful rescue rate was 97.04%. It's expected that propaganda will be put into effect in 2017 around central City, gradually improving the construction of service network.

**Table 1 The service situation of “Charity Courtesy Ring”**

No.	Townships	Times	Proportion	Content
1	Shiqi	29,994	34.57%	Chat service, gas distribution, home interview
2	Eastern	12,963	14.94%	Chat service, medical examination, gas distribution
3	Shaxi	10,195	11.75%	Chat service, home interview, consulting service
4	Sanxiang	5,949	6.86%	Chat service, home interview, communication with family
5	Western	4,015	4.63%	Chat service, home interview, consulting service

Source: provided by Guangdong Corning Information Service Co., Ltd.

**Table 2 The service types of “Charity Courtesy Ring”**

No.	Types	Times	Proportion
1	Chat service	21,035	24.24%
2	Home interview	4,623	5.33%
3	Gas distribution	3,843	4.43%
4	Consulting service	2,699	3.11%
5	Communication with family	2,171	2.50%
6	Error recording	2,119	2.44%
7	Rescue tracking	1,427	1.64%
8	Medical examination	1,282	1.48%
9	Appointment	1,221	1.41%
10	Other	759	0.87%

Source: provided by Guangdong Corning Information Service Co., Ltd.

### 2.1.3 “Courtesy Ring APP”(Mobile Client)

“Courtesy Ring APP”(Mobile Client) is not only an important part of the pilot project of the community home care service information network, but the extension of “Charity Courtesy Ring”. You can enjoy all kinds of the elderly care service anywhere as long as you lightly touch. Nowadays APP users have reached more than 900 people.

### 2.1.4 Community service terminal equipment

Community service terminal equipments, through interactive multimedia, are placed in the community neighborhood committees, home nursing institutions for the aged and units at the workplace in order to propagandize platform of the policies and information for home care. At present, four equipments had been put in Zhihe supermarket, Qichuang Social Work Service Center and Letiannian Health Service Center. It will prepare to cover more than 190 sites or institutions including communities in the future.

### 2.1.5 Intelligent home interconnection system

Zhongshan City popularizes intelligent home interconnection system such as doors and windows trigger, intelligent infrared detector, intelligent help beeper(above mentioned “Charity Courtesy Ring”), burglar alarm, etc. It can, by means of RFID, GPS, Internet of Things and sensors, forecast and monitor the physical and mental state of the elderly in real time, realizing supply according to old people’s needs.

## 2.2 The current planning of pension service information platform

Nowadays Zhongshan City is engaging in the construction of home care emergency assistance information platform, which is a data platform for the aged based on the actual situation of the current

home care service. Home care institutions are link by the construction of platform and the application of data, resulting in emergency call system are reached from original emergency to health and life services. Currently, the platform research has been completed, including investigation, design, coding, unit testing, joint debugging and test run. Data auditing and importing, administrator training, pilot and acceptance, institutional admittance are still in progress. Referred procedures in the process of pension service supply are synchronous managed and supervised by pension service information platform. The past passive service upgrades to current active service, making the continuous projects become more targeted and predictable.

### **3 The analysis on the contradictions between supply and demand of smart pension in Zhongshan City**

Smart pension is a new concept that has arisen with the development of relevant technology, it's an important kind of the practical form in smart City.<sup>[6]</sup> It refers to all kinds of sensors, such as infrared detectors and smart bands, placed on the elderly or the pension equipment which used in the houses, unites into anytime and anywhere to access to the elderly endowment dates and information of the Internet of things. It could, by means of cloud computing platform, achieve the rapid integration, intelligent analysis, timely feedback and collaborative sharing of pension information and resources, offering conveniently life care, health care, rehabilitation care, security, domestic service, entertainment and spiritual comfort. It could effectively meet the needs of elderly people's diversified and multi-level pension services, and make sure enough food, medicine, education and entertainment.

Nowadays, Zhongshan City had meet the needs of security for the aged such as emergency system, calling system, etc. However, the supply of health information management and telemedicine is still in the blank stage. It's obvious that smart pension in Zhongshan City is still primary stage, or rather informationalized or intellectualized stage. The contradictions between the demand growth and supply shortage, and between the demand diversification and supply structural imbalance of smart pension service, had become the outstanding problems about smart pension for the supply-side structural reforms in Zhongshan City Then the author will analyze the contradiction among institution, technology and mechanism of smart pension in Zhongshan.

#### **3.1 Institution: Policies is lack of systematicness.**

Since 2010, China has issued more relevant policies and regulations on the aged. As shown in Table 3, it is a gradually distinct and progressive process from informationalized, intelligent to smart pension. At the same time, it's also found that there is a lack of systematic and systematic policy documents concerning smart pension, especially complete institutional arrangement for the steady promotion of smart pension. On the other hand, relevant specific requirements and guidelines to smart pension is mostly constructive suggestions, particularly ambiguous and inoperable. Besides, it takes linguistic description as the principal thing, lacking of unified standard to explain and normalize.

Since 2011, Guangdong Province and Zhongshan City have issued fewer regulations on pension service backbone policies, as shown in Table 4. Provincial and municipal policies on smart pension are few. On the one hand, Zhongshan actively responds to the national call for smart pension policy, but the process of promoting the informatization of pension service is slower. At present, it places restrictions on research and promotion about related products such as smart home systems and wearable devices. The key problem lies in the lack of guidance on policies to promote smart pension. Carrying out smart pension, a difficult and complicated task, must build a complete system and guide the construction from the top-level design. On the other hand, Zhongshan is introducing pension information platform built by enterprises and social organizations. However, how to use, operate, supervise and evaluate, is no unified standard of policy to plan with an eye to the interests of the whole.

In conclusion, the national, provincial and municipal policies on the pension are short of systematicness, guidance and standardability, which is limited in guiding the practice of smart pension in Zhongshan City.



**Table 3 Policies on pension service issued by China**

No.	Time	Name of policies
1	2011.09.17	The Notice of the State Council on Issuing the Twelfth Five-year Plan for the Development of Aging, 2011, 28
2	2011.12.16	Social Pension Service System Construction Planning 2011-2015, 2011, 60
3	2013.09.06	The Opinions of the State Council on Accelerating the Development of Old-age Service Industry, 2013, 35
4	2014.06.20	The Notice of the model project of National Intelligent Pension Internet of Things, 2014, 222
5	2015.02.03	The Implementation Opinions on Encouraging Private Capital to Participate in the Development of the Service Industry for the Aged, 2015, 33
6	2015.07.01	The Guidance of the State Council on the Promotion of "Internet +" Action, 2015, 40
7	2016.06.24	The 13th Five-year Plan for the Development of Civil Affairs, 2016, 107

**Table 4 Policies on pension service issued by Guangdong Province and Zhongshan City**

No.	Time	Name of policies
1	2014.01.16	The Preferential Treatment for the Elderly in Guangdong Province, 198
2	2015.08.19	The Regulations of the Protection of Rights and Interests of the Elderly in Guangdong Province
3	2014.09.02	The 12th Five-year Plan of Zhongshan Civil Affairs
4	2015.04.10	The Implementation Plan for Promoting Full Coverage of Home Care Service Center, 2015, 14
5	2015.08.19	The Preferential Treatment for the Elderly in Zhongshan City
6	2016.02.29	The Subsidy Method for the Aging Service Institutions in Zhongshan City

### 3.2 Technology: Platform is lack of intelligence

The smart pension service mode conforms to the trend of the big data era, and the essence lies in the support of its intelligent technology. The smart pension of Zhongshan is still in primary stage which reflects information and intelligence is slow degree, and information platform fails to meet the needs of pension service.

#### 3.2.1 Hardware: The lower degree of intelligence

First, the function of basic information database of old-age needs to be exploited. The function of the pension information database still stays on the rapid access to large-scale pension information data through various types of sensor equipment, including the physical condition and family situation of the elderly, institutions information and so on. However, it is relatively weak for the module of data integration, analysis, mining and sharing, and only stays in the data record and comparison. The lack of effective information analysis and data mining will weaken the scientific and accuracy of the decision-making of the pension service. Similarly, the difficulty of information sharing generates the decision-making subjects of various departments in Zhongshan City cannot quickly obtain the necessary pension information, leading to cooperation difficulty. There is no doubt to increase transaction costs.

Second, effective information platform for the aged is shortage. At present, the smart pension in Zhongshan City actually refers to the emergency rescue information platform for home care, which its function mainly reflects on the passive response to the needs of the elderly pension service. Unfortunately, based on the elderly real-time perception, intelligent control, data mining, internet sharing, dynamic scheduling and optimal allocation, it's unable to analyze in depth the demands of the elderly, let alone autonomously offer service anywhere.

#### 3.2.2 Software: The lower degree of wisdom

As mentioned earlier, "wisdom" focuses on initiative, flexibility and humanization of management. The degree of wisdom for intelligent products in Zhongshan City are not high and can not meet the needs of the elderly. On the one hand, the convenience and flexibility of intelligent products are insufficiency, such as "Courtesy Ring APP" (Mobile Client) and community service terminal equipment. According to statistics, the former is more than 900 and the latter is few. On the

other hand, intelligent products currently stay in the stage of the passive supply of pension service, and are lack of the wisdom and humanization from the angle of spiritual consolation such as active concern. Under the influence of the traditional concept, with the decline of the living ability of the elderly, the degree of social participation is seriously inadequate, resulting in the prevalence of science and technology fear of the elderly, the formation of a cognitive barrier to information technology. Based on this, the demands that elderly obtains the pension service by using information technology will be greatly reduced. In addition to radically change the traditional concept of the elderly, but also substantially increase wisdom of the intelligent products to meet the elderly diversified and humanized needs.

### **3.3 Mechanism: Lack of standard ability**

First, the decision-making mechanism is incomplete. It is not well prepared for policy interpretation and filed research in the process of decision-making, lacking of reasonable expert advice, comprehensive decision-making and coordinate arrangements for the sustainable development of Zhongshan's smart pension industry. It frequently tends to formulate short-term and substantial pension policy, especially the pursuit of short-term policy effects.

Second, communication and consultation mechanism is incomplete. The limited rational choice of pluralistic subjects, more or less lead to the result of uncoordinated interest, and even the outbreak of conflict.<sup>[7]</sup> Although the old-age of family, community and institution provide different and comprehensive pension service, the various providers lack of a horizontal communication mechanism. The aging office regularly visits the research community and institution, but the lack of normative Vertical interest coordination mechanism. Once top-down or bottom-up policy has been questioned, the communication and coordination mechanism which are weak normative will undoubtedly lead to policy can not be implemented, and even speed up the rupture of cooperation.

Third, supervision and evaluation mechanism is incomplete. The existing pension supervision and evaluation standard of different townships in Zhongshan City is different, more is a formality, especially the asymmetry of supervision information. In view of the choice of the non-zero-sum-game, the pension supervisor and who are supervised may be based on win-win benefits, intends to conceal the real pension situation.

Fourth, talent cultivation mechanism is incomplete. According the spot investigation, the pension agencies of Zhongshan City generally exist in the phenomenon which is serious shortage of personnel in the pension service industry. For example, the number of the senior social workers, pension caregivers, rehabilitation staff and psychological counselors are so little. Most of the pension caregivers are lower education, no job skills, older or they are the workers who have been lost a job. On June 2014, the ministry of Education and other nine departments provided some suggestions how to accelerate talent training of pension service industry, but Zhongshan City has not developed a personnel training mechanism of pension service industry with local characteristics.

## **4 Constructing the service mode of smart pension in Zhongshan City from the perspective of the supply-side structural reforms**

On November 10, 2015, General Secretary Xi Jin-ping put forward the structural reform of "supply side" for the first time, which emphasis that we should focus on strengthening the structural reform of supply side and striving to improve the quality and efficiency of the supply system while expanding the total demand. Promoting the structural reform of supply side is the intrinsic requirement to balance the supply and demand structure. Under the background of this policy, the author, taking the supply side policy as breakthrough, constructs the service mode of smart pension in Zhongshan City including the aspects of institutional construction, technical support and mechanism guarantee.

### **4.1 Institutional construction: Promoting the institutional system for smart pension**

Zhongshan government should strengthen the top-level design and overall arrangement on the institutional system for smart pension, which not only adapt to overall planning of the national smart pension development, but consider the local economic and social development, avoiding the short-term effect on smart pension. Especially, combined with the development goals of smart pension industry in 2020 proposed by the State Council, it is necessary to reasonably determine specific building goals on

facilities for elders such as home care facilities in community and nursing institutions

Firstly, smart pension service facilities construction standards in Zhongshan City should be formulated. According to guidance opinion about smart pension between the national and the provincial level, we must work out the scientific and valid smart pension service facilities construction standards in line with local conditions so as to provide normative and quantifiable standards on all aspects of smart pension. Besides, standards must be executed strictly for the sake of improving technical skills for employees.

Secondly, smart pension service information platform in Zhongshan City should be constructed. Zhongshan government should build unified smart pension service information platform from the perspective of the top-level design and set up operation strategy, goals, regulations, management system and technical security.

Thirdly, strong supportive policy on smart pension in Zhongshan City should be issued. We must carry out investigations in depth and introduce relevant policies and regulations step by step around the central task including supportive social security pension system, elderly services investment mechanism, government procurement of service for the aged, market access and daily supervision, support policies for private rest homes and the construct of pension talent, etc.

#### **4.2 Technical support: Building the information platform of smart pension**

The information platform of smart pension in Zhongshan City offers elders with disability and dementia life care, rehabilitation nursing, emergency rescue, recreation, spiritual consolation. It makes use of advanced technology and key equipment including the Internet of things, cloud computing, RFID, GPS, sensor, etc., which based on “cloud” platform, basic information and pension information database. It's able to provide data support for pension decision making through real-time perception, rapid integration, intelligent analysis, in-depth excavation, dynamic dispatching, collaborative sharing, realizing the supply of wisdom about care needs for the aged in order to meet the various and humanized demand for the aged. The intelligent link of people and things realizes the synchronous improvement of urban “IQ” and “EQ”, resulting in becoming the physical and humanistic space of technology, culture, soul, life and mind.<sup>[8]</sup>

The basic structure of the information platform consists of seven-story base, containing municipal infrastructures, perception, network, data, platform, application and user layer. It embodies all aspects of layers' structure, function and correlation, which it has clear perception, intelligent integration, scientific analysis, automatic allocation and highly effective sharing ability, playing a guiding role in smart pension of the supply-side structural reforms in Zhongshan City.

First, municipal infrastructures layer is the physical material foundation of the information platform, containing public network (e.g. water, electricity), green area, road traffic, entertainment places, nursing institutions, etc. Municipal infrastructures are connected to Internet of Things by means of the card readers, RFID tags and infrared detectors, which its operation is monitored online and managed remotely, achieving interconnection and intercommunication. The information obtained by Internet of things has prominent heterogeneity manifested by different perceptive goals and contents, sampled-data frequency, data's representation and life-cycle. Therefore, it's necessary to, facing with the interactive application of pension information comes from Internet of Things, adopt an effective and unified expression in multiple heterogeneous pension information and offer a description method of high-level semantic knowledge.

Second, perception layer consists of various types of sensors (such as portable or wearable equipments, electromechanical detectors), data collection interface (such as satellite communication systems, digital multimedia broadcasting), ad-hoc networks<sup>1</sup>, access gateway<sup>2</sup>, and so on. Internet of Things connected by municipal infrastructures and informationization equipments, can detect, obtain, identify and locate information data for the aged anywhere such as vital signs, living environment and indoor security, etc.

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1 Ad-hoc networks: Providing a strong coverage, high capacity and low latency of Local Area Network (LAN) in order to solve the perceptual network without the artificial configuration.

2 Access gateway: The remote transmission and control of the information is connected to the Internet via a wireless communication network or a web gateway.

Third, network layer includes cable broadband network, wireless network, mobile communication network, network convergence, etc. After perception, heterogeneous information data for the aged, taking network layer as a medium, will be transmitted to database in accordance with the topic type of database.

Fourth, data layer. Information data in this layer is stored, exchanged, encoded, integrated and retrieved, then it forms four databases including basic information, health management, demand and supply of pension services. Basic information database contains sex, age, education, career, income, address and children for the aged. Health management database contains physical indicator, common and chronic disease, family history of genetic disease. Demand database contains life care, health care, rehabilitation nursing, emergency rescue, housekeeping, entertainment, spiritual consolation and hospice care. Supply database contains nursing institutions, primary care resource, volunteers, notifications about pension.

Fifth, platform layer. Pension information database is linked, interacted, excavated, coordinated and shared, which dynamically monitors physical condition for the aged, intelligently analyzes needs of the aged and automatically schedules pension supply resource. Key technology supported platform consists of cloud compute, big data, services-oriented architecture(SOA), Beidou satellite navigation system and geographic information system(GIS), etc.

Sixth, application layer, including service modules and management modules, brings about intelligent service content through the construction elements of Internet of Things. Service modules is the characteristic of external services, including health perception system, information guidance and release system, vital signs monitor and orientation system, emergency call and anti-tumble alarm system and smart card management system, etc. Management modules is the feature of internal management, including equipments, operators, environment, security and privacy.

Seventh, user layer consists of the demand side and the supply side of the aged, which is embodied in the elderly and their children, the home care service center of the community, nursing institution, government and voluntary organization, etc.

#### **4.3 Mechanism guarantee: Regulating the operation mechanism of smart pension**

The service mode of smart pension in Zhongshan City from the perspective of the supply-side structural reforms cannot do without the protection of normative and flexible operation mechanism consisting of decision-making mechanism, communication and consultation mechanism, supervision and evaluation mechanism, market access mechanism and talent cultivation mechanism. The interaction and connection among mechanisms effectively integrate and coordinate the functions of each module so as to exert the effect of holistic governance.<sup>[9]</sup>

First, decision-making mechanism. We should prepare well for policy interpretation and field research, and balance synthetically the needs of multiple interests of the demand side and the supply side for the aged. Smart pension system construction in Zhongshan City are accepted into government plan and policy system so as to achieve the sustainable development of smart pension.

Second, communication and consultation mechanism. We should play the linkage effect of departments, preparing well to construct facilities for the aged in townships. On the one hand, mature projects for the aged should be followed up and opened up “the green channel” in time; on the other hand, the situation in the construction process should be timely communicated and coordinated to reduce the transaction cost.

Third, supervision and evaluation mechanism. We can consider the formation of a joint law enforcement team of smart pension supervision and evaluation, which supervises implementation and efficiency of the construction of smart pension on a regular basis.

Fourth, market access mechanism. Government should increase the publicity of smart pension which not only enhances the awareness of smart pension for the aged such as the free training course in the elderly activity center<sup>[10]</sup> but strengthens the running model and efficient experience of the smart pension experimental units in townships. Propagandized by news media, it contributes to create a constructional atmosphere of smart pension model. In addition, it's essential to consider to draw up the management scheme about the introduction of smart pension operators, defining definitely the scopes, qualifications and policies of operators' participation in smart pension.

Fifth, talent cultivation mechanism. We should accelerate the talent cultivation of aging industry, especially for caregivers, aging industry managers. According to the national professional standards, vocational training and professional certification for caregivers should be carried out. It's vital to set up core courses such as gerontology, psychology of aging, social work, relying on higher education resources, Zhongshan Polytechnic, Zhongshan Torch Polytechnic, for example. Besides, volunteers and social works for the aged should be rapidly developed.

## 5 Conclusions

On November 10, 2015, General Secretary Xi Jin-ping put forward the structural reform of "supply side" for the first time, which emphasis that we should focus on strengthening the structural reform of supply side and striving to improve the quality and efficiency of the supply system while expanding the total demand. Promoting the structural reform of supply side is the intrinsic requirement to balance the supply and demand structure. Under the background of this policy, the author takes the supply side policy as breakthrough and offers some proposals, first of all, the government of Zhongshan City should strengthen the top-level design, and promote the construction of smart pension system; Second, the information platform of smart pension service of Zhongshan City should be built. Finally, the effective and flexible operation mechanism should be regulated. Aim to meet the diversified and multi-level needs of pension services of the elderly, which will promoting the development and progress of the aging-related work, and accelerating the settlement of the aging problems.

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## An Empirical Study on the Labor Return Intention and Its Influencing Factors in Sichuan Province, China \*

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**Abstract** With China's reform and economic development entering the deepening stage, the economy of Sichuan Province has demonstrated an overall steady trend of development with ongoing progress; meanwhile Sichuan shows a trend of labor returning. This phenomenon plays an important role in the blossom of Sichuan Province, and it is of great reference value for the government to explore the reasons for the return of labor. This paper discusses the reasons for labor return in Sichuan Province from five aspects: personal, work, family, policy and external environment. The analysis results indicate that, for the dimensions of first three factor, a sense of belonging at home, low income of the original work and prefer to be with family have greater influence on labor return. And the policy and external environment factors have multifactor functioning on this phenomenon.

**Key words** Migration return, Return reason, Sichuan Province, Regression analysis

### 1 Research questions

As an important economic phenomenon, labor mobility has attracted much attention in the fields of economics, sociology and geography. With China's reform and economic development entering the deepening stage, the east of the country has accelerated its economic restructuring and industrial transformation in recent years, promoting a new round of large-scale population flow. Contrary to a large number of migrant workers in the past, the labor force showed a trend of returning from the eastern coastal region to the provinces where their hometowns were located. Meanwhile, the economy of Sichuan Province has demonstrated an overall steady trend of development with ongoing progress, and the total economic output has reached a new level. According to the statistics of labor development from the department of human resources and social security of Sichuan Province, by the third quarter of 2015, 1.3595 million migrant workers returned to the province, with 1.2127 million workers achieving employment. Sichuan, which was a large labor-exporting province in history, has seen a large population return.

Return is a personal decision after self-evaluation, but the return of labor on scale inevitably has its profound social, political and economic factors. At the same time, due to work and life experiences in another region, the return labor has its own characteristics and has higher practical requirements on the policies of the return place, which challenge and press on the management abilities of the local government. It makes labor return become an important field of research in public management. The phenomenon of labor backflow has always existed in the process of urbanization and industrialization, deeply influencing the development of society and economy in the return area. The research on the return of the labor started in 1990s. With this phenomenon becoming more and more obvious, there are a large number of documents studying the return labor and showing diversified research perspectives. However, the vast majority of the existing researches has seen the labor force as the rural labor force spontaneously, which greatly narrows the reference scope of this group, making the research subjects carry with limitations. Therefore, the research results based on this cannot accurately reflect the overall situation of migrant return. Hence, this paper defines "the return labor" as a worker who has returned to the original outflow area after working outside, with no plan to go out again for three months. And

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the research objects we picked are the return labors of Sichuan Province. Our research questions through questionnaire survey and empirical analysis: (1) How strong is the willingness of labors to return? (2) What are the factors that influence the willingness of return? (3) What are the policies that can effectively promote the development of individual and family life among migrant labors?

## 2 Literature review

The research on the labor return started in 1990 (Kong Xi-mei, 2010). At present, the research on the backflow of labor has made great achievements in our country, mainly including: the definition of labor return's concept; the analysis of factors affecting labor return; the re-employment of return labor; the effect and countermeasures of labor return. Among them, about the definition of the concept, most studies, on the one hand, defined the labor force as rural labor force; on the other hand, the concept remained vague. The research by Zhao (2002) defined the backflow labor as return-home-labor, while other studies rarely defined it clearly, surveying either on the samples of labors returning to the village for farming, or the ones returning to the home village to start an undertaking. In this way, the results based on that cannot reflect the overall situation of the labor reflux.

As for the researches on the reasons for the labor return, there is analysis both on single factor and comprehensive explanations. Studies from the single perspective of research mainly focused on family factors, such as the analysis of family endowment related to the labor return (Shi Zhi-lei, 2012. Yang Yun-yan, 2012) and research on the influence of family life cycle on the rural labor return (Lin Shan-lang, 2011). However, Jiang Chang-liu(2015) believed that it was most fundamental to analyze the institutional roots of the reflux of labor force. Compared to the former, the comprehensive analysis of reflux's reasons is in the majority. When choosing to study impact factors, most scholars tend to generalize to macro and micro factors. Specifically, the macro factors include external environment, policy system, economic system, cultural tradition and so on. For example, in the study of evaluating cause and effect of rural labor in the western area, Ma Li (2009) divided macroscopic factors into western development policy, agricultural policy, urban cost of living, the household registration system and the global financial crisis in 2008. Among them, the high cost of urban living, household registration system and the global financial crisis in 2008 led to the forced return of labor. Zhang Gang-yong (2009) explained the reasons for the labor return from the macro level, including the changes in the economic environment, institutional policies, growth patterns and capital accumulation. He argued that a rapid increase in the reflux number resulted from the slowdown in the expansion of employments in eastern coastal areas, influenced by the social, economic and policy systems, the slowdown in macroeconomy and the conversion of the intensive growth mode. Micro factors were mainly related to self-condition that influence decision-making, such as family influence, personal conditions, working factors, etc. The research by Zhang Gang-yong (2009) showed that the wage rate is lower than expected and the relative surplus of the labor force caused some labor to return. Ge Xiaowei (2009) focused on the impact of the accumulation in the course of non-agricultural employment (including funds and social capital) on the return decision. The results indicated that marital status and military experience has a positive impact on the return of labor. Occupation experience influences return decision significantly, and people with the experience as migrant workers and other occupations tend to return more.

The literature analysis above shows: at first, because the concept of return labor isn't clearly defined in academic circles, almost the whole documents see it as the rural labor return. In the current process of modernization, the labor flows across the region is not merely a unique phenomenon happened among agricultural population, to a great extent, studying merely on the rural labor force would narrow the scope of the research object. Thus, our study will expand the research object to all labors with household registration status, but the backflow is defined as the one between provinces, i.e. from the province they work in to the one where their household registration in, not necessarily to their hometowns. In short, our primary concern is the willingness and reasons of trans-provincial return labor. This is because labor mobility in the province merely, whether outflow or inflow, is more frequent and random with lower cost and more affected by personal and family factors; While trans-provincial flow, including outflow and inflow, reflects serious considerations of individuals and

families, which depend not only on personal and family factors, but also more on the relative changes of macroeconomic factors from public services and institutional environment to society and economy. The study of the inter-provincial labor return will help governments in provinces where the labor force is flowing out before to improve public service level and to create a good institutional environment, so as to attract the return labor who will perform their working experience outside well, thus promoting the development in local economy and society.

### **3 Research methods and design**

In order to solve the aforementioned research questions, this study investigated the return intention and its influencing factors of labor force by questionnaire, so as to obtain the data of empirical analysis. Generally speaking, the whole questionnaire survey is divided into seven stages: questionnaire design, questionnaire test, questionnaire revision, questionnaire pre-investigation, questionnaire revision, formal questionnaire release and questionnaire recycling. This study is targeted at exploratory research by snowball sampling and online issuing questionnaire surveying on the influencing factors of labor return in Sichuan Province. Opened in October 10, 2016, questionnaires were filled in until April 2, 2017, with 251 questionnaires, 236 valid.

In this paper, the measurement of dependent variable is mainly conducted by subjective reporting. In the questionnaire, the item of “what is your plan for the next five years?” was added in, asking subjects to choose between “working in Sichuan Province and or out again” by subjective feelings. The two options represent the intensity of their willingness to return to work, i.e. if they were willing to continue working within five years in Sichuan, it shows their strong willingness to return; if not, weak willingness to return through which the intensity of the reflux would be measured. Independent variables mainly from personal factors including married fertility, too old, a sense of belonging at home and poor physical health, job factors made of employment difficulties in the original working area, low income of the original work, dissatisfied about original jobs or environment, the original work without prospects and more employment opportunities at hometown, family factors composed of children or the old man need to take care of at home, spouses in their hometown, lack of labor in the home, prefer to be with family and be in a broader social network at hometown, the policy factors including low level of social security benefits about the former work place, the difficulty of receiving education for children, the original work and guarantee the legitimate rights cannot get at the original work area and home employment policy incentives, external environment factors consisting of entrepreneurial success stories and better economic development at hometown. Specific question is “please combine your actual situation to grade the following influence factors. (numerical value show the importance of the factors, the greater the more important)”. The data would be recovered before counting.

### **4 The empirical analysis results**

#### **4.1 Measurement of return intention**

According to the statistical results, in the 236 effective recycling questionnaires, 148 people choose to remain in Sichuan, accounting for 62.7%; the chose to go out again is 88 people, accounting for 37.3%.

Moreover, on the basis of the questionnaire survey’s results, the questionnaire data cover almost every region of Sichuan Province. According to the basic situation in the survey data, for people’s last working area before reflux, 17.4% worked in Yangtze River Delta economic circle, 38.6% in China’s coast the Pearl River Delta, 14.8% in the Beijing-Tianjin-Tangshan region, and 29.2% in other areas. For the former occupation, before reflow, manufacturing, processing and service industry accounted for a large proportion of 23.7% and 24.2% respectively; the service industry and individual private accounted for a large proportion of 33.5% and 19.9% after the return.

#### **4.2 The influence of individual factors on the labor return in Sichuan**

Return is a kind of personal decision-making behavior on the condition of self-evaluation. Thus individual factors are the basic factors influencing labor return. The “general” in the subsequent data analysis are excluded because it is non-significant that cannot show the intention tendency of



respondents clearly. As shown in Table 1, for “too old”, a proportion of 3.81% think it is too important to influence, compared to 42.8% who consider unimportant; 6.36% think the poor health condition is very important, with 29.66% thinking not important; as regards “marriage and childbirth”, the proportions about very important and not important are respectively 7.2% and 43.22%; 8.9% think that a sense of belonging in the hometown is very important with 4.24% considering unimportant. Outlook table two, a sense of belonging has the most important influence on the willingness to return, which may be affected by Chinese traditional “roots” thought. You usually lack a sense of belonging in the hometown even after working in the city for many years.

**Table 1 Proportional distribution of sub dimensions of individual factors (unit:%)**

	Unimportant	Somewhat important	Generally important	More important	Very important
Too old	42.8	10.17	28.39	14.83	3.81
Poor health	29.66	13.14	36.02	14.83	6.36
Marriage and childbirth	43.22	9.75	23.31	16.53	7.2
A sense of belonging	4.24	16.53	42.8	27.54	8.9

#### 4.3 The impact of work factors on labor return in Sichuan Province

After counting the degree of working factors’ importance, as shown in Table 2, on the proportion of “very important”, the lower income of original work, no prospects for the original work, unsatisfied with the occupation and environment, and employment difficulties in the original work area account for 8.05%, 7.63%, 6.36% and 5.51% respectively; as for “not important”, the above factors accounted for 12.29%, 15.25%, 17.37%, 14.41% each. It indicates that lower income has directly been one of the important return factors. This is because the pursuit of higher income is crucial for people to work outside. There are dual long-term labor markets in developed areas of the city, due to the restriction of household registration system. Although facing similar human capital conditions, migrant workers are hard to obtain equal returns when compared with local residents (Yan Shan-ping, 2006). Thus, in the province, the reward of human capital is higher, encouraging the labor force back. In addition, no prospects for original works and unsatisfied with the occupation and environment are related to the respondents’ former works. It shows that 24.2% engaged in the service industry (such as accommodation and catering, housekeeping and security etc.) and the manufacturing industry accounted for 23.7%.

**Table 2 The proportion distribution of sub dimensions of work factors (unit:%)**

Working factors	Unimportant	Somewhat important	Generally important	More important	Very important
Employment difficulties in former work areas	14.41	27.54	33.05	19.49	5.51
Lower income of original work	12.29	21.61	38.14	19.92	8.05
Unsatisfied with the occupation and environment	17.37	20.34	30.51	25.42	6.36
No prospects for work	15.25	16.95	37.29	22.88	7.63

#### 4.4 The influence of family factors on labor return in Sichuan Province

The new migration theory considers the family as the subject of the maximization of income, and believes the reflux motivation is the desire to have more contact with the family. Scholars such as Yang and Shi(2012) think that family endowment has crucial influence on the backflow decision-making of individuals. Accordingly, for survey data on the family factors, as for wanting to be with family, there are 25.85% who consider more important, and 17.37% chooses very important; on the fact that there should be the old and the young in family to care for, 21.19% think it is more important, with 13.14% thinking very important. For the spouse at home, “unimportant” and “somewhat important” hold

41.1% and 11.02% apart; about the lack of labor at home, “unimportant” is the option for 19.49% and “somewhat important” for 22.03%. We can see that, regardless of age, wanting to be with family is an important factor that affects return. This is a profound reflection of the Chinese longing for nostalgic psychological and a happy family reunion. According to the basic information, 67.8% of the respondents are married, with 26-45 year olds accounted for 69.91%. This is just the period when children being raised and the old being looked after, which cause a common phenomenon for couples of one is responsible for taking care of family, one goes out.

**Table 3 Proportional distribution of sub dimensions of family factors (unit:%)**

Family factors	Unimportant	Somewhat important	Generally important	More important	Very important
With the old and the young in family to care for	10.17	13.98	41.53	21.19	13.14
Spouses at home	41.1	11.02	25	16.95	5.93
The lack of labor at home	19.49	22.03	33.05	16.1	9.32
Wanting to be with family	4.24	7.63	44.92	25.85	17.37
Wider family social networks	6.78	12.29	49.58	23.73	7.63

#### 4.5 The impact of policy factors on labor return in Sichuan Province

The socio-economic system and policy will affect the migrant workers’ life and employment environment, outlook in Table 4, for “very important” and “more important”, the difficulty of receiving education for children of migrant labors is accounted for 28.39% and 10.17%; 27.54% and 9.32% describe the low level of social security benefits at former workplace respectively; no guarantee for legitimate rights and interests at the original workplace holds 24.58% and 8.9%.As for the “unimportant”, the increased employment opportunities and employment policy incentives in the hometown occupy 3.81% and 8.05% respectively. It indicates labor return results from the combined effect of the policy push and pull of the former workplace and backflow region. The drawbacks of the two element segmentation system and the household registration system limit the sharing of migrant labor to urban welfare, reduce their income and push it back. Meanwhile, the benefits of social welfare and legal rights in the hometown, plus the benefits of backflow employment policies, are conducive to pulling them back.

**Table 4 Proportional distribution of sub dimensions of policy factors (unit:%)**

Policy factors	Unimportant	Somewhat important	Generally important	More important	Very important
Low level of social security benefits at former workplace	13.14	16.1	33.9	27.54	9.32
Difficulty of receiving education for children of migrant labors	22.03	8.47	30.93	28.39	10.17
No guarantee for legitimate rights and interests before	14.83	15.35	36.44	24.58	8.9
Increased employment opportunities and great treatment	3.81	15.68	54.66	19.07	6.78
Employment policy incentives	8.05	19.49	38.56	28.81	5.08

#### 4.6 The impact of external environmental factors on labor return in Sichuan Province

The external environment will affect the individual’s behavior and decision-making, as shown in Table 5, for “unimportant”, “somewhat important”, “more important” and “very important”, the success of returning entrepreneurs is accounted for 16.1%, 21.61%, 27.97%, 5.93% respectively; the better development of local economy account for 4.66% 15.25%, 28.81%, 5.51% apart. Thus, the two

dimensions are roughly comparable in importance. To a great extent, this is because the success of entrepreneurship at home is based on the prosperous hometown economy. The “unimportant” about better development of hometown economy is in low proportion, it is likely that with the progress of people’s thought, they pay more attention to the economic development in the general environment, equipped with more foresight and strategy.

**Table 5 Distribution of sub dimensions of external environmental factors (unit:%)**

External environmental factors	Unimportant	Somewhat important	Generally important	More important	Very important
Successful examples	16.1	21.61	28.39	27.97	5.93
Better hometown economy	4.66	15.25	45.76	28.81	5.51

## 5 Conclusion and policy suggestion

With China’s reform development entering the deepening stage, Sichuan, which once was a large labor-exporting province, shows a trend of labor returning. This change will definitely have an impressive influence on Sichuan economy. Thus the paper selects the return labor of Sichuan Province as the research object, and discusses the willingness of return and its influence factors through questionnaire survey and empirical analysis

The analysis results indicate that, for the personal, work and family factor, the dimensions about a sense of belonging at home, low income of the original work and prefer to be with family have greater influence on labor return. For the policy and external environment factors, the combination of the different dimensions makes it more likely that the labor force will return.

Labor returning is usually influenced by various factors. Based on the above research results, we put forward the following suggestions: (1) the governments set up and improve the training and employment service system, meanwhile, integrate of education and training resources to improve the training efficiency. (2) the governments may formulate a series of preferential policies and propagate entrepreneurial success stories, so as to build a favorable business circumstance. Finally, it is in favor for encouraging return labor to take advantages to achieve self-employment.(3) to broaden the financing channels and optimize the funding mechanism.(4) to strengthen the rights protection, including the basic labor rights , social welfare, etc. On the one hand, it is time for the governments to perfect the relevant management institutions and strengthen the supervision mechanism. On the other hand, valid methods such as education should be used to raise the community consciousness. (5) the development of provincial economy actively is the foundation of urbanization process. Governments should attach great importance on achieving the smooth urbanization.

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## On the Countermeasures for the Chinese Enterprises to Participate Effectively in Disaster Management

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**Abstract** Disaster management comprises a significant part of emergency management. Nowadays when disasters occur frequently, enterprises have grown into a critical power of organizing disasters management. On October 8th, 2015, Chinese Ministry of Civil Affairs promulgated *Opinions on the Support and Guidance of Social Forces to Participate in Disaster Relief Work*, which gave an official affirmation to the positive role of enterprises involving in disaster relief. Under the new historical conditions, the government stands out as the main body in disaster management. In order to play a better role, government must actively provide policy and legal support for enterprises to participate in disaster management and adapt to the international trend of emergency management. Meanwhile, overall measurements are to be taken to help enterprises as well as other social organizations to participate actively and enthusiastically in disaster management. Besides, an effective disaster management system is also to be established for government and enterprises. Finally, a modern emergency management mechanism can be formed for government, society and market to achieve cooperation and co-management.

**Key words** Enterprises participation, Disaster management, Advancement, Countermeasures

### 1 Introduction

Enterprises participation in disaster management constitutes a critical part of modern emergency management. Globally, particularly in the developed countries, Europe, US and Japan included, the private sectors, especially large enterprises, generally possess a strong awareness of disaster management and great ability to participate in disaster management. Once the disaster occurs, many enterprises will timely start emergency response mechanism, and react promptly and effectively together with government and non-government organizations. Ever since China suffered from Wenchuan earthquake, its enterprises have become an indispensable organizing power in responding to major disasters. China's awareness and ability of participation is comparatively insufficient compared with developed countries, since numerous enterprises' contribution is only restricted within post-disaster donation. Therefore, to constantly improve the enterprises' own awareness on disaster prevention and mitigation, and to effectively promote the enterprises' active participation in disaster management is urgently demanded. As it is the prerequisite for the market to fully display its decisive role in resource allocation and for the government to carry out a better role. Also, it is the key to energizing the society and modernizing the national governance system and capability.

### 2 Analysis on the affecting factors of Chinese enterprises' ineffective participation in disaster management

#### 2.1 Policy factors

Specific policies and regulations are formulated to manage the society and further keep the social life in order and stable, which, from the very ancient time, has been the basic feature of human society. Since 2003, Chinese government began to strengthen its own emergency management capability and introduced emergency response rules and regulations. As a result, certain achievement has been made in disaster prevention and mitigation, security precaution, disaster management and other aspects. At present, a nationwide mechanism of the plan, rule of law, system and mechanism is generally constructed and an emergency management working pattern with government guidance, departments coordination, army-civilian combination and co-participation of all civilians is also formed. For example, Data of Shanxi province exhibit that (as shown in Table 1):

**Table 1 Emergency plan compilation of Shanxi Province in 2016**

Plan type	Overall plan	Special plan	Department plan	Other plans
Number of Plan	1	38	59	113,000

Shanxi Province now exists 1 overall emergency management plan, 38 special plans and 59 department plans, which cover various fields, including natural disaster, safety in production, disease control, environment protection and other fields, and stretch down from province to city, county, town, enterprise and institution and grassroots community. But we must notice that the plan failed to specifically define the ways how the enterprise, as an important social strength, participate in disaster management. The whole country, more or less, share this situation. Currently, enterprise emergency management work is not included in the national emergency management system, although early in 2007, China has published *Opinions on strengthening the enterprise emergency management* (issued by the State Council General Office in 2017, No.13), stipulating that “Government should encourage and support enterprises to participate in social relief work”. But there is still wanting of detailed laws and regulations for enterprises to participate. The requirement on enterprise was mainly focused on the disaster prevention, relief and construction within enterprise itself. An example is the newly revised *Emergency Plan Regulation on the Production Safety Accident* in 2016, which made a clear stipulation that institutions should carry out accident risk assessment and emergency supplies surveys before compiling the emergency plans. At the same time, the emergency plans shall feature self-help, mutual rescue and advanced management, and shall include attachment information such as the content of the report to the superior emergency management agencies, emergency organization and personal contact information, and list of emergency supplies reserve. Whereas, the emergency plans rarely encourage enterprises, as a social strength, to join hands with government and social organizations to battle disasters and co-manage the society.

### 2.2 Economic factors

As an economic organization, any enterprise is profit-oriented. In the process of achieving its own goal, enterprise considers primarily the balance between economic interests and the input-output ratio. Faced with sudden disaster, most businesses’ dedication presented as post-disaster donation, while they seldom think about whether or not they should assume more social responsibility. Cognitively, people pay more attention to their material benefits. When the enterprise economic interests and social benefit cannot be ensured at the same time, economic interests are always preferred to. So government at all levels should, considering the economic growth, provide various policy support to encourage enterprises to plunge themselves into disaster management. Government can also give a certain amount of economic compensation to enterprise which is willing to bear social responsibility. In 2015, for instance, the traffic and transportation system in Shanxi Province put forward preferential policies of freight surcharges reduction and transport administration fee exemption, aiming to solve the contradiction between the routine operation and emergency support in road transportation enterprises. This policy has effectively improved the enthusiasm and initiative of road transportation enterprises in Shanxi province to participate in the provincial disaster management.

### 2.3 Evaluation factors

Social evaluation refers to the understanding of people from all walks of life on the company products and its reputation. Social being determines social consciousness. Therefore, in a certain historical period, social assessment is essentially the embodiment of the core values of the society, reflecting people’s mental preference and consumption propensity under certain historical conditions. In today’s world where material goods are relatively abundant and the craftsmanship spirit is advocated, people evaluate an enterprise from political and economic standards as well as cultural and social standards. Ideally, companies are required to pay attention to both economic interests and social responsibility. From a theoretical point, an enterprise’s contribution to the society contains not only its contribution to the development of social productivity, but also the help it offers to the whole social production relations and the systematical support it provides to the whole social superstructure change. In 2016, for instance, in the outstanding entrepreneur selection activity in X city in Shanxi Province, the proportion of social contribution is 9% higher than that in 2014(as shown in Table 2).

**Table 2 Contribution ratio of the outstanding entrepreneurs selection in X city in Shanxi Province**

Year	Economic contribution	Innovation contribution	Social contribution	Cultural contribution
2014	55%	15%	15%	15%
2016	50%	16%	24%	10%

When deciding the contribution ratio in various field in 2014, Shanxi Province lags behind the national average level in its economy growth. Hence experts thought economic contribution should be centered on. Yet with the deepening of the spirit of the Fifth Plenary Session of the 18th CPC Central Committee, it is widely believed that the sharing development is the theme in this era, and more attention should be paid to the entrepreneurs' social responsibility. Many enterprises have presented good examples in taking social responsibility. Such as the SGCC (State Grid Corporation of China) company, a state-owned enterprise, has been adhering to the user-oriented idea for years and actively undertaking its social responsibility. Added that, for 12 consecutive years, it holds the first place domestically to publish reports on social responsibility. *SGCC Social Responsibility Report in 2016* clearly announced: to include social responsibility into the enterprise operation, social responsibility must be integrated into enterprise strategy, daily operation and management system. In 2016, they continually propelled the "SGCC Poverty Relief Action" to conduct more activities to help students, the aged and the disable. As a consequence, accumulated volunteer service reached 2.5 million person-time. All in all, positive social evaluation created a positive incentive, which can greatly enhance the core competitiveness and reputation of an enterprise, and will lead the social core value in a certain historical period.

### **3 Effective countermeasures and suggestions on promoting Chinese enterprises to actively participate in disaster management**

#### **3.1 To actively formulate and complete relevant laws and regulations**

The party central committee and the state council explicitly pointed out in *Opinions on Disaster Prevention, Reduction and Relief Mechanism Reform* that we should "hold on to encourage and support, guide and regulate, emphasize efficiency, volunteer and self-help principle; study, formulate and complete relevant policies and regulations, industry standards, codes of conduct for social power to participate in disaster prevention, mitigation and relief; and establish coordinated service platform and information guiding platform for social organizations, volunteers and other social forces to participate". For Chinese enterprises to participate in disaster management voluntarily, local government at all levels should persist in the rule of law, develop and perfect laws and regulations in this field as soon as possible. Therefore, responsibilities and duties of enterprise to participate in disaster management can be specified and clearly defined. At the same time, stricter punishment should be inflicted on the enterprises which overlook their social responsibility or fail to fulfill their obligation of safety in production. These laws and regulations should and must run through government actions and enterprises participation in disaster management, which will lay the legal basis for enterprise participation. Furthermore, foreign disaster management practices can be learnt from to establish and complete disaster insurance system in China. Statistics demonstrate that developed countries possess more successful experience in disaster insurance, enjoy more extensive insurance types, and exist more complete laws. Chinese government should also make efforts from this perspective, accelerating state-owned banks and insurance companies to establish and perfect the disaster insurance. This can not only stimulate enterprises but also bring economic benefits for them when they are purchasing financial products of disaster prevention. Ultimately, enterprise economic benefit and social responsibility will be united and balanced to a certain extent.

#### **3.2 To motivate enterprises initiative of participating in disaster management**

As mentioned above, enterprises' own advantage in disaster prevention and mitigation has not been brought into full play, consequently they often are forced to response. That's because even if the enterprise predicts a coming disaster, it enjoys no right to request the surrounding communities to make preparations, but only to pass the information to the local government, which will then be reported level by level upwards, and during which the perfect disaster response timing may be postponed. Thus, to

reinforce the capability of government emergency management agencies, to further streamline administration and delegate power to the lower levels, and to focus on disaster prevention work can also boost enterprises to participate actively in disaster management. Government at all levels should further empower grassroots government, ensuring them to assist enterprises to involve in disaster management. Only by establishing a disaster prevention system based on grass-roots emergency departments, can we flatten the disaster management structure, achieving a “downright widening and deepening” effect. At the same time, to further press ahead the decentralization also means to delegate appropriate power to enterprises. Therefore, when disaster happens, enterprises can enjoy the right to access more information resources and to lead the community people do a good job in disaster management and relief work.

### **3.3 To establish an effective cooperation mechanism for disaster management**

Under the condition of market economy, government plays a major role of “maintaining macroeconomic stability, strengthening and optimizing public service, ensuring fair competition, enhancing market supervision, maintaining market order, promoting sustainable development, boosting common prosperity, and making up for market failure”. In terms of disaster management, enterprises and government should cooperate and exert co-management. On the one hand, government should firstly provide various policy, capital, technology support for enterprises to involve in disaster management. For this, government can found enterprise-supporting funds, providing low-interest loans to small enterprises which actively participate in disaster management. It may also introduce soft loan for disaster management, helping enterprises to reduce equity capital investment and strengthening enterprises’ ability of self-relief. Still, government can, with its own resource advantage, designate specialized enterprise emergency management personnel to conduct and coordinate the daily work of enterprise disaster prevention and reduction. Consequently, the emergency management related policy of government can be implemented and applied to enterprises directly. On the other hand, enterprise should emphasize on its own strength to realize benign interactions and complementary advantages and to boost more power plunge into disaster management. Despite that China implemented the Reform and Opening-up policy nearly 40 years ago, a service-oriented government is still forming slowly and arduously, and the government civil servants still widely share a weak service awareness, especially in the less developed regions.

### **3.4 To create a scientific evaluation system for participation ability**

Since enterprise is a profit organization pursuing the maximum benefit, its leader will always balance between disaster management expenditure and benefit when making decisions. So that setting up the capability evaluation system of the enterprises to participate in disaster management in the new period is an important way to encourage Chinese enterprises to take an active part in disaster management. To some extent, a scientific evaluation mechanism is the prerequisite to encourage enterprises to actively participate in disaster management. For any enterprise cannot survive and develop without the social support system. Especially in the Internet Age, social evaluation virtually makes up an important part of the core competitiveness of an enterprise. Survey shows that, in 2016, 67.9% of coal enterprises in Shanxi add “social responsibility” related content in staff training and 43.9% service firms in Shanxi add contribution award of “enterprise social image promotion” in the year-end performance assessment. In short, modern society is one of system as well as one of risk. Profit-oriented organizations as enterprises are, they should shoulder certain social responsibility. This falls into the diversification of social management body and the realization of new social governance pattern featuring co-construction and sharing. To set up a evaluation mechanism for enterprises capability of participating in disaster management in the new period, a scientific evaluation system should be formed firstly. Considering the current enterprise scale and technology level, we should also break down the indicator and gradually enhance our capability in practice. In the meantime, government at all levels are required to, starting from the education of disaster prevention and reduction, spread the idea that enterprise should bear social responsibility.

## **4 Conclusions**

Disaster management work not only impacts the public life and property security, but also affects the social safety and stability. For now, to conduct more scientific disaster management work in China,



we must follow the requirement proposed by general secretary Xi, which goes as “we must uphold the policy of prevention-orientation, prevention, battle, and relief combined; we must conduct conventional disaster mitigation work and unconventional one; and we must comprehensively reinforce the disaster prevention capability of the whole society.” Moreover, under the leadership of party committee and domination of government, the participation of enterprises and other social organizations into disaster management must be encouraged. Thus, the target of shared responsibility and safe environment can be achieved. Finally, people can develop a stronger sense of gain and happiness during the process of co-managing, co-constructing and sharing.

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## Innovation Development of Elderly Service System in Sichuan Province with Public Private Partnership \*

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**Abstract** Nowadays, Public Private Partnership (PPP) model becomes a hot issue in the construction of elderly service system. In order to study further and promote the development of integration of PPP model and elderly service supply, this article concentrates on the general status of development of PPP model in the field of elderly service, and further studies the problems currently and environment conditions in Sichuan. As we all know, the integration of PPP model and elderly service supply which develops in the trend of supply-side reform in China, therefore the key point is to emphasize system reform and mechanism innovation. So, the author focuses on innovation design and improvement in 4 parts, including mechanism of risk control, mechanism of interest sharing, incentive and restraint mechanism and supervision and evaluation mechanism, then finally gives some policy suggestions with the analysis above.

**Key words** Elderly service supply, Public Private Partnership, Aging problem

### 1 Introduction

“Executive Opinion on Encouraging Social Capital to Participate into the Development of the Elderly Service Industry” issued by Ministry of Civil Affairs, National Development and Reform Commission, Ministry of Finance and any other 7 relevant management departments on Feb.3rd, 2015 pointed out concrete measures which promote social capital to development in the elderly service industry with the model of Public Private Partnership (PPP). The State Council reiterated in May, 2015 to popularize the PPP model in the field of transportation, environmental protection, health care, elderly service and so on for improving the supply efficiency and quality of public service through selecting social capital carefully with competition mechanism. Early in 2014, some provinces (Hunan, Hubei, Jiangxi, etc.) began the pilot work of elderly service development with PPP. Sichuan province which is the core of southwest of China also started the relative work in the field of elderly service and issued a document of “Notice on Pilot Work of Supporting Social Capital to Build Non-profit Elderly Service Institutions with the Way of Running by the Local People and Subsidized by the Government” in 2015 to initiate PPP model. Hence one can see that utilizing PPP model becomes a hot issue in the construction of elderly service system.

### 2 Integration of PPP application and development of elderly service system

Elderly service is the core content of social welfare and public product. According to the classification thought and standard of welfare state by Gosta Esping-Andersen, the patterns of elderly service can also be divided into 4 types with the involvement level of government:

(1) Model of Generalized System of Preferences (GSP): government has the maximum responsibility for elderly service and the role of market and family is limited.

(2) Complementary Model: government has the minimum responsibility for elderly service and the public finance targets the groups who have the high demand and low affordability for elderly service.

(3) Conservatism Model: the responsibility of government falls in between the two models above.

(4) Asian welfare Model: the responsibility of public welfare is relatively weaker, and it emphasizes the duties and obligations of family.

So, the supply entities and relevant responsibilities of elderly service are significant difference.

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The representatives of welfare pluralism theory Rose and Johnson both believe the idea of multi-channel welfare. The fund financing, service delivering and regulation drafting are not only the duty of government, but also providing by multi welfare department. They totally form a supply network of welfare pluralism.

With the deep development of social security reform in China, policy makers and scholars become to realize the importance of integrating pension system and elderly service system. The constraint conditions for government finance especially for local government determine that it is not enough to complete the performance of elderly service supply only depending on the single role of government. Thus, socialization of service supply is the inexorable trend of elderly service system development.

### 2.1 Operational patterns of PPP and classification

Public Private Partnership is an important innovation of supply mechanism of public service. Government selects social capital with qualified ability of investment and operation management according to the competitive way. Government and social capital sign a contract and clear the relationship of responsibilities, rights and interest in accordance with the principle of equal consultation. Social capital supplies public service and government pays for service with the result of performance evaluation to maintain the reasonable interest of social capital.

Nowadays, there is still not unified classification result of PPP. Learning from the standard of World Bank and European Commission, this paper clarifies the PPP patterns in the following according to the different stages of project implementation.

**Table 1 Classification of PPP patterns**

Project stage	PPP pattern	Description
Completed project	Operations & Maintenance (OM) Management Contract (MC)	The operation, maintenance and the duty for user service of stock public assets has been transferred to PPP project company. Government keeps the proprietary right of public assets and pays for the operation fee or management fee for social capital
	Transfer-Operate-Transfer (TOT)	Government transfers the management right of stock assets to project company and the transfers income helps the government to deal with debts.
Renovation of existing project	Lease-Operate-Transfer (LOT) Lease-Build-Operation (LBO) Buy-Build-Operate (BBO) Renovate-Operate-Transfer (ROT)	Social capital leases or buys the existing project for renovation with franchise right. Project company can pay a certain franchise fee to government by obtain income from users. The project will be transferred to government after expiration of franchise right.
New project	Build-Operate-Transfer (BOT)	Government and social capital organizes a project company to undertake the responsibility of designing, investing and financing, building, operation and maintenance, and user service. The project will be transferred to government after expiration of operation.
	Build-Own-Operate (BOO)	The project is built by social capital and the company obtains the proprietary right and permanent operation right of infrastructure after the project is completed

### 2.2 Applicability analysis of integrating elderly service supply with PPP

As the classification above, we know that there are so many PPP patterns in practical application in the field of infrastructure and public service supply. In the operation process, different public product supply corresponds to its own suitable PPP pattern. It is depend on the inner constraint conditions and characteristics of public product. For example, the PPP pattern which is used maturely in infrastructure building may not proper to the field of elderly service. Some factors, such as fund scale, type of public product, and supply model and so on will affect the final choice of PPP pattern. So, we choose several PPP patterns which can be introduced to elderly service supply, and analyze them separately.

Elderly service institution funded and provided operation cost by government can be managed by

private department through the ways of lease, contract and participation with fund or technology in order to revitalize the development of existing elderly service institutions. They are called Private Management of Public Institutions (PMPI). In this situation, elderly service supply can use these PPP patterns in the following:

(1) Transfer-Operate-Transfer (TOT): government provides building land for elderly service institution. Private department is responsible for management of institution and transfers it to government after expiration of operation. Government has the main mission of supervision for price and quality of service. This pattern will lower the cost of private department participating into the field of service supply and has stronger attractiveness to social capital.

(2) Lease-Build-Operation (LBO): government keeps the proprietary right and proper control right and gains steady rental income. It will transfer the operational risk and commercial risk to other entities and private department will take the financing risk of renovation.

(3) Renovate-Operate-Transfer (ROT): private department is responsible for the renovation and operation of elderly service institution. Government has the final proprietary right of institution and private department takes the operational risk. Both of them will re-negotiate together about the issues of rebuilding and improving institution in the later period.

(4) Buy-Build-Operate (BBO): private department will buy the whole facilities and then gain the proprietary right of institution, meanwhile it also take the all risk relevant to the elderly service institution. Government acquires revenues through selling the institution and private department gains interests from professional management. This pattern is characterized as totally private in the late stage.

Government also issues a series of regulations and policies to support the elderly service institutions which are funded by social capital, so it will encourage more social capital to participate in this field. This pattern is called Public Support for Private Construction (PSPC). In this situation, the elderly service supply can use these PPP patterns in the following:

(1) Build-Operate-Transfer (BOT): private department is responsible for design, construction and financing the elderly service project. Private department has the proprietary right of institution and the government subsidies for daily operative activity during the franchise period. After that time, the proprietary right of institution will be transferred to government.

(2) Build-Own-Operate (BOO): private department has the proprietary right of institution and also take the all relevant risks of project. Government performs its duties of supervision and management responsibilities according to appointment and doesn't take part in the project building or concrete operation.

### **3 Environment analysis of introducing PPP model in the development of elderly service system in Sichuan Province**

#### **3.1 Development status of elderly service in Sichuan**

The research report of Aging Office in Sichuan Province in 2012 pointed out that the aging population of 60 year-old and above will reach more than a quarter in the total population in 2027. The population of 60 year-old and above will run up to the peak, almost about 26.1 millions and nearly 32.97% in the total population in 2036. The population of 80 year-old and above will run up to the peak in 2037. So Sichuan province is facing a serious aging problem. With family miniaturization and increasing number of parents with the only child, the phenomenon of "empty nest" is in common and the proportion of disabled and half disabled old-age persons is increasing. As regarding to current situation of elderly service supply in Sichuan, there are 3409 all kind of elderly service institutions with 422246 beds in 2014. Every thousand elderly persons own 25.6 beds. With the international standard that 5% elderly population should be arranged to elderly service institution, it still lacks of 474 thousand beds. Compared to the huge potential group of elderly service, the amount of beds as the core index shows that the supply scale is far more behind the demand scale. Facing the distinguishing features of elderly group, it is not enough for public department proving public service and private elderly service institution should play a more important role in supply-side reform. Nowadays, the coverage rate of urban and rural resident home-based care services is separately 70% and 40%. It show

the features of narrow coverage of home-based care services, weak community elderly service infrastructure and low amount of institutional beds for care service.

(1) Structural problem between supply and demand

There is a strange situation that public elderly service institution is hard to queue for beds, in contrast there are still vacant beds left in the private elderly service institutions in Sichuan. It basically reflects the problem of lacking effective supply and mismatch between supply and demand. Public elderly service institution is of good reputation and government guarantee. It can supply better service with lower price, so occupancy rate of public elderly service institution is higher and it needs to queue for a long time. Looking back for private elderly service institution, it always has high service standard based on expensive price which is beyond the consumption capacity of the public. That is the reason for low occupancy rate. Besides, the real purpose of some private elderly service institutions is to develop real estate which runs in opposite direction of service supply. As we know, urban and rural social and economic disparities in Sichuan province, differences of service opinions and information asymmetry will cause inactive potential demand which strengthens the structural problem between supply and demand.

(2) Lower professional service

As is known to all, one of the most important services for elderly people is medical care. In most elderly service institutions, medical care is not enough because it lacks of professional nursing personnel. Job seekers don't want to devote themselves into the field of elderly care with the traditional concept. Existing employees in this field mostly come from rural area without education and training, thus they can only provide service with low quality and easily make a mistake which will cause a risk of legal dispute. Besides, most institutions also ignore the spiritual needs and mental health needs of elderly and rarely provide services of spiritual cultural, health entertainment, and psychology. So, it can't meet the requirements of elderly to institutional elderly service.

(3) Inefficient service supply

According to government failure, public elderly service institution has lower efficiency of allocating service resources and social welfare can't be distributed between different social groups. In contrast, although private elderly service institution manages with market rules, it is hard to financing in bank for elderly service industry, because this industry has lower interests, even losing money in the early stage. Most of private elderly service institutions face operational risk and survival pressure when supporting policies lack of realistic operability. Besides, lacking of long-term layout for the development of private elderly service institution, lacking of clearly supervision system and lacking of integration plan of public and private elderly service institutions are also the core reason of inefficient service supply.

### 3.2 Social capital scale in Sichuan

One of the superiorities of PPP model in public service is to introduce social capital for increasing the quantity and quality of service supply. It will achieve the target of combing effective capital utilization with public goals of government. So, it is necessary to analyze the current situation of social capital in Sichuan. The scale of social capital becomes a restrictive factor of final performance of PPP model. In Sichuan, private economics supports the social employment and promotes the residents income growth. The scale of private economics develops steadily from 2013 to 2016, respectively reaches 1433.7 billion RMB, 1571 billion RMB, 1676.3 billion RMB and 1986.3 billion RMB, around 54.6%, 55.1%, 55.7%, 63.9% of GDP in Sichuan. Thus, from the statistical data, we consider that Sichuan Province has a great potential in the development of private economics, thus the rapid expansion of accumulation scale of social capital will give fund support for PPP model development.

### 3.3 Participation desire of social capital

Abundant social capital is the precondition of PPP, and another important aspect is related to the desire of social capital to participate into the field of elderly service with PPP model. With the development of civil society, social organizations become the important part of social governance. They have strong participation and creativity during the process of supply public service. Therefore, it is clear that social organization can meet the requirements of increasing demand of public service, and help government to deal with the debt issue and release financial pressure. The data from statistical

department shows that there are 37800 all kinds of social organizations registering in department of civil affairs. All of them are potential social governance entities to promote the development of PPP. Compared to 2013, elderly service institutions increase to 100 thousands beds, including 55 thousands beds is supplied by private elderly service institutions in 2014. It reflects that social capital has keen desire to take part into the field of elderly service from a certain angle. The next key point is to transfer the desire into specific actions of elderly service supply.

### **3.4 Current policy environment**

Sichuan province issues a series of promotion policies which lead the social capital to invest the construction of professional service infrastructure and supply elderly service with the initiative of central government. The integration development between PPP and elderly service supply is a hot issue concentrated by policy makers. The 12th Five-year Plan of Development Aging Affairs in Sichuan encourages social capital to found elderly service institution with PPP model. In 2015, department of finance and department of civil affairs jointly issued a notice to set up 10 pilot cities in the nationwide, each of them build 1 non-profit elderly service institution with PPP model. Government subsidizes the pilot institution following the standard of 15 thousand RMB for one bed, provides no more than 2 million RMB interest discount. After one year of institution operation, government provides 20 years operating subsidy with the standard of one occupied bed for 150 RMB per month and one vacant bed for 50 RMB per month. It fully demonstrates that the PPP pilot work in elderly service supply begin to implement and the pilot experience will soon deliver to promote the development of elderly service industry in the whole province.

## **4 Mechanism innovation of elderly service supply with PPP model**

### **4.1 Mechanism of risk control**

PPP as a risk share pattern will face various risks in the aspects of politics, economy, society and law. So it is necessary to optimize risk control mechanism to realize optimal risk share between the entities with principle of symmetry risk allocation for protecting interest of entities and reducing overall risk. We must emphasize that reasonable risk share is the trait which distinguish PPP with other patterns of business between public and private departments. If private elderly service institution can't reach prospective earnings because of price fixing or occupancy rate, public department should provide subsidy the control the potential operational risk. Meanwhile, private elderly service institution is responsible for daily management and avoids the usual moral hazard in the public elderly service institution from the angle of comparative advantage. It is necessary to allocate the risk to the most suitable management entity and minimize risk control cost through the idea of system theory and synergy theory.

### **4.2 Mechanism of interest sharing**

The public product property of elderly service determines that the target of utilizing PPP is for increasing social welfare instead of purchasing maximum of profit. So with the same goal of social development, public and private departments should build a benign mechanism of interest sharing. Capital has a nature of purchasing interest, and how to fix price of service and implement support policy are the key points of interest sharing. It directly affects the development and survival of private elderly service institution. If it is base on the market rule totally, the price of private elderly service institution may higher than the one of public elderly service institution which will cause discontent of the public. If the price fixing focuses on the public property of social service, government should build clear subsidy standard and support the institution through tax preference to offset the loss which is caused by limited price. At the same time, social capital participates in the field of elderly service is not only for purchasing money, but also for the expansion of enterprise image and brand value. From the view of marketing, government gives priority to those enterprises which have steady cash flow and management ability taking part in public service industry. It will attract more social capital to join the industry and obtain stable return of investment at the same time of sharing the social development.

### **4.3 Incentive and restraint mechanism**

It is important to guide and motivate the private department to supply public service with PPP model. Although social capital has the inclination of participating into elderly service, the hardest step

is to transfer the inclination into practice. It needs to build effective incentive and restraint mechanism. Elderly service industry has the feature of long-term investment, long-term return cycle and stable prospective earning, so it is necessary to build normative legal environment and system operation foundation. Continuity, consistency and specialty of policy making will provide steady expectation and long-term incentive for social capital. Thus, the relevant departments of government should cooperate and study how to make the policy which providing financing support and legal protection for social capital participating in elderly service industry. Besides, it is also necessary to optimize operation process of PPP. Government should encourage pattern and process innovation, regulate the operational criteria and prevent some fake projects which may cause operational risk.

#### **4.4 Supervision and evaluation mechanism**

How to definite the service quality and how to guarantee the efficient supply should build reasonable performance evaluation system and relative supervision system. It is import to emphasize intermediate supervision and post evaluation of government and third evaluation party in order to realizing public service object. PPP has the stages of project launch, project preparation, project purchasing, project execution and project handover. During the process above, government has to protect the smoothly operation through the actions of supervision to elderly service project identification, specific dealing process and project implementation. Every competent department should realize coordination and unification of supervision. Meanwhile, it is necessary to permit and agree the evaluation and supervision from the third party. The whole evaluation system should be built with the guidance of risk control and performance management and guarantee the effective supply of service.

### **5 Policy suggestion for the development of elderly service with PPP model in Sichuan**

#### **5.1 Improving the effect of support policy and building benign system environment**

Introducing PPP model to elderly service supply is an effective action for improving service supply and quality under the background of supply-side reform. As we know, Sichuan province has already issued a series of support policies to promote PPP model in elderly service industry, but it also faces various operational and technical problems which should be solved in practice. The policies nowadays only build the system structure, and the concrete operational process and operational key points must be constituted in the following. The first step is to enact laws related to the development of PPP model and provide steady anticipation for social capital. Development and Reform Commission, Department of Finance, Department of Human Resources and Social Security, and Department of Civil Affairs in Sichuan must clear responsibilities and cooperate closely to find and solve the problems during the implementation of PPP model. All the competent departments should build the atmosphere of elderly service combining with PPP model.

#### **5.2 Clearing the roles of government and private department**

The effective promotion of PPP is conducive to better realizing the public financial function of government. The responsibility of Department of Finance focus on financing support, dynamic financial management, performance evaluation of whole process and perform duties of promoter. In the stage of financing, Department of Finance should play the leading role and focus on project budget, asset allocation and financial evaluation. In the stage of operation, Department of Finance concentrates on how to harmonize the principle of PPP model with supply mechanism of public service under the existing financial system. Private department should show ability of professional management during the process of preparation, start-up, operation and management. Besides, government and private department also should study the application condition for different PPP pattern, consider different system risk of PPP pattern and find proper way to control and diversify risk.

#### **5.3 Strengthening the mechanism design of PPP model and improving supply quantity and quality**

Public and private departments should play their respective functions in the development of elderly service with PPP model following the guidance of realizing effective supply of elderly product and service. Firstly, Public department purchase public welfare and interest, and private department gains investment return and improvement of enterprise image and brand value after participation into

elderly service industry. So it is necessary to build mechanism of interest sharing. Secondly, risk control mechanism can effectively respond to risks in practice. In the aspect of financing, managing credit guaranty and contingent liability is very important. At the same time, firewall system can prevent the risk transfer from private department to public finance. In the aspect of fixing a price, competent departments such as Development and Reform Commission, Department of Finance in Sichuan should combine market rule with service property, dynamically calculate reasonable pricing range. Thirdly, government should issues upgraded support policy and measures to arouse the enthusiasm of private department participating elderly service industry from finance, taxation, finance and land. Government can reserve special fund and provide loan guarantee and interest subsidy in financial stage. Meanwhile, broadening requirement of tax preference, reducing or exempt value added tax, consumption tax and sales tax, reducing land cost for infrastructure construction, and encourage insurance company and pension fund to participate PPP project of elder service are also been considered. Finally, government must strengthen supervision in the life cycle of project, and focus on project approval, funding operation and process specification.

#### **5.4 Building industry evaluation system of elderly service**

The health development of private elderly service institution needs industry supervision, self-discipline and evaluation from third party. Original responsibilities of operation, supervision and dispute settlement can transfer to guild of elderly service industry. Thus, the guild can build its own evaluation system, and consider evaluating indicators from information feedback and information transmission of service user. It will correctly reflect the humanistic characteristics of elderly service and real situation of elderly service supply. Guild can also build risk warning system based on big data analysis to confirm the expected state of project. Besides, guild and government should cooperate to realize orderly entrance and exit of entities in the elderly service system through testing and evaluation in order to promote the sustainable development of elderly service with PPP model.

## **6 Conclusions**

With the supply-side reform in public service and increasing aging problems, how to improve the quantity and quality of elderly service becomes a core issue not only for the government, but also for the public. It is necessary to find a suitable solution to arouse the enthusiasm of social capital and PPP is an innovation model that we are searching. The central and local governments encourage social capital to participate into the supply of public service. Like some provinces in China, Sichuan Province also begins the pilot work of elderly service development with PPP model. This article analyzes the current situation and constraint conditions of integration of PPP and elderly service supply. It is crucial to design and improve mechanism of risk control, mechanism of interest sharing, incentive and restraint mechanism, and supervision and evaluation mechanism. Government and relevant organizations should formulate the policies as follows: (1) Improving the effect of support policy and building benign system environment, (2) Clearing the roles of government and private department, (3) Strengthening the mechanism design of PPP model and improving supply quantity and quality, (4) Building industry evaluation system of elderly service.

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## Research on the Innovative Spread of Government Affair Information in China in We-media Era \*

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**Abstract** The government affair media develops fast, upgrading from sole information release to all-round information offer. However, the built-in issues of government affair media prevent itself from service transformation. At the very moment, the government affair media “Changan-j” suddenly rises, which featuring a multidimensional research on transmission subject, content and form. It makes both quantitative and qualitative analysis on innovative communication strategy of Changan-j. Based on those analysis results, government affair service development suggestion and emotion contagion and transmission mode of Chinese government affair we-media are put forward. It emphasizes that the to-be government affair we-media shall focus on the user perspective, offering all in one service as releasing information or offering information search service by means of emotion contagion so as to strengthen the cooperation with users.

**Key words** We-media, Government affair release, Government affair service, Communication mode

### 1 Introduction

In We-media era, government affair we-media is gradually becoming a new platform for government transferring public service idea, information release, government-citizen interaction and government affair service. According to Interim provisions on the development and management of public information services for instant communication tools<sup>[1]</sup> stipulated and released by Internet Information Office, China encourages party and government organs at all levels, enterprises and public institutions and non-governmental organizations set up public accounts so as to service economic and social development, and satisfy the public needs, which fully shows that China attaches great importance to the construction of government affair we-media.

### 2 New features of Chinese government affair information transmission in we-media era

As the new trial of government affair management transformation, the government affair transmission, together with the influence of the platform itself, develops some new features.

#### 2.1 The diversity of release subjects

Through we-media platform, “individuals could transmit news in a systematic way. Some netizen with certain knowledge about media and news have become professional news transmitter.”<sup>[2]</sup> Nowadays, government make its presence in public with various identities as government affair WeChat, government affair microblog, government affair headline, speaking for itself. Together with we-media founded by individuals or organizations, centering on government affair information, and the WeChat and microblog accounts of “professional media” like newspaper and television, they have become the top three government affair we-media, featuring the diverse release subjects.

#### 2.2 The emotional information promoters

Government affair information is different from other Internet information, which are easy to transmit and attract the attention from the netizen. In the public discourse space of we-media era, hommization feature is conducive to the improvement of user stickiness. When exposed to government affair information, users pay attention to the experience of the process, easy to influence by emotions.

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Depending on similar interests and needs, the public has been divided into various Internet groups. In this segregated groups, emotions transmit fast, has a greater influence, thus the interactive behaviors of we-media as comments and re posts are greatly influenced by emotions.

### **2.3 The refinement of user range**

On the one hand, the operators of government affair we-media learn the interests of users based on the big data statistic analysis, so as to send those government affair information more suitable to the users. On the other hand, the government affair we-media develop fast in China. By the end of August, 2015, there were over 80,000 official WeChat accounts centering on government affair and society, covering 31 provinces, districts and cities, among which 84.7% are provincial level<sup>[3]</sup>. the audiences of the government affair we-media at various levels are divided by region, thus with the expansion and refinement of government affair we-media range, its user range is increasingly refined, so does its information and service range.

## **3 Problems of government affair transmission in we-media era**

As a new thing, government affair we-media has problems in target setting, professionalism, etc, putting it into a development trap in real sense.

### **3.1 Blurred target positioning, value post than service**

The target positioning of government affair we-media is a decisive factor to its operation and development. The operator of government affair we-media should always keep in mind of its target positioning, which is to service the public. In China, the government affair we-media's target positioning is severely deviated. First of all, the audience targeting is at question. Some government affair we-media are not aiming at serving the public, but the government organs instead, disconnecting with the public very very beginning. Secondly, its function positioning "values post than service"<sup>[4]</sup>. the majority of government affair we-media are named by XX posted, showing that the government affair we-media "value post", leading we-media to performance direction.

### **3.2 Low interaction rate, low government affair service experience**

Nowadays, lots of government affair we-media articles have a relatively low reading quantity, comments and update frequency, becoming "zombie microblog", "zombie WeChat". When great incidents happen, some government affair we-media react slowly or even no reaction. For instance, when Jingan fire accident in Shanghai, a student in Luzhou middle school jump down the building to commit suicide, government affair we-media ignored the information demand and the public Internet public opinion lost in control. Besides, government affair WeChat accounts release lots of official documents and regular political activities with boring and hiping tone, failing to attract the audiences' attention. Although some government affair we-media start to offer functional services like online consultation, a great number of public still reflect that almost no responses are given to it. Most of government affair we-media are reduced into nothing but ornaments with low government affair service experience.

### **3.3 Low professionalism, wrong information service**

Government affair we-media represent the government<sup>[5]</sup>. Thus, the Government affair we-media should cautious about the released information. Some administers of government affair we-media have realized the publicity of their microblog and WeChat accounts, releasing news with personal emotion and inappropriate diction and tone. For instance, the "humiliating mother murder" case aroused a heated discussion among netizen. As for the query, the official microblog of Jinan Police Station posted a picture, saying a donkey hit a bus with a few words: "there are lots of strange things like a donkey hits a bus. Donkey: If you have different opinion, I a ready for a fight! Bus: You are always the one get hurt even if we fight for thousands of times!" Now, this news has been removed from the microblog. This news not only lead to the uncontrollable situation of the public opinion, but also brings negative influence upon the government, which exactly shows the absence of public information service of government affair we-media.

## 4 The innovative spread of government affair we-media—Exemplified by WeChat official account—Changan-j

Changan-j is created on September 24th, 2015, aiming at the combination of user emotion service mode with information spread, which develops into a spread mode featuring valuing user experience and government affair service.

### 4.1 The diversity of spread subject, service identity stands out

The spread subject is the basis for Changan-j to release government affair service. The operators and administrators of government affair we-media are mainly transformed traditional media personnel or public servants. They fail to have a well understanding of information spreading under the environment of we-media, which are mainly reflected in information with too much administrative color and less influence. Since the editorial team of Changan-j are mainly composed of “native netizen” born in 1980s and 1990s, they are a generation growing with the development of Internet, which is just like their organ. Thus, they have an acute sense towards Internet information and could precisely grasp the netizen’s need for government affair information. Some editors have some experience in working at traditional media sector, thus they have relatively higher professional media knowledge and censor the incoming government affair information so as to improve the authority of those information. Besides, Changan-j has a bunch of writers in various fields to meet the diverse need for information. While releasing information, the operator of the WeChat account communicates with the audiences with a light tone about government affair in the name of Changan-j, which enhances the equality of spread subject and the objects. The public receive relevant information and service through following the official account. At the same time, the government affair information publisher’s identity has changed into servers instead of dictators.

### 4.2 To put a story style on information spread, and full of emotional infection

The communication of information is the core for Changan-j to release government affair service. On the whole, Changan-j mainly offers diverse service forms. It includes the emotional information into the we-media service, which is an innovation for politics and law service. With “law is the soul” as the core design concept, Changan-j mainly covers the following three aspects: legal mindset, politics and law deployment and law caring, which produces a good spread effect. This paper analyzes 138 articles released by Changan-j between June 1st to June 30th, showing in the following Figure 1.

**Table 1 Changan-j emotional information**

Information service	Legal mindset(23)	Law popularization(11)
		Public focus(16)
	Politics and law deployment (36)	Leader review(6)
		Legal new(30)
	Legal caring(70)	Politics and law story(30)
		Warm story(12)
		Safety reminder
National patriotism(15)		
Other(5)	Interactive entertainment(5)	
Service manual inquiry	Precaution manual (violent assault, telecommunication fraud, children trafficking, illegal fund-raising, labour dispute, robbery forcible seizure and larceny, women safety, campus violence )	
Similar platform linkage	China Changan APP, China Changan microblog	
User submission	To offer submission email	

**4.2.1 Information service.**It includes legal mindset, politics and law deployment and legal caring. All these three kinds of information have a relatively stronger contagion, and could directly influence the user experience and its attitude( like or unlike).

Legal mindset including law popularization and public focus. Changan-j is adept in grasping the focus of the public and clarify the wrong information from the perspective of law. Focusing on right public opinion guidance, Changan-j aims at improving the public opinion ration and decreasing

Internet noise through help netizen set right legal mindset.

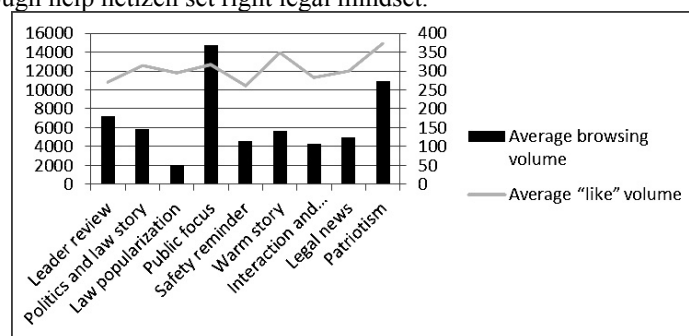


Figure 1 The average browsing and “like” volume of articles released by Changan-j

Politics and law deployment includes legal news and leader review, which focuses on the deployment and guidance by central leaders toward politics and law work. When spreading legal news, the Internet buzz words are used to arouse the readers’ interest.

Legal caring includes politics and law story, which deals with the daily work and life of staff in political and law departments; safety reminder, which includes lots of functions as anti-fraud; warm story, which is the common life of citizens; patriotism, focusing on nationalism, patriotism and stressing the unity of homeland as well as the recognition of peaceful coexistence; and interaction and entertainment, which is mainly about heated Internet topic. According to the statistics in Figure 1, articles with national patriotism have a relatively higher browsing and like volume, reflecting Changan-j’s strength in spreading mainstream value and strengthen cohesiveness. This kind of articles mainly relate from small personal stories with first person narration with strong sense of reality. “Generally speaking, service and popularization information is relatively popular. Government affair information only have a better spread result when comprehensively extracted and read, emphasizing its correlation with daily life<sup>[6]</sup>.” Changan-j stresses the great influence laid on the audience by the content, thus the majority of the posts are either related with the public life or the focus of the public.

**4.2.2 Service manual inquiry**, which includes 8 items, from violent assault, telecommunication fraud, children trafficking, illegal fund-raising, labour dispute, robbery forcible seizure and larceny, women safety and campus violence. First of all, emotional tone is taken to stress the importance of issues so as to arouse the audience attention. Then, ten precaution measures in simple language are listed, aiming at improve reading experience from the angle of citizens.

**4.2.3 Similar platform linkage.** One of the important reasons why government affair we-media has little influence is the less promotion, low attention and thus low popularity. At the end of all the articles released by Changan-j, there are three similar platform linkages Changan-j WeChat official account, China Changan web, China Changan microblog. In this way, the exposure rate of similar platform linkage are also improved. What’s more, to offer QR code for users to scan is easier to activate users’ habit of “scanning to follow”.

**4.2.4 User submission.** The menu bar of WeChat official account is a fixed column in a long period. Changan-j opens a “user submission” column, which reflects its WeChat operating concept “coming from the public and going back to the public”. Submitted articles from users can use simple but vivid words to describe events happened around the public. In most cases, the narrators are the experienced person, thus the story has a higher level of reality, which could satisfy the users’ diverse needs.

### 4.3 Diverse information forms, offer multimedia display service

Diverse form is an effective means for Changan-j to launch government affair service. The most obvious features for Changan-j in terms of releasing information is to offer multimedia display service, which means it contains not only words and pictures, but combines the most cutting age we-media operating display forms as voice, video and H5, which is an important method to improve the user experience. Analyzing the percentage of various forms of articles among all articles shown in Figure 2, the articles released by Changan-j are mainly the product of combing words with pictures, accounting

for 69%, followed by the combination of words and video, taking up 18%, then the information in H5, 9% and the information with pure words are the least. To be exact, information with pure words has fail to cater for the audience's attention, thus is not good for information spreading. However, information dominated by words and pictures, supported by video and H5, not only intensifies the intuition and interestingness of the information. In the we-media era, useful and interesting information can attract users to read and easier to activate users to interact.

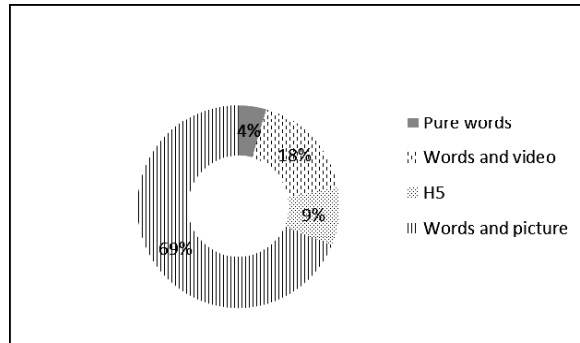


Figure 2 The percentage of various forms information in sample articles

## 5 Development suggestion and possible mode for government affair we-media service in China

### 5.1 Development suggestion on government affair we-media service

Government affair we-media emphasize on the emotion spread mode, which is not only beneficial for improving the user experience of government affair we-media service platform, but also for improving the government affair service ability. From the spread practice and user experience of Changan-j, it is clear that the government affair practice in China still need improvement.

#### 5.1.1 To expand information service rang

Government affair information spreading is the core meaning for the existence of government affair we-media. To propel emotion contagion spread mode is to make full use of the advantages of specific information resources, its irreplaceability in spreading government affair information and offering government affair service, so as to attract the audience to have an idea about related information. Thus, our various government affair we-media should expand information sources and enrich content s and topics on the basis of operating basis information service role, so as to meet the public's demand about various government affair information.

#### 5.1.2 To innovate service method, and offer complete flow of online service

Base on mobile Internet platform, the "WeChat government affair" is of great referential meaning to the effective administration of government affair WeChat platform and offering "communication" and "work channel". Specifically speaking, the government affair we-media in China should be based on information service and handle-affair service, focusing on the direction of government affair reform and transferring to media platform integrated with government information releasing and service. The more useful the information, the higher satisfaction rate the users hold towards the government affair we-media<sup>[7]</sup>. As a result, government affair we-media platform should be the government affair information offering platform as well as the "micro-window" of government affair service, helping government departments realize the networked daily work, which is beneficial for the public to have a clear idea of the usefulness and satisfaction rate of the government affair we-media.

#### 5.1.3 To innovate information presentation mode, to improve reading experience with emotion injection

We-media stress "user experience" and initiate a highly equal and open conversation system. Thus, when releasing information, government affair we-media should pay attention to the application of emotional spreading technology. For instance, since policies and new regulations are rigid, the "Wall Street style" writing feature is adopted to store information, foster corresponding scenes, enhance

engaging sense so as to create a relatively great attraction. Besides, government affair we-media shall create an identity with distinct feature, and try to tell the stories with first narrative, which is easy to have a cross space-time conversation and improve reading experience.

### 5.2 The emotion contagion mode of government affair we-media

The flexibility and autonomy of we-media platform intensify the contact between Internet knots. Based on specific interest, various interest loops are coming into being on Internet, propelling the reform of government affair information spreading structure, presenting typical emotion contagion, interaction and disintermediation shown in Figure 3:

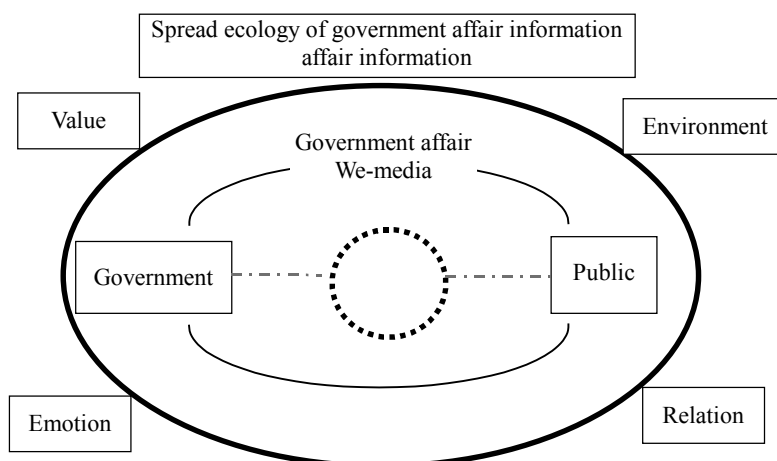


Figure 3 Emotion contagion spread mode of government affair information in we-media era

**5.2.1 Source of infection**—Under the we-media environment, the spread of government affair information is actually a new combination of “government information + citizen information”. On the one hand, government is still the main source of government affair information. Government goes in for political activities or directly release information, which becomes the source of infection of the social network consensus. On the other hand, the improved quality of the public towards media and the awakening of the citizen’s awareness as well as the low access of we-media platform promote the advent of WeChat era featuring “national journalists”. Mobile Internet has become the main channel of spreading information. Through we-media platform, the role of the public is changed from “audiences” to “party involved”, becoming the source of government affair information, which is the “source of infection”.

**5.2.2 Infected objects**—According to Milgram, a famous American social psychologist, the Internet world has another “small world”, meaning that the relation between individuals could be connected by limited individuals, also called “six degree of separation<sup>[8]</sup>”, emphasizing the randomness of interaction and relation among individuals. In we-media era, the public could manage their won information “small world” at any time, any place. For example, they can acquire government affair information or voice their opinion. At the same time, “onlook” has become the normal state of network community. The public voice their opinions or “onlook” toward a specific news, and then comment, like or forward based on their emotion contagion degree or specific needs. This process is also called “rapid spread”. Bystanders contained by some government affair information become the infected objects of government affair information, and government affair information spread for twice or more as the development of the contagion, and gradually come into a massive information spread and interaction, including the interaction modes of “public-microblog master-government”, “public-microblog master” and “public-public”.

**5.2.3 Invisible Intermediary**— Since the government affair we-media transform from “government affair release” to “government affair service”, the slight difference not only reflects the target and position of government affair we-media, but also signifies the change of its content and language style. Service-focus government affair we-media emphasize having equal conversation with

the public, as though when the government communicates directly with the public and its intermediary role becomes invisible.

**5.2.4 Catalyzer**—Under we-media environment, the release of government affair information, to a large extent is influenced by the subjective factors of the senders. Those belonging to a network community or interest loop are easily influenced by their emotion. Catalyzed by subjective factors as values, emotion and relation and objective factors as environment, senders and media users could interact or adjust and reach corresponding spread effect. For instance, network law and regulation and network consensus could influence the possibility of contagion information, while network community style and information environment would influence its spread effect.

Contagion spread mode stresses the connection among various network knots. Various network knots develop into a network spread chain through following the same information, which is fast spread with the promotion of users. In this way, the spread range and service range of government affair we-media is broadened.

## 6 Conclusions

The ultimate aim of government affair we-media launching government affair spread and service is to realize the value of government affair information. Nowadays, the majority of government affair we-media fail to really realize the difference between information releasing and information service, thus difficult to achieve the transform from “sender” to “server”. Emotion contagion spread mode highlights the subjectivity of users, and emphasizes operators of government affair we-media having equal conversation with users. Thus, government affair we-media, one the one hand, pay attention to the diversity and attraction of information, adopting a “story-telling” tone to intensify readers’ engagement and promoting information service consciousness via forwarding practical information related to livelihood and this political information attracting the public’ attention. On the other hand, government affair we-media shall keep innovation with multimedia information service method so as to cater for the using habit of picture-word age, intensifying the readability of information and improve the reading experience of users. What’s more, government affair we-media platform, especially government affair WeChat should keep exploring their backstage service to meet the public’s demand to acquire the public government information at any time, any place so as to bring convenience to the public’s life.

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## Path Analysis to Improve the Capacity of Leading Cadres to Cope with Emergencies

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**Abstract** Dealing with emergency is quite significant for the construction of the modern security system of the country. Not only does the emergency endanger the public security, but also affect the security of people's lives and property as well as the stability of the development of revolution. Coping with emergency, in essence, is a test for the ability of scientific decision-making as well as cooperation and coordination owned by leaders at all levels. In the new period, effective emergency management requires that leaders must take various measures simultaneously, firmly set up a people-centered national security outlook and comprehensively cultivate their own cooperative consciousness and innovation capability.

**Key words** Improvement, Leading cadres, Ability to deal with emergency, Path

### 1 Introduction

Recent years has witnessed the worldwide frequent occurrence of all kinds of public emergencies including earthquake, conflagration, violent conflict and infectious disease, all of which do not just threaten the safety of people's lives but bring about tremendous loss for the international community. In order to improve the ability to handle the public emergency of the all society, our government has introduced "Emergency Regulations on Public Health Emergencies" on the 9<sup>th</sup> May, 2003 and officially released "National Public Emergencies Overall Emergency Plan" on the 8<sup>th</sup> January, 2006. The State Council has established the Emergency Management Office in May, 2006 and passed the "People's Republic of China Emergency Response Law" on the 30<sup>th</sup> August, 2007. Leaders at all levels, through their years of effort, currently not only have accumulated successful experience to manage a list of catastrophes but have the basic capacity to handle the emergency. However, it is undeniable that the incidence of all sorts of public emergencies of our country currently is still relatively high. According to the research, only in 2014, various public emergencies has been up to 100 thousand, which indicates that, under current circumstances, continuously improve the ability of leaders to dispose the emergency is an importantly practical issue for the construction of peaceful China and the promotion for the defined social governance.

### 2 The related elements influencing the leading cadres to respond to emergencies effectively

Emergency generally refers to the public affair which happens suddenly, endangers public life and property, social order and public security and needs the government to take immediate measures to manage. In our country, it mainly includes natural disasters, accidents, public health emergencies and social security emergencies. In recent years, the social practice has proved that the effective emergency response of Chinese leading cadres at all levels has mainly been affected by the following aspects.

#### 2.1 Cognitive factor

Cognition, in theory, refers to the processing of human's brain to process, storage and extract information. Marxism points out that the biggest characteristic of human behavior is purposiveness. The biggest difference between human beings and animals is that before the things get done, human has set up his goal blueprint in his brain. In fact, this completion of the blueprint for leading cadres at all levels is a process to rapidly make a decision according to the realistic condition and all kinds of information. The premise of scientific decision-making is to make a correct judgment of the future development trend so that cognitive factors are the primary factors that affect the ability of leading cadres to respond effectively to emergencies. The cognitive level of the leader directly determines whether he is right or wrong. For example, in the "12.5" mine disaster in Shanxi Province in 2008, there is a detail worthy of us to reflect. After the mine accident, the person in charge of the coal mine, due to his eagerness for saving

people, took the initiative to rescue the miners but the rescue methods were not proper, which directly led to the sudden death of 15 rescue personnel. The errors of judgment to the processing of the accident caused incalculable loss. This lesson tells us that the behavior of leader who owns the right of decision-making not only affect the level of a region's economic and social development, but also relate to the broad masses of the safety of people's life and property. The right to life is the supreme right of mankind. The core of the people-centered thought is to respect the life rights of the broad masses of the people. Xi jin-ping, general secretary of the People's Republic of China, explicitly points out that "Party committees and governments at all levels, especially leading cadres, should firmly set up the concept of safety production, correctly handle the relationship between security and development, and adhere to development that must not be carried at the expense of security ."Insisting on the development that must not take the expense of security as the price, that is, we should correctly understand the objective situation and conditions that we face in our work practice. The research data of this research group, as shown in the Table 1.

**Table 1 Statistics of disaster situation of Shanxi city in recent years**

Types of disasters	The forest fire	Geological disasters	The number of deaths	Disaster losses
In 2015,	13	26 times		629.6 million yuan
In 2016,	6	7 times	2	283.05 million yuan

In a city of Shanxi Province, the direct economic loss caused by floods in 2015 is 629 million 600 thousand yuan. In 2015, 13 forest fires occurred in the city, and the forest fire injury rate is 0.16 per thousand. In 2016, six forest fires in this city occurred which burned the area of 13.03 hectares. In 2015, 654 geological hazard points were found and geological disasters (dangers) happened 26 times. In 2016, the total number of geological disasters was 6 which also led to 2 deaths. This situation shows that the occurrence of unexpected events owns obvious uncertainty. In response to emergencies, if the leading cadres at all levels are quick-witted and can timely make a scientific prediction on the characteristics of emergency and its detriment degree in the ex-ante stage, can effectively organize and dispatch all kinds of emergency resource in the interim stage , and can accomplish the work of psychological comfort and reconstruct post-disaster confidence in the recovery stage, they can control and defuse the crisis in a certain extent and reduce the losses caused by the accident. If they fail to do so, it will cause losses to the country and society, and may even weaken the credibility of the government. Therefore, the cognitive level of leading cadres at all levels is the primary prerequisite for deciding whether they can do a good job of scientific decision making for emergency management or not.

## 2.2 System and mechanism elements

System, in theory, generally refers to institutions and the system of organization of a country. Mechanism is the process and mode of interaction between organizations or parts within a system. The current emergency management system of our country is "unified leadership, comprehensive coordination, classification management, graded responsibility, vertical and horizontal relationships union, territorial based". The mechanism is the emergency management work pattern featuring the unity of command, vertical linkage and multi sectoral cooperation, through years of practice nationwide, at present, which enjoys the guidance of government, department of coordination, military and the participation of the whole society. In Shanxi Province, for example, by 2016, the provincial, city and county level governments and related departments all set up emergency management agencies and formed emergency management mechanism that the main leadership shoulders overall responsibility, in charge of the leadership assists others, and other leaders respectively are in charge of the related field. At present, the province has issued an administrative regulation, two rules and a number of normative documents. The number of all kinds of emergency plans is a total of 113,000 units, covering various industries, all levels and areas. But it is undeniable that China's current emergency management system and mechanism plays a positive role, while in practice there is a significant deviation. The main manifestation of this deviation is the tendency of fragmentation in emergency work. For example, in the distribution of institutions, the current important emergency resources including water, electricity, gas, heating and other infrastructure are respectively managed and operated by different departments. A lot of emergency disaster relief material also under the jurisdiction and reserves of different institutions. In the

actual operation, due to the limited resources and the lack of assessment and accountability mechanisms, it will inevitably form the problem of departmental interests, which objectively results in the fragmentation of emergency management. Therefore, how to start from the system and mechanism to resolve contradictions, prevent the overlap and decentralization of responsibilities when establishing the emergency institutions; to cohere and coordinate each department well during the formulation and implementation of the emergency policy, and to dispatch and share the related organizations when allocating the emergency resources, all of which are realistic problems for all leading cadres at all levels.

### 2.3 Experience elements

Experience is the knowledge and skill acquired by human beings in long-term social practice. Effective use of experience plays a positive role for all leaders in leading efficiency, job performance and administrative cost control. In emergency response, the role of experience is also very critical. For example, in the part of early warning information release, the working experience of national warning platform in 2015 is worth the overall promotion. (See Table 2)

**Table 2 2015 “national early warning release” summary figure**

WeChat subscription and services number	Natural disasters articles	Relate to disasters articles	WeChat followers	Tencent Weibo audience	Sina Weibo fans
41,049 people	1.4 million. pieces	About 20 pieces	2,335 people	371 people	410,498 people

Statistics shows that, in 2015, in order to respond to emergencies, a total of 1 million 400 thousand categories of natural disasters warning information and more than 20 related disaster warning were issued by “national early warning release”. The number of WeChat followers was 2,335, of listeners of Micro-blog, Tencent, was 371, and of fans of Sina, micro-blog was 410,498. The action, “National Early Warning Release” has provided very positive help for the masses to the effective disaster prevention and mitigation so that it is affirmed by the broad masses of the people and the followers of WeChat subscription and service number exceeded 41,049. This is a very positive result. However, the law of social development has different characteristics in different historical periods. Some of the successful historical experiences may no longer have universal character in today’s social development. This, in particular, should arouse the full vigilance of our leading cadres at all levels. Because it has been proved that every emergency occurs with a certain degree of contingency. Although the cost of empirical disposal is low, the effect of treatment may not meet the demand. Under the circumstances of weak global economic growth and the rise of protectionism, we may face more problems for some time to come. Thus, the leading cadres at all levels should have a reasonable assessment of their past successful experience to deal with the crisis, and not only to see the role of past experience of our work but also to consider the limitations of experiences itself. We should look upon the differences between things from the respective of Marx’s materialistic dialectics and actively explore new ways and means to deal with the crisis under the new situation.

## 3 Improve the realization path of leading cadres of their ability to respond to emergencies

As a key minority, leading cadres, when promoting the construction of peaceful China, in order to improve their ability to respond to emergencies, should start from the following aspects:

### 3.1 Adhering to the national security concept featuring people’s supremacy and striving to improve the cognitive level

Xi jin-ping points out: “People’s position is the fundamental political position of the Chinese Communist Party and a notable symbol of the difference between Marx’s political party and other political parties.” The essence of the national security concept, people foremost, is to serve the people wholeheartedly. This is also the fundamental purpose and value orientation of our party. The ability of leading cadres to deal with unexpected events is the concrete manifestation of the party’s ruling ability in the new period. In order to effectively cope with emergencies, we should firstly improve the awareness of the all leaders serving people wholeheartedly and the cognitive level of unexpected incidents response. Judging from the international situation, the world is still restless as geopolitical factors are becoming more prominent, and non-traditional security and global challenges are increasing. From a domestic

perspective, with the transformation of society, the awareness of interests of different social groups and class is constantly awakened and strengthened. All these cases show that the response to emergencies has become the embodiment of the ability of leading cadres at all levels in the new period. The key of emergency response is non-procedural decision making. The premise of non-programmed decision making is to have a correct understanding of the nature and law of things. This requires that our leading cadres at all levels should really become learning-inclined cadres. We should not only talk about politics and study, but also think and reflect on it. General secretary, Xi Jin-ping makes it clear: “Fond of learning makes progress”. Chinese Communists rely on learning to come to today, must also rely on learning to the future. When coping with emergencies, the leading cadres at all levels, only to insist on studying and on arming his own mind with Marx’s theory, they can improve their cognitive level, keep a clear mind when making non-programmed decision, and keep courage and march forward courageously in face of any danger. The highest level of emergency management is called “no urgent response”, but the premise of it is that the cadres at all levels hold the belief that they are loyal to the party and responsible for people as well as the scientific cognition and prediction of the occurrence and development of emergencies.

### **3.2 Firmly establish the overall situation, and strengthen mechanism of cooperation, coordination and sharing**

Cooperation is the basic way of existence of human society. In dealing with unexpected events, cooperation refers to the process that in order to achieve the goal of emergency response, a number of relevant departments accomplish their work through mutual coordination and coordination. In the new period, the leading cadres should firstly establish the overall situation consciousness and strengthen mechanism of cooperation, coordination and sharing. In the emergency management, the overall situation is the emergency situation after the incident and the resulting future trend. Establishing the overall awareness is, in the view of development, analyzing the emergency situation from the height of the overall situation. Besides, at the actual layout of the emergency rescue work around the region and the fundamental policy of the party and the country, the awareness is choosing to strive for the best results of the program aimed to deal with the worst in order to safeguard the safety of people’s lives and property and minimize the losses caused by the disaster. Effective mechanism of cooperation, coordination and sharing is the main method to overcome the fragmentation of emergency management. Cooperation is the theme of this era. Sharing development is new concept put forward by our party in the fifth Plenary Session of the 18th CPC Central Committee which requires to adhere to the development for the people and by the people, and the fruits of development are shared by the people so as to increase the sense of acquisition of all people in the development of construction and sharing. As mentioned above, in the emergency response, first manifestation of people’s sense of gain is the safety and security of life and property. Only by setting up the thought of serving people wholeheartedly and overcoming the narrow limitation of departmental interests, the leading cadres can mobilize all social forces to resolve the crisis in the handling of unexpected incidents. To strengthen mechanism of cooperation and coordination sharing at current stage is to use the emergency disposal boosted by big data, to establish emergency cooperation network platform connecting government and social organizations in the country so as to set up the green channel of priority release of emergency information, and to clarify the responsibility and obligation of the each main responsibility in the network platform through sharing and gradually form a social consensus that people shoulder the responsibility to deal with crisis and share the safe environment.

### **3.3 Adhere to innovative thinking, and pay attention to the continuity of psychological intervention**

Innovative thinking refers to the thinking activity that leading cadres can analyze and judge the trend of unexpected events with rational thinking to form new ideas and new decisions. Innovation has become the essential requirement of leadership activities in the new era. Survey data shows that sustained innovation is the most effective way for leading cadres to improve their ability to respond to emergencies. Unexpected events are inevitable in any form of society. Adhere to innovative thinking, that is, in the process of emergency response, from the early warning and incident response to the recovery stage, consciousness of innovation should be run through every aspect of emergency rescue work. Early warning is to move forward, and to take advantage of modern information and

communication technology to timely capture crisis signs and take precautions as soon as possible. The process of event response is that once a sudden incident occurs, leaders will respond quickly and actively organize forces to cope with it. The recovery after event, that is, to creatively finish the emergency recovery and reconstruction work. Furthermore, the psychological reconstruction of disaster victims is a very complicated process. Psychological research shows that the psychological damage caused by unexpected events has a huge detriment and strong diffusivity. Some people will never get out of the trouble for the rest of their lives. For example, the investigation of this group shows that the mental health level of the people in the surrounding areas has been at low level since the 2008 “12.5” mine disaster in Shanxi province, and it did not begin to improve to some extent until 2014. Then, the level rises year after year. As shown in Table 3:

**Table 3 Summary of mental health status of partially visited people after mining accidents**

Particular year	Adaptability	Cosplay	Emotion	Behavior coordination	Reaction rate	Autonomy	creativity
2010	56.7%	63.8%	56.6%	67.8%	72.9%	58.3%	67.3.2%
2011	57.7%	63.3%	57%	64.7%	74.2%	67.8%	63.3%
2012	58.1%	65.5%	68.2%	69%	75.7%	69.6%	68.9%
2013	59.8%	67.8%	71.2%	69.3%	75.8%	70.5%	72.1%
2014	60.8%	72.7%	72.7%	73.9%	77.2%	73.4%	75.8%
2015	66.3%	75.2%	78.5%	80.1%	82.1%	79.9%	82.1%
2016	68.2%	76.2%	79.6%	81.2%	82.3%	80.3%	84.5%

Therefore, doing well the psychological intervention of the people after the disaster is also an important part of the emergency response. People’s psychological adaptability is gradually improved and trained in the continuous development of social practice. Adhering to the innovative thinking and persistent psychological intervention is, after every emergency, to pay attention to timely use of vivid teaching materials to reflect and do psychological self-help and mutual aid. We should actively guide public opinion through various social network media to prevent disorderly diffusion of negative emotions and prevent cluster behavior., and through a series of forms including work analysis conferences, forums and seminars to explore the psychological reconstruction program with Chinese characteristics after disasters, as well as to improve the psychological capacity of the whole society to cope with unexpected incidents.

In short, emergency response is a system engineering. The construction of peaceful China is the responsibility shouldered by every person. Besides, the leading cadres should take the main responsibility of it. In response to emergencies, each leading cadre should safeguard the realization of the safety of people’s life and property and regard it as their work responsibilities and defend their duties.

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## Social Trust and Citizen Participation: Chinese Data Based on WVS \*

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**Abstract** Based on the Chinese part of the World Values Survey (WVS), the principal component analysis method was used to extract the dependent variables. The purpose is to replace the original variables with less independent variables without losing the original information, so that the influence of the independent variables on the citizen's participation can be measured more robustly. In order to ensure the robustness of the results, OLS, Ordered Logit and Ordered Probit were used to estimate the parameters. The relationship between social trust and citizen participation was tested empirically. The results show that social trust has a positive effect on citizens' participation in informal organizations under the control of other variables, and has no significant impact on citizens' participation in formal organizations. At the same time, on this basis, the impact of demographic characteristics on citizen participation consciousness was examined.

**Key words** Social trust, Citizen participation behavior, WVS, Parameter estimation

### 1 Introduction

The Third Plenary Session of the Eighteenth Central Committee of the Party put forward the concept of reform of social governance, replacing the previous concept of social management. Although only a difference between the word, but it contains the essence of the new reform. On this basis, the Fifth Plenary Session of the Eighth Central Committee of the Party put forward the pattern of "building a social governance pattern for the sharing of all the people", but to realize the pattern of social governance is inseparable from the participation of the masses. The scope of citizen participation is not only voting, but has been gradually extended to all aspects of social governance, the form of citizen participation has also undergone great changes. Now, the form of citizen participation in social governance is mainly through a variety of social organizations, through participation in different social organizations to address the different interests of the demands. Citizens' participation is affected by all aspects. At present, "Citizen participation in indifference" is the social problem that we are facing. In view of this social phenomenon, the purpose of this paper is to find out what is the relationship between social trust and citizen participation behavior, and whether social trust has the same effect on all citizens' participation.

### 2 Literature review

Academic research on citizen participation is becoming more and more active. From 2000 to the present, literature on citizen participation has been on the rise, only 2014, the number of documents to reach 188, reached its peak. Citizen participation is the core value of democratic politics and good governance<sup>[1]</sup>. First of all, the motive of citizen participation is to safeguard their own interests. Citizen participation itself is an act that protects the rights of citizens; On the other hand, stable, healthy and orderly citizen participation is a good way to build a good interaction between government and citizens, and it is also a key way to promote the negotiation of democracy. There is no more difficult to resist than the government in the name of the people.<sup>[2]</sup> Only public decision-making based on the interests of the people will get the social response and the people's warm support. It is a vital way to effectively prevent the abuse of public power by fully mobilizing citizens' sense of participation and stimulating

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citizens' participation. With the continuous development of democracy and the rule of law, civic participation is no longer limited to voting. Yu Ke-ping believes that with the continuous development of civil society mature, civic participation in the field is also expanding, including not only the political field, but also the economy and culture and other fields. The areas of citizen participation are being developed from the formal areas of society to informal areas such as education, culture, and entertainment.<sup>[3]</sup>

With the rapid development of the national economy, people's living standards are increasing, but the ensuing social contradictions are increasingly intensified, China is facing an increasingly serious crisis of integrity and trust crisis. The crisis of confidence is manifested in many ways, such as distrust of the government, and the government is gradually losing the trust of the people. The lack of trust between the main market, a series of toxic products and the emergence of counterfeit products is increasing. Not only that, today's interpersonal relationships have also undergone great changes, the trust between people is getting lower and lower. Professor Peng Dai-yan through research found that social trust will affect people's life satisfaction, and people's life satisfaction has a role in promoting, while enhancing social trust is an important way to improve people's happiness.<sup>[4]</sup> Yuan Zheng and Xia Bo two scholars based on the world's value survey of China part of the data to study the relationship between trust and happiness. The results show that trust can promote the well-being of citizens and suggest that the relevant departments develop reasonable and effective measures to manage the integrity crisis and rebuild social trust.<sup>[5]</sup> Professor Zhang Kang-zhi, a major representative scholar who has studied the theory of trust in China, divides the trust into three types: "custom trust", "contractual trust" and "cooperative trust".<sup>[6]</sup> Through the study of the influence of marketization and urbanization on social trust, it is believed that social trust has improved with the improvement of marketization, and there is a significant positive effect between the two. Through the study of the influence of marketization and urbanization on social trust, it is believed that social trust has improved with the improvement of marketization, and there is a significant positive effect between the two. Therefore, through the promotion of market-oriented process to promote social trust.<sup>[7]</sup> Chen Ye scholars from the new perspective of secularism to study the social trust, he believes, the degree of secularism is conducive to improving the level of social trust, and has a greater impact on organizational trust, more conducive to improving the level of trust in strangers.<sup>[8]</sup>

Social governance is a process of interaction between government and citizens, but interaction needs to be based on mutual trust. According to the analysis of China's data from the 2007 World Values Survey, the "small group trust" based on "acquaintance society" has a negative effect on the citizen's political participation probability. Only by breaking the trust of small groups and establishing a modern society "Social trust" is essential.<sup>[9]</sup> The trust of the government and the recognition of society can improve the democratic consciousness of citizens, cultivate the consciousness of citizen participation and improve the consciousness of citizen participation in social governance on the basis of trust, so that citizens can participate in social governance activities in a harmonious society. In this paper, we study the relationship between social trust and citizen participation in order to enhance the people's awareness of participation by cultivating social trust, and provide some theoretical basis for the construction of consultation democracy and service-oriented government.

### **3 The variable settings and data description**

#### **3.1 Variable settings**

Citizen participation is the dependent variable of this paper. All of the variables in the article come from the World Values Survey, WVS does not directly measure the issue of citizen participation behavior, this article through the world's value survey design a problem to measure the citizen participation behavior: "I will list some of the following organizations, may I ask are you a member of this organization? Are you active members or general member?". Citizens' participation is reflected by investigating whether citizens participate in social organizations and the degree of activity within the organization. There are 11 options for measuring the dependent variable. In this paper, we use the factor analysis method to extract the factors in the 11 items of the dependent variable so that we can substitute the original variables with less independent variables without losing the original information,

so as to better measure the citizen participation behavior.

**Table 1 Citizen Participation Behavior Factor Load Matrix**

Topic	Factor 1	Factor 2	Commonness
Human rights or charitable organizations	0.844	0.064	0.716
Consumer organization	0.799	0.240	0.697
Professional association	0.686	0.299	0.560
Environment\ecological protection organization	0.683	0.162	0.593
Mutual aid organization	0.676	0.257	0.523
Religion \ church organization	0.5478	0.0390	0.8790
Other organizations	0.596	0.112	0.568
Sports \ entertainment organization	0.193	0.869	0.792
Education \ culture organization	0.209	0.865	0.792
Union	0.1572	0.5725	0.6475
Political party \ group	0.1929	0.5195	0.6929
Post-rotation eigenvalue	3.824	1.118	
Variance contribution rate	47.795	13.974	
Cumulative variance contribution rate	47.795	61.769	

In Table 1, the common degree of each item is above 0.5, and the two factors are named “informal organization” and “formal organization” respectively according to the analysis result and the meaning of each item. Among them, the “informal organization” factor is a common work in the process of people formed, and emotional, preferences and other emotions based on the loose, there is no formal provisions of the group. Including: environmental \ ecological protection organizations, professional associations, human rights or charitable organizations, consumer organizations, self-help organizations \ mutual aid organizations, religious \ church organizations; “Formal organization” refers to the formal administrative department and the management level of the restrictions, there are clearly defined the formal structure of the social organization, including the subject are: political parties \ groups, trade unions, education \ art \ music \ cultural organizations, sports \ Entertainment organization four items.

The core of this paper is social trust. In WVS, the problem of social trust is: “In general, do you think most people can trust, or do people get along with the more careful the better?” There are two options for “most people are credible” and “the more careful the better”. In the data analysis, the “most people are trusted” sample assigned to 1, as a comparison group, the “untrustworthy, need to be careful to get along” assigned to 0, as the baseline group.

In order to test the impact of social trust on citizen participation, there are other factors that need to be controlled. This paper argues that life satisfaction and economic satisfaction are important factors influencing citizen participation. According to Maslow’s theory of demand, when people meet the basic physiological needs, will pursue a higher level of demand, will continue to pursue the realization of self-worth.<sup>[10]</sup> Therefore, life satisfaction and economic satisfaction are important factors in measuring the satisfaction of citizens’ physiological needs. Only when people meet their own needs will they have more energy to pay attention to social and public affairs to meet their higher needs. WVS for life satisfaction set the question is: “Overall, you are satisfied with your current life?”, problem options from “very dissatisfied” satisfaction to “very satisfied” a total of 10 levels, respectively, assigned 1 to 10; The question of setting up economic satisfaction is: “Are you satisfied with the economic situation of your family?”, from 1 to 10 means different degrees from “very dissatisfied” to “very satisfied” and assigns 1 to 10, respectively.

In addition to controlling life satisfaction and economic satisfaction two control variables, but also need to control some of the demographic characteristics of the variables. Such as gender, age, educational attainment, marital status, working conditions, health status, religious beliefs, and citizens’ sense of security. In this paper, gender is set to dummy variable, female is set as comparison group, assignment is “1”, male is base group, assignment is “0”. The age variable uses the age of the real data, the respondents aged between 18-75 years old, in order to examine the relationship between age and citizen participation behavior, take the age of the square as a new variable. Education level “no education”, “primary school”, “junior high school”, “high school”, “university”, “master and above”



“other”. Marital status is divided into six cases, namely, “married”, “cohabitation”, “divorce”, “separation”, “widowed”, “unmarried”, in addition to assigning “married” to “1”, the other options are grouped as “other” and are assigned “0”. The status of the work set “Do you have a job?”, Will answer “yes” assigned to “1” and will answer “No” assigned to “0”. The health problem setting is “Overall, what is your current physical condition?”, options are “very good” (4 points), “good” (3 points), “can” (2 points), “bad” (1 point). On the religious beliefs WVS set options are “religious people”, “no religious believers”, “firm atheists”, assign “people with religious beliefs” to “1” and the other options to “0”. On the security of citizens, WVS set the question is: “Do you think the nearest home or living around the safe place”, the option is “not safe” (1 point), “not very safe” (2 points), “very safe” (3 points), “very safe” (4 points). On the “child” control variable, the problem with the WVS setting is “Do you have a child? There are several children?” Option from 0 to 8 for a total of nine options.(see Table 2)

**Table 2 Variable Description**

Variable name	Variable definitions
Citizen participation	Citizens participate in informal organizations; citizens participate in formal organizations
Social trust	=1, Most people are credible; =0, The more careful the better
Life satisfaction	From very dissatisfied to very satisfied, divided into 10 grades, assigned 1-10
Economic satisfaction	From very dissatisfied to very satisfied, divided into 10 grades, assigned 1-10
Gender	=1, female; =0, male
Age	The true value of age
The square of age	The square of age
Education level	=1, Not educated; =2, Primary education; =3, Vocational secondary school; =4, Complete secondary school; =5, college education
Marital status	=1, married; =0, other
Working conditions	=1, Have work income; 0, No work income
Health status	=4, very good; =3, it is good; =2, is acceptable; =1, not good
Religious belief	=1, Have religious beliefs; =0, No religious belief
A sense of security	=4, very safe; =3, Safety; =2, Not very safe; =1, Unsafe
Child	=0, No; =1, One; =2, Two; =3, Three; =4, Four; =5, Five; =6, Six; =7, Seven; =8, Eight

### 3.2 Data description

The data used in this article comes from the Chinese part of the World Values Survey, a transnational survey conducted by Ronald Inglehart, of the University of Michigan, the survey reflects the different values of different countries in different countries. WVS conducted a total of six investigations, five times in China, the survey year followed by 1990,1995,2001,2007,2012; The data samples used in this paper are 2012 data, the effective sample size of 2300. The descriptive statistics of each variable are shown in Table 3.

**Table 3 Descriptive statistics**

	N	Minimum	Maximum	Mean	Standard deviation
Religion \ church organization	2278	0	2	0.06	0.281
Sports\entertainment organization	2300	0	2	0.13	0.397
Education \ culture organization	2297	0	2	0.09	0.340
Union	2298	0	2	0.09	0.310
Political party \ group	2297	0	2	0.10	0.358
Environment\ecologicalprotection organization	2299	0	2	0.03	0.203
Professional association	2297	0	2	0.03	0.185
Human rights or charitable organizations	2298	0	2	0.02	0.181
Consumer organization	2299	0	2	0.03	0.188
Self - help organization	2297	0	2	0.04	0.232

	N	Minimum	Maximum	Mean	Standard deviation
Other organizations	2136	0	2	0.01	0.106
Social trust	2239	0	1	0.63	0.482
Gender	2300	0	1	0.51	0.500
Age	2300	18	75	43.92	14.947
Education level	2300	1	9	5.34	2.366
Marital status	2300	0	1	0.82	0.387
Working conditions	2300	0	6	0.98	1.150
Health status	2300	1	4	2.84	0.855
Religious belief	2290	0	1	0.13	0.338
Life satisfaction	2252	1	10	6.86	1.985
A sense of security	2300	1	4	2.93	0.593
Economic satisfaction	2245	1	10	6.22	2.000
Child	2300	0	7	1.45	1.063
Age square	2300	324	5625	2152.12	1367.655

#### 4 The Relationship between social trust and citizen participation

In order to test the relationship between social trust and citizen participation behavior, we establish the following measurement model:

$$participation_i = \alpha + \beta trust_i + \sum_{j=1}^n r_j X_{ij} + \varepsilon_i$$

Where is a random variable. Since there are two dependent variables in this paper that citizens participate in informal organizations and citizens participate in formal organizations, independent variables are social trust. So we can use the above models to social trust and citizen participation in informal organizations, social trust and citizen participation in the formal organization of regression analysis, the regression results. The main purpose of this study is to explore the social trust on the impact of citizen participation in the quantitative analysis, based on the perspective of citizen participation, the study proposed in this study: In the case of other conditions, social trust has a positive effect on citizen participation. Based on the measurement of the dependent variable citizenship behavior, a further hypothesis is further refined into two hypotheses:

Assumption 1.1: In other cases, social trust has a positive effect on citizen participation in informal organizations.

Assumption 1.2: In the case of other conditions, social trust has a positive effect on the participation of citizens in formal organizations.

In order to test the two research hypotheses, using the stata12.0 statistical software, the OLS, Ordered logit and Ordered probit three estimation methods were used to estimate the parameters. Participating in the informal organization and citizen participation in the formal organization as the dependent variable, taking the social trust as the independent variable, and introducing the control variables such as life satisfaction, economic satisfaction and individual characteristics. The purpose of using multiple models is to improve the robustness of the results. The regression results are shown in Table 4.

**Table 4 Social trust and citizen participation in informal organizations**

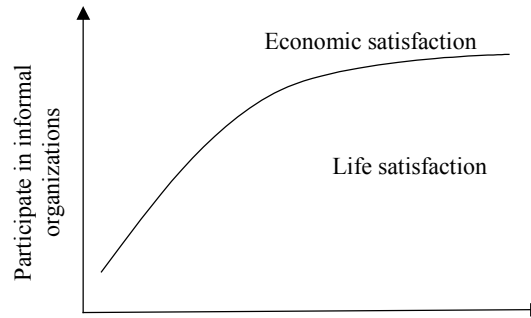
Variable	OLS regression	Ologit regression	Oprobit regression
Social trust	0.1524*** (0.005)	0.1253*** (0.287)	0.0259*** (0.668)
Gender	-0.0103*** (0.846)	-0.0043*** (0.970)	-0.0010*** (0.985)
Age	-0.0050*** (0.700)	-0.0132*** (0.639)	-0.0089*** (0.543)
Education level	-0.0192*** (0.151)	-0.0818*** (0.005)	-0.0374*** (0.013)
Marital status	-0.1490***	-0.0963***	-0.0904***

Variable	OLS regression	Ologit regression	Oprobit regression
	(0.067)	(0.589)	(0.324)
Working conditions	0.0763*** (0.257)	0.2101*** (0.146)	0.1277*** (0.092)
Health status	0.0004*** (0.989)	0.0165*** (0.821)	0.0092*** (0.805)
Religious belief	0.3330*** (0.000)	1.4487*** (0.000)	0.6107*** (0.000)
Life satisfaction	-0.0110*** (0.508)	-0.0008*** (0.981)	-0.0040*** (0.828)
A sense of security	-0.1193*** (0.006)	-0.0602*** (0.526)	-0.0600*** (0.216)
Economic satisfaction	0.0285*** (0.086)	0.0358*** (0.324)	0.0220*** (0.234)
Child	-0.0186*** (0.571)	-0.0335*** (0.634)	-0.0108*** (0.770)
Age square	0.00005*** (0.701)	0.00009*** (0.760)	0.00007*** (0.661)
Number of observations	1718		
R2	0.0279		

Note: \*\*\*, \*\* and \* denote the 1%, 5% and 10% significance tests, respectively, and the values in the brackets below the coefficients are statistically significant.

The regression results in Table 4 show the coefficients of each control variable and its statistical significance, and the control variables passed the significance test. The regression results show that the coefficient of social trust is positive, indicating that social trust for citizens to participate in informal organizations to promote the role of hypothesis 1.1 verification was established. The results of gender regression indicate that women are less active than men in informal organizations. Although the continuous development and transformation of society to promote the awareness of women's awareness of the awakening of consciousness, and this awareness has been increasing. But so far, the dominant role of men is still significantly higher than women. However, it can be seen from the regression results that although men are more active than women in informal organizations, the results are not very significant, indicating that female citizens' participation and participation are gradually par with men. From the age and age of the secondary can be seen, age and citizens involved in informal organizations were U-type relationship. The middle-aged people who bear family responsibilities are the least active in informal organizations, and the enthusiasm of young people and the elderly to participate in informal organizations is the highest. From the education level can be seen, the higher the level of education to participate in social informal organizations, the lower the enthusiasm, and the return effect is remarkable. The return of marital status shows that unmarried groups are more motivated than the participation of married groups in social informal organizations. Health status, working conditions, and beliefs have a positive effect on citizen participation in informal organizations. Health is a necessary condition for participation in social organization and social management. With the income of work, we can solve the basic physiological needs of people. On this basis, people will pursue a higher level of demand, religious beliefs on civic participation in informal organizations have a catalytic role, and the return effect is remarkable. The impact of economic satisfaction and life satisfaction on the participation of citizens in informal organizations is more complicated. The regression coefficient of economic satisfaction is positive, which shows that economic satisfaction has a positive effect on citizen participation in informal organizations. And the regression coefficient of life satisfaction is negative, indicating that life satisfaction has a negative effect on citizen participation in informal organization, that is, with the improvement of people's satisfaction with life, the enthusiasm of people involved in informal organization is reduced. Although the regression coefficient of life satisfaction shows this puzzling conclusion, but its significance is not very significant, this result needs

to be further explored. Figure 1 gives a brief description of the impact of the two variables of economic satisfaction and life satisfaction on the participation of citizens in informal organizations. The number of children is inversely proportional to the participation of citizens in informal organizations, that is, the higher the number of children in a family, the lower the enthusiasm of citizens to participate in informal organizations.



**Figure 1 The impact of economic satisfaction and life satisfaction on citizen participation in informal organizations**

**Table 5 Social trust and citizen participation formal organization**

Variable	OLS regression	Ologit regression	Oprobit regression
Social trust	-0.1516*** (0.003)	-0.4270*** (0.000)	-0.1853*** (0.003)
Gender	-0.0210*** (0.676)	-0.0292*** (0.801)	-0.0409*** (0.505)
Age	-0.0018*** (0.881)	-0.0079*** (0.780)	-0.0033*** (0.823)
Education level	0.1059*** (0.000)	0.2499*** (0.000)	0.1239*** (0.000)
Marital status	-0.0032*** (0.966)	-0.1310*** (0.460)	-0.0307*** (0.744)
Working conditions	-0.0920*** (0.151)	-0.1606*** (0.276)	-0.1005*** (0.197)
Health status	0.0271*** (0.397)	0.0189*** (0.800)	0.0008*** (0.983)
Religious belief	-0.1676*** (0.024)	-0.7658*** (0.000)	-0.3561*** (0.000)
Life satisfaction	0.0012*** (0.937)	0.0103*** (0.777)	0.0058*** (0.761)
A sense of security	0.0972*** (0.018)	0.0737*** (0.438)	0.0732*** (0.142)
Economic satisfaction	0.0294*** (0.062)	0.0349*** (0.343)	0.0190*** (0.328)
Child	-0.0250*** (0.424)	-0.0496*** (0.506)	-0.2394*** (0.532)
Age square	0.00005*** (0.669)	0.0001*** (0.558)	0.00007*** (0.637)
Number of observations	1718		
R2	0.0676		

Table 5 is the result of the return of social trust and other control variables to the impact of citizens' participation in formal organizations. As can be seen, social trust does not have a positive effect on citizens' participation in formal organizations. With the increase in the level of social trust,

the lower the enthusiasm of citizens to participate in formal organizations, therefore, should reject hypothesis 1.2. The impact of age on the participation of citizens in formal organizations is the same as that of informal organizations and is also a U-shaped relationship. That is, whether it is a formal organization or an informal organization, middle-aged people are the enthusiasm of the lowest, their primary task is to bear family responsibilities. The effects of gender, age, marital status, and health status on the participation of citizens in formal organizations are consistent with the results of informal organizations. The degree of education has a positive effect on the participation of citizens in formal organizations, that is, the higher the level of education, the higher the enthusiasm of their participation in formal organizations. This is contrary to the results of informal organizations. Faith has no effect on the participation of citizens in informal organizations, that is, the participation of people without religious beliefs in the formal organization is more positive, and this conclusion is contrary to the return of informal organizations. Life satisfaction and economic satisfaction have a positive effect on the participation of citizens in formal organizations. The sense of security is also one of the factors that affect citizens' participation. With the improvement of citizens' sense of security, the enthusiasm of their participation in formal organization is also improved. There is a positive correlation between them. Therefore, it is one of the ways to improve citizens' participation in formal organization. Consistent with the return of citizens to informal organizations, the number of children is negatively correlated with the enthusiasm of citizens to participate in formal organizations.

## 5 Conclusions

Based on the five survey data of WVS, this paper examines the relationship between social trust and citizen participation behavior. The conclusion shows that social trust has different effects on the different types of social organizations involved in citizen participation. Social trust has a positive effect on citizens' participation in informal organizations, and social trust has no significant and negative correlation with citizens' participation in formal organizations. That is, with the increase in the degree of social trust, the enthusiasm of citizens to participate in formal organizations has been reduced, the reason remains to be explored. Gender, age, marital status, health status, economic satisfaction, and child control variables are consistent with the impact of citizens' participation in informal and formal organizations. The return of education shows that the higher the degree of education is more willing to participate in formal organizations, the relatively low level of education groups tend to participate in informal organizations. Other control variables such as work conditions, religious beliefs, life satisfaction, and sense of security have different roles for citizens to participate in formal and informal organizations. As the article only selected the 2012 World Values survey data for data analysis, the data may be time deviation, so the conclusions drawn on this basis has some limitations, to be followed by more in-depth study. At the same time, this study has not yet been able to provide a suitable and objective theory to explain the results strongly, while the dependent variable measurement method still needs to be improved.

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## The Innovation of Urban Community Grid Management: A Case Study of Chengdu, China

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**Abstract** The arrival of large data age has brought new opportunities and challenges to the innovation of China's social governance. In this context, the transformation of techniques and methods of community management is an important means to improve the efficiency of community management and the mode of community governance. Community grid management mode is a new type of community governance mode which is multi-participation, standardized and orderly, making the realization of dynamic and refined community management possible. This paper takes five typical grid management communities in Chengdu as an example to explore in depth the current situation of community grid management in the city. Furthermore, we try to find out the existing problems through questionnaire and interviews, and present some corresponding countermeasures to solve the problems, hoping to provide some new ideas for the innovation of community grid management in Chengdu, China.

**Key words** Community, The grid management, Community management, Innovation management

### 1 Introduction

In China, with the acceleration of urbanization and the improvement of public service, the traditional urban management mode can't meet the needs of the times. In the third Plenary Session of the 18th CPC Central Committee, the party proposed to accelerate the improvement of social governance. We should encourage social participation on a government led basis, and realize the positive interaction between the government and the residents' autonomy through the innovation of social governance system. The government plays the role of "the helm" in the social governance, and the government has transferred more autonomy to the community by means of functional sinking. The German sociologist Ferdinand Tonnies pointed out that the community is 'Gemeinschaft' with common values and life habits of people composed of close and mutual help. We can regard the community as a certain organization or regional group. These organizations or groups are made up of people living in a specific area, and people do social activities within the scope of autonomy (Long Guan-hai, 1996<sup>[1]</sup>). The community is the smallest unit of the urban management system in our country, and its managers and service personnel undertake the most basic and the most important management work. How to improve the mode of community governance and improve the efficiency of community governance has become an important issue to be solved.

### 2 The current situation of community grid management in Chengdu

In the context of the development of information network technology, community governance in China has opened the era of big data grid governance. The emergence of community grid management is inspired by the concept of "seamless government" (Zhu Qian-wei, 2012<sup>[2]</sup>). It is a kind of new community governance mode that extends seamless service to the grassroots level by taking advantage of information technology and platforms, and provides refined service by uniting government and social organization forces, which is essentially a combination of the sink of top-down government administration and bottom-up residents autonomy (Yu Hua, 2014<sup>[3]</sup>). In order to further deepen the social governance mechanism innovation and urban management refinement, Chengdu has taken "grid management, socialized services and information support" as the direction to vigorously promote the development of community grid management, and has striven to achieve full coverage of grid in each district (city) county, street (township), community (village) since 2014. By the end of 2015, Chengdu city is divided into 9280 grid, which contains 317 streets and 3440 subordinate community, it contains a total of 11690 grid members. The grid management in Chengdu is divided into four levels—"district-street-community-grid", which is in accordance with the "street demarcation, horizontal to the edge"

principle. In addition, the allocation of grid administrators is based on the regional management features, which basically realizes “three-dimensional grid, diversified subjects and socialized services”, a new mode of community governance.

### **2.1 Separating the neighborhood committee and community (integrated) service station to provide one-stop government management and system grid management**

China’s community neighborhood committee has become a government agency where administrative work is prior to resident’s service for a long time, ignoring its resident’s autonomy function. Chengdu promotes “two committees and a station” mode in its community grid management, which is to separate community party committee and neighborhood committee and construct a community integrated management service station. This method not only restores the party building and autonomy functions of the two committees, but also realizes the specialized grid management. In order to provide convenient service for community residents, the government of Chengdu has set up a number of community management halls. The Resident Affairs Hall of Jinxiu community in Chenghua District contracted the daily community administration and grid management work to reduce procedures for the residents and improve the efficiency of community grid management. The Jinyang community in Wuhou District has set up a “Yangguang and Huimin Social Service Center” which is responsible for the daily affairs of residents and community grid management, and introduced China Telecom’s mobile phone service terminal called “Community E” and background network management database to improve the construction of grid management system.

### **2.2 A combination of government purchase services and community self-hatching**

On the one hand, Chengdu vigorously promotes the government to purchase services from social organizations, and provide specialized social services for the community by means of introduction or cultivation of social organizations. The Shuijinfang community in Jinjiang District has introduced “Love Play”, “Happy Thirty and a Half” and other social organizations to cultivate young people; the southwest street community in Jinniu District has introduced 15 social organizations to provide recreational and sports activities, health management and youth education services for their residents; the Jinyang community in Wuhou District has realized sink of 139 services to form a total of six categories of social organizations, like helping the old and the disabled. This approach not only achieved the specialization of community services, but also created a good atmosphere of voluntary service. It enriches the service and promotes the improvement of community grid management level. On the other hand, that the grassroots organizations hatched autonomously by the community contribute to providing community services is a major innovation in the practice of community grid management in Chengdu. The Jinxiu community in Chenghua District has cultivated 11 grassroots organizations, like the “Children’s Flea Market”, “One-meter Sunshine Psychological Center”, “ ‘I Will Present the Law’ Community Assessment Group” and so on ; the Jinyang community in Wuhou District has set up a “Social Organization Incubation Center” to hatch small and medium-sized service-oriented social organizations in accordance with the established process and oriented by the needs of the residents. This mode not only rejuvenates the vitality of community grassroots organizations, but also reduces the financial burden of the government, increasing the possibility of resident’s autonomy.

### **2.3 “Community construction” driven by “party construction”**

In the community grid management, Chengdu promotes the full play of party members and party committees to take the lead in party construction to drive community construction and provide guidance and escort for the community grid management. The Champion Street community in Xindu District has set up a service team whose framework is “party-member responsible person for the grid, party-member responsible person for the buildings, party-member messenger + party-member volunteer service team” as the basic power to participate in community daily activities, which has realized a new form of community grid management involving a full coverage of the party organization and party members’ grid management. The Shuijingfang community in Jinjiang District has involved a “double party” role of both the streets party committee and the regional party committee to form a grassroots party construction regionalization mode which takes the street party working committee as the core, the community party organization as the base, and the district unit party



organizations and all the party members as participants, playing a positive leading role in the community grid management.

#### **2.4 Promoting resource linkage and integration in network large data platform**

With the requirements for information management, Chengdu actively builds all kinds of information network platform. Community managers rely on the grid management information service system of Sichuan Province, community grid management platform and “community E-hand” handheld terminal to achieve the transmission of community information and promote the integration of community resources, departmental linkage and grid management optimization. The Shuijingfang community in Jinjiang District has set up a “Street Information Command Center” and introduced the public security departments’ “Sky Net” signal to provide a new channel for the realization of dynamic and refined community management by establishing a global coverage of 3D real-time monitoring map through the region WIFI coverage, platform construction and information collection.

### **3 The existing problems in community grid management in Chengdu**

In order to acquire the real situation of Chengdu community grid management, we chooses five typical communities to conduct our survey in Chengdu, including the Jinyang community in Wuhou District, the Shuijingfang community in Jinjiang District, the Jinxiu community in Chenghua District, The southwest street community in Jinniu District and the Champion Street community in Xindu District. Taking the community residents and grid administrators as the object in our work, 250 questionnaires were distributed to the residents and 29 questionnaires to the grid administrator in total, based on the multi-center governance theory. Considering the multiple-participation characteristics of community grid management, the relevant residents of the neighborhood committees, Party committees, grid management institutions and community social organization were interviewed, which can help us to understand the views and suggestions of different subjects in community grid management. Through the results of data analysis and interview arrangement, we proposed that there are still many problems in the community grid management mode in Chengdu.

#### **3.1 Unreasonable grid planning and administrator team composition**

Scientific and rational division of grid and matching of administrators are the basis for achieving grid management goals. Although all the urban districts of Chengdu have made a new plan for the community grid management system in the social governance innovation, the survey shows that there are still some problems in the new plan like the overlap of grid areas and the unclear and uneven division of labor, which seriously affect the implementation of community grid management. Grid overlap makes it difficult to clear the corresponding responsibility in community’s management, and the unclear and uneven division of labor, as well as the requirement for more specialized in a post virtually increases the work mood and work pressure of the grid staff. In addition, the grid staff which is the first-line forces in community grid management is playing a vital role in the quality of grid management. The community grid administrator team in Chengdu has the problem of uneven gender composition, rather old age structure and low educational level. On the one hand, the complexity of the community work leads to some characteristics of the work of grid staff like heavy workload, low opportunities for development and low welfare, which makes it difficult to attract young high-quality talents. On the other hand, the lack of professional work training causes lack of capacity of grid staff in the network platform application and daily office work, hindering the improvement of administrator’s work ability and efficiency.

#### **3.2 Weak participation awareness of the community residents**

Residents’ participation is an important part of community grid management, which has an important influence on the realization of residents’ autonomy. The survey shows that community residents have weak participation awareness and low participation in the grid management model, and they have a negative attitude towards the evaluation of the work of the grid staffs and lack interest in community management activities. First of all, residents are in a passive position in the community management for a long time, which leads to their neglect of their own initiative to participate in the autonomy of residents, completely depending on the management of community managers and giving up the opportunity to express their demands. Secondly, residents tend to attribute community

management issues to the failure of the work of the grid staff, while ignoring the effect of their lack of self-participation in community management. Finally, due to the different conditions of the various districts of Chengdu, some communities have more floating population. Some characteristics like complex constitute of community members, age and large quality gap also contribute to the low degree of participation of the community volunteer organizations and unremarkable effect of the grid management.

### **3.3 Unsound management system and norms**

The time of Chengdu implementing community grid management is short and the relevant management system and operational norms are still imperfect, which hinders the improvement of efficiency and quality of community grid management. There is a certain degree of formalization and administrativization of the supervision mechanism in most of the districts where the supervision work often places result first while process second, so the effectiveness of supervision still needs to be improved. The performance evaluation of the grid staff's work is still imperfect, and communities have to retain the original staff before they can recruit new management talents, which results in slow renewal of the grid staff. At the same time, the survey shows that most of the community residents and autonomous organizations hold that an important factor that impedes their participation in community governance is the lack of corresponding protection mechanism in participation and they are reluctant to be the first person to eat crabs with the current unsound mechanism.

### **3.4 Poor information sharing awareness among the organizations**

Grid management is a kind of modern management mode which is based on the development of information network technology. With the managers actively finding and solving the community culture and sports problems, this mode realizes unified planning and management of the people, affairs and things included in the community through of the grid division of the social geographic space and re-allocation of the unit resources (Zhang Shuang-xi, 2015<sup>[4]</sup>). At present, the grid administrators in Chengdu have begun to use all kinds of platforms for data collection and management in their daily work, but their work still relies on simple statistics and lacks adequate data analysis and integration. At the same time, influenced by the management style of the traditional administrative departments, the organizations have a low degree of information sharing consciousness, making the community grid management unable to exert an effective and timely advantage in the sharing of information resources, affecting the communication and cooperation between the participating entities and hindering further improvement of the community grid management level.

## **4 New ideas of community grid management in Chengdu**

### **4.1 To construct a scientific and systematic community grid management system**

Firstly, it is important to realize scientific planning of grid and rational allocation of grid management staff. The primary task for community grid management is to divide the grid areas and allocate management personnel and institutions. First of all, in order to divide the grid areas, the community should classify the districts or courtyards within the management area and give comprehensive consideration to the number of households, population characteristics, economic status and other regional characteristics within the region. Then, it is necessary to set a reasonable management level and allocation principal to ensure level simplification and personnel specialization. Finally, it is significant to adjust the community grid system timely and amend the unreasonable and imperfect part, striving to realize "grid coverage of the whole region and personnel control of the whole process". Secondly, the government purchases service to change the supply and demand mode of community service. In the community grid innovation management, the government is no longer the decision-making subject of the management and service direction, while the residents can spontaneously form a self-government community to express themselves and supply community services. The new public management theory points out that the government should clarify its role and function, then provide the public service that the residents really need (Liu Xia, 2004<sup>[5]</sup>). The government can introduce social organizations through purchasing services from them in the community and can cultivate grassroots organizations according to residents' needs. For example, they can establish institutions like "Social Organization Incubation Center". It is a good way to innovate the

supply mode of community service and fully meet the development requirements of residents and community development on the basis of residents' autonomy. Thirdly, it is necessary to separate the management agencies to restore the residents' autonomy functions of the two committees. In the community grid innovation management, the primary task is to separate the community management institutions to restore the party building and residents' autonomy functions of the two community committees and put an end to the possibility that government takes grid management as a new means of controlling grassroots management. Party organization in community should play an active role in community management, and promote the construction of the relationship between Party members and residents. The residents' committee in community should focus on community management and community autonomy, and promote community development and integration. At the same time, it is possible to introduce professional social organizations to carry out community grid management work to guarantee the specialization and high efficiency of community management. Fourthly, it is important to improve the supervision mechanism to ensure efficient operation of grid management. The community must strengthen the construction of supervision and accountability mechanism in the grid of innovation management. They should timely adjust the grid manager's work state to ensure successful operation of the grid management work through supervision and control of the whole process. Enhancing the supervision of the process can help managers to solve problems in a timely manner. Employing professionals for community management can encourage residents to oversee the community's grid management.

#### **4.2 To pay attention to team building of the grid administrators and establish long-term development mechanism**

Firstly, it is important to change the way of employment and optimize the team structure of the administrators. In view of the loopholes in the team construction of the community grid administrators in Chengdu, it is necessary to improve the way of personnel selection and optimize the team structure of the administrators. The community can hire grid administrators through open recruitment and attract high-quality or professional talents through the pre-set recruitment goals to optimize the structure of personnel. At the same time, the community can also retain the neighborhood committee staff who have rich community work experience to be responsible for the training of managers, which will take advantage of their experience to guide external staff to be familiar with the work and jobs and shorten the business proficiency time. Secondly, it is of great importance to enhance staff training to improve their work ability and performance. Donald Keitel pointed out that the government can improve the level of civil service management through training (Donald F. Kettl, 2002<sup>[6]</sup>). Due to the complexity of community management work, communities need to strengthen workforce training to help them improve their work ability and adapt to the community management needs. On the one hand, it is necessary to strengthen the training of the manager's job skills and help improve their work ability and efficiency by standardizing their daily work behavior and specifying the operation process of information platform. On the other hand, they should strengthen the cultivation of grid administrator's teamwork ability and promote the improvement of the overall level of the administrator team by means of regular experience sharing salon. Thirdly, it is necessary to improve the evaluation mechanism and define performance and the system of rewards and penalties. They can learn from the enterprise human resources management approach to implement the performance evaluation of community grid administrators and encourage community administrators to improve their job performance by means of performance appraisal and reward and penalties, which will promote the competitiveness of the grid management team and continuous improvement of the grid management level.

#### **4.3 To cultivate residents' participation awareness and improve participation degree of community autonomy**

The residents have long passively accepted the management of community neighborhood committees but ignored their own dominant role in the community residents' autonomy and their community participation awareness is gradually weakened. Richard C. Box puts out that the government should encourage community residents to form autonomous organizations and participate in the autonomy of the residents (Richard C. Box, 2005<sup>[7]</sup>). Community grid innovation management should focus on cultivating residents' participation awareness and exercising their participation ability

to help them to express their demands in the community management work, which will add new vitality to the community grid management. First of all, it is important to strengthen the propaganda work of the grid management and raise residents' awareness. Propaganda can help residents to enhance the understanding of community grid management and improve their willingness to participate in community activities. The misunderstanding of grid management leads to the fact that community residents are not clear about their position and show a negative attitude to community management. Secondly, the community should encourage and help the development of community volunteer groups and grassroots organizations. The outside world can help the community to cultivate the autonomy power of the residents, guide them to participate in volunteer organizations and volunteer services and guarantee a smooth channel for them to participate in community autonomy by providing funds, technology and resources for the grassroots organizations. The community can establish a social organization incubation center to achieve the residents' self-management and volunteer service. At the same time, the community can also employ professional social workers to help the construction of self-government organizations to help the residents to optimize the organizational management and activity arrangements from a professional perspective, realizing real sublimation from residents' participation to residents' autonomy. Finally, the state should establish and improve the relevant legal norms and provide corresponding legal and institutional protection for the residents to participate in community governance.

#### **4.4 To promote the development and application of information technology and enhance management efficiency**

Firstly, it is necessary to strengthen the development of information technology and build grid management database and platform. Community grid management is based on digital and information technology to achieve community management. It realizes the resource sharing and linkage management through active, systematic and quantitative management (Feng Jing-li, 2013<sup>[8]</sup>). In the process of community grid management innovation, they must give priority to technical support and strengthen the development of information network technology to build a complete grid management database and information management platform for the community. Secondly, it is important to carry out training of applied technology for the administrators to improve their platform operation level. Some scholars have pointed out that improving the degree of community information collection helps to ensure the flexibility and efficiency of grid management (Wang Xue-zhen, 2015<sup>[9]</sup>). In order to improve the information platform operating capacity and information collection level of the grid staff and community managers, they should carry out the training immediately after completing the management platform construction. At the same time, it is important to construct a more comprehensive database of community information, enrich the types of information collection and change the traditional paper information registration into network terminal entry to improve the efficiency of information collection. Thirdly, it is important to enhance information sharing awareness of the administrators and improve the efficiency and effectiveness of community management. Professor Jane E. Fountain from Harvard University believes that the focus of community construction is to properly handle the relationship between different management departments, so as to achieve information sharing and multi sectors collaborative governance (Jane E. Fountain, 2004<sup>[10]</sup>). In the traditional department management mode, as its unique assets, the departmental information is often in a strictly confidential state where outside organizations or departments can hardly get complete internal management information, which hinders the improvement of department cooperation level and community management efficiency. In the community grid management innovation, they must break the backward information sharing awareness and construct a cooperation form of information resource sharing, creating a favorable condition for departmental linkage. Fourthly, it is necessary to do a good job of Internet information management to protect information security of residents and organizations. Scholar Yang Hai-tao puts forward that the protection of personal privacy and the security of personal information is the most important task in the grid management (Yang Hai-tao, 2014<sup>[11]</sup>). Information security is a problem that can't be neglected in network era, so in community grid innovation management, the community should increase investment in the development of information technology and do a good job of Internet information security management to promote community resources

integration and achieve further sublimation of community grid management efficiency on the basis of protecting information security of community residents and organizations.

## 5 Conclusions

With the development of information technology and the practice of intelligence community, community grid management plays an important role in improving the quality of life and community management in Chengdu. Community grid management is a kind of new community governance mode that extends seamless service to the grassroots level by taking advantage of information technology and platforms, and provides refined service by uniting government and social organization forces. By analyzing the present situation of Community Grid Management in Chengdu, we found there were still exists many problems, such as unreasonable grid planning and administrator team composition, weak participation awareness of the community residents, unsound management system and norms and poor information sharing awareness among the organizations. In order to build a scientific community grid management system, we should pay more attention to personnel team building, residents' consciousness and behavior training, and management technology innovation in the future. Only the community residents and the government work together, community grid management can give full play to its true value.

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# Research on the Correlation between Government Favoritism and Urban Economic Development

## —Taking the National Central City as an Example

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**Abstract** The concept of “National Central City” was first put forward in the National Urban System Planning which is compiled by the National Urban System Planning in 2005. At present, eight identified big cities are involved such as Beijing, Tianjin, Shanghai, Chongqing, Chengdu, Zhengzhou and Wuhan. National central city, a city with strong government favoritism, is like the spire of Pyramid in national urban system which can obtain more resources from the central government. This article reveals the efficiency of the central government investment and the local economic output. After that, it explains the influence intensity and influence mechanism of government favoritism on urban economic development by constructing government favoritism-urban economic development evaluation index model and using SPSS.22 statistical analysis software to explore the correlation between government favoritism and urban economic development.

**Key words** National central city, Government favoritism, Urban economic development, Correlation analysis

### 1 Research background

Since the reform and opening-up, Chinese cities have developed rapidly with dual strength of both government and market. It is of great significance to study the urban economic development in China. China is still a country which is in transition from planned economy to market economy, so the government intervention is inevitable. In the process of marketization, the government uses political forces to interfere with national economic development, such as policy formulation and administrative intervention. However, when the intervention is not universal or consistent, there will be a favoritism<sup>[1]</sup> which means that a variety of preferential policies and measures will be offered by the central government to some cities (such as giving higher administrative status, etc.), in order to enable them to dominate more social resources and promote these cities to get more preferential opportunities for development<sup>[2]</sup>.

In the early stage of national economic development, it is necessary to concentrate limited resources such as technology, capital and talents in cities with certain advantages and to cultivate them into economic growth poles<sup>[3]</sup>. China hopes to guide and promote the development of other undeveloped regions through the “trickle-down effect” of growth poles, so that we have successively established the municipality directly under the central government, vice-provincial cities, provincial capital cities and other administrative level cities. Therefore, a strict and multi-level administrative hierarchy which includes the allocation of resources and the arrangement of the rights<sup>[4]</sup> has been formed among Chinese cities.

In 2005, “National Central City” was proposed for the first time in *National Urban Planning* compiled by Ministry of housing and urban rural development. Up to now, China has successfully established eight national central cities which are Beijing, Tianjin, Shanghai, Guangzhou, Chongqing, Chengdu, Zhengzhou and Wuhan. The establishment of the national central city has changed the former pattern of the urban system which is based on municipalities directly under the central government—provincial cities—prefecture level cities—county-level cities, and it has made the cities mentioned above peak at the spire of Pyramid in national urban system. Most scholars who study the development of Chinese cities at home or abroad think that cities of higher administrative levels can receive more resources from the central government<sup>[5-7]</sup>, so the central cities in the “spire” are cities with strong government favoritism.

This article takes the National Central City as the object, explores the correlation between the

government favoritism and the urban economic development and reveals the urban utilization efficiency of government favoritism support. Furthermore, hopefully the rational allocation of central resources among cities will be directed to form a new pattern of urban development, which is not only simply coordinated and developed by large cities and medium-sized cities but also takes big cities as a leader.

## 2 Evaluation indicators, variables and methods

On the basis of the principle of integrity, scientific nature and operability, the economic development quality of the national central city is measured by principal component analysis firstly. Then, the central government's "favoritism" support is quantified in six aspects of economy, culture, education, science and technology, medical treatment and transportation in the construction of local cities. Finally, the relationship between the central government and the quality of urban economic development is demonstrated by the regression analysis. State Commission for Public Sector Reform released and implemented the document no. 1, which officially set up "sub-provincial cities" in 1994. Besides, 16 cities including Chongqing and Wuhan are officially designated as sub-provincial cities. The time section of the study will be selected from 1994 to 2015.

### 2.1 The establishment of evaluation system

There is a certain risk in China's reform and opening up because of its first invasive. Many of China's major reform and opening-up measures are like "crossing the river by feeling the stones" and adopting the reform and development model of "pilot before promotion". In the process, because of its close political distance with the central government, the ability to influence decision-making and the "pilot" foundation, the national central cities tend to win more favorable institutional arrangements [6]. This article shows the central government's bias of the power and institutional arrangement of the central city through bringing the national new district, national development zone, national comprehensive supporting reform pilot zone into the evaluation index of local urban preference support.

At the same time, the government's various resources, for example, large hospitals, institutions of higher learning, arts and literature groups, state-owned enterprises and financial institutions, are highly concentrated in the national central cities. However, the quality resources will work with the market forces to bring the resources and elements of surrounding areas to the central city and to promote the economic development of the central city. In this paper, grade A of level iii hospitals, national cultural museum, schools directly under the Ministry of Education, integrated transportation hubs are included in the evaluation index of the "favoritism" support of local cities from the central government, in order to reflect the preference of the central government for the allocation of resources in the administrative country central city.

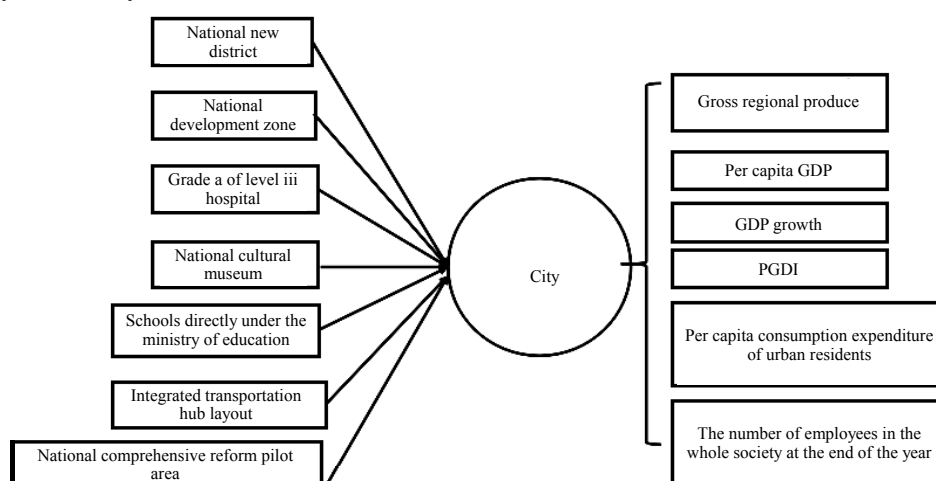


Figure 1 Evaluation system

The economic developments of cities are different. The economic output capacity of each city can be measured to judge the city's economic development efficiency and scores. We set up 6 indicators including gross regional product, per capita GDP, regional GDP growth rate, per capita consumption expenditure of urban residents, per capita disposable income and the number of employees in the whole society at the end of the year to reflect the overall situation of urban economic development, urban residents' living standards, urban economic growth rate, urban consumption level and urban employment level and urban job creation ability.

## 2.2 Research methods and data sources

We will mainly use principal component analysis and regression analysis in this paper. The principal component analysis uses a linear combination of a few potential factors representing several indicators to express urban economic development with the idea of "dimensionality reduction". It gives people an accurate understanding of urban economic development and help to improve studying efficiency. Regression analysis is used to determine the quantitative relationship and correlation between the central government's "favoritism" and the urban economic development. This study mainly uses SPSS. 22 software for statistical analysis. The data are from 1995-2016 *China Statistical Yearbook* and urban statistical yearbook (e.g. *Beijing Statistical Yearbook*). In order to reduce the errors among different data, the Z-score method is used to standardize the dimension before using the data.

## 3 Empirical analysis

### 3.1 Data analysis

#### 3.1.1 Urban economic competitiveness

In this paper, the data of 1994-2015 were selected to evaluate the urban economic development of the eight central cities. Firstly, do the feasibility test of principal component analysis. If the KMO of the sample is 0.611, the most basic requirement is greater than 0.5, the test of Bartlett sphericity test is approximately 56 and the significance probability is 0, then it shows that the statistical data is suitable for factor analysis (Table 1).

**Table 1 Test of KMO and bartlett**

Kaiser-Meyer-Olkin measuring sampling adequacy		0.611
Bartlett's sphericity test	Approximate chi square	56.511
	df	15
	Sig.	0.000

Using the principal component analysis method to provide the common factor, and the orthogonal rotation of the factor loading matrix was carried out by the maximum method of variance. According to the principle that the eigenvalue is greater than 1 and the accumulation of interpretation variance is greater than 85%, 2 common factors are obtained, and the accumulation of variance is 96.64%. It shows that these factors basically retain all data of the original data, which can be used to accurately describe the study data and simplify the data at the same time (Table 2).

**Table 2 Features and variance contribution of national center urban economic development indicators**

Element	Initial eigenvalue			Extract sum of squares load			Cyclic sum sum loading		
	Total	Variance %	Accumulation %	Total	Variance %	Accumulation %	Total	Variance %	Accumulation %
1	4.557	75.943	75.943	4.557	75.943	75.943	3.61	60.322	60.322
2	1.242	20.697	96.64	1.242	20.697	96.64	2.17	36.318	96.64

The economic development scores of China's eight national central cities are calculated and analyzed. Shanghai, Guangzhou, Beijing and Tianjin are always in the top four places; Chengdu, Wuhan are in the fifth and sixth place in rotation; Chongqing and Zhengzhou have been at the bottom of the list (Table 3).



**Table 3 National center city economic development quality scores in 1994-2015**

	Beijing	Tianjin	Shanghai	Guangzhou	Chongqing	Chengdu	Wuhan	Zhengzhou
1994	0.36	-0.76	2.60	4.86	-2.10	-1.82	-0.37	-2.77
1995	0.27	-0.48	2.89	4.50	-2.11	-2.09	-0.74	-2.23
1996	1.66	-0.75	3.97	3.25	-1.64	-1.01	-1.94	-3.54
1997	1.44	-0.12	4.01	2.55	-1.96	-1.32	-1.58	-3.02
1998	1.52	-0.29	3.81	3.18	-2.54	-1.32	-1.25	-3.12
1999	1.92	-0.50	4.52	3.83	-3.22	-1.55	-1.44	-3.56
2000	1.85	-0.29	3.97	4.14	-3.50	-1.61	-1.51	-3.05
2001	1.84	0.05	4.26	3.48	-2.87	-1.53	-1.99	-3.26
2002	2.21	0.01	3.97	3.93	-3.21	-1.33	-2.10	-3.48
2003	2.19	0.16	4.28	3.56	-2.78	-1.93	-2.39	-3.08
2004	2.45	0.15	4.38	3.38	-3.12	-1.98	-2.34	-2.92
2005	5.51	-1.64	7.24	3.98	-2.38	-2.68	-4.27	-5.76
2006	4.09	-0.87	4.86	2.39	-1.86	-1.87	-2.85	-3.90
2007	6.09	-0.40	6.35	4.17	-4.30	-2.87	-3.75	-5.30
2008	5.19	-1.66	7.19	4.01	-3.91	-2.37	-3.90	-4.55
2009	4.42	-1.38	6.96	4.28	-3.80	-2.95	-3.40	-4.13
2010	4.71	-0.90	6.85	3.91	-3.53	-3.08	-3.53	-4.45
2011	4.86	-0.72	6.68	4.23	-4.12	-3.11	-2.90	-4.92
2012	3.47	-0.44	4.46	2.84	-2.88	-2.10	-1.91	-3.44
2013	3.27	-0.59	3.97	2.42	-2.56	-1.55	-1.96	-3.00
2014	3.28	-0.52	4.63	2.62	-3.36	-1.62	-1.89	-3.13
2015	2.29	-0.17	4.80	1.14	-1.78	-1.64	-1.77	-2.87

### 3.1.2 Central government favoritism support

For convenience, state-level new areas, national level development zones, national comprehensive reform pilot areas, class three A grade hospitals, national level cultural centers, schools directly under the ministry of education and comprehensive transportation hubs are assigned the same weighting to score. According to the calculation and z-score, the scores of the central government favoritism are obtained (Table 4).

**Table 4 The scores of central government's "preference" for cities**

	Beijing	Tianjin	Shanghai	Guangzhou	Chongqing	Chengdu	Wuhan	Zhengzhou
1994	0.71	0.03	2.06	-0.20	-0.42	-0.88	-0.20	-1.10
1995	0.71	0.03	2.06	-0.20	-0.42	-0.88	-0.20	-1.10
1996	0.64	0.00	2.12	-0.21	-0.42	-0.85	-0.21	-1.06
1997	0.64	0.00	2.12	-0.21	-0.42	-0.85	-0.21	-1.06
1998	0.94	-0.08	1.95	-0.28	-0.48	-0.89	-0.08	-1.09
1999	0.94	-0.08	1.95	-0.28	-0.48	-0.89	-0.08	-1.09
2000	1.99	-0.40	1.06	-0.53	-0.66	-0.40	-0.13	-0.93
2001	2.00	-0.42	1.06	-0.55	-0.55	-0.42	-0.15	-0.96
2002	2.00	-0.42	1.06	-0.55	-0.55	-0.42	-0.15	-0.96
2003	2.00	-0.42	1.06	-0.55	-0.55	-0.42	-0.15	-0.96
2004	1.79	-0.18	1.24	-0.26	-0.65	-0.41	-0.33	-1.20
2005	1.79	-0.20	1.27	-0.28	-0.65	-0.42	-0.35	-1.16
2006	1.81	-0.07	1.21	-0.29	-0.66	-0.44	-0.37	-1.19
2007	1.81	-0.10	1.20	-0.32	-0.63	-0.40	-0.32	-1.24
2008	1.70	-0.06	1.33	-0.36	-0.58	-0.43	-0.36	-1.24

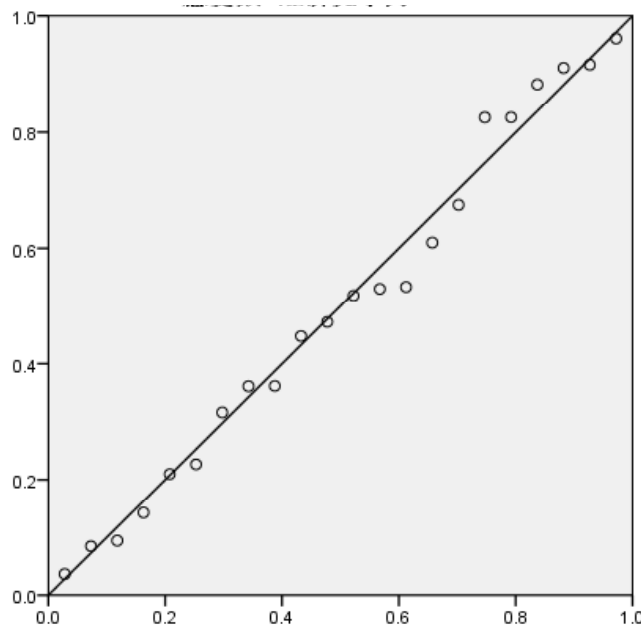
	Beijing	Tianjin	Shanghai	Guangzhou	Chongqing	Chengdu	Wuhan	Zhengzhou
2009	1.70	-0.06	1.33	-0.36	-0.58	-0.43	-0.36	-1.24
2010	1.69	-0.03	1.32	-0.40	-0.48	-0.48	-0.33	-1.30
2011	1.69	-0.03	1.32	-0.40	-0.48	-0.48	-0.33	-1.30
2012	1.44	-0.21	1.28	-0.44	0.50	-0.75	-0.36	-1.46
2013	1.43	-0.14	1.27	-0.45	0.49	-0.76	-0.37	-1.47
2014	1.42	-0.08	1.26	-0.47	0.47	-0.71	-0.40	-1.50
2015	1.39	-0.10	1.23	-0.49	0.61	-0.72	-0.41	-1.50

### 3.1.3 The regression analysis of urban economic competitiveness and the central government favoritism support for cities

In this paper, the central government supports of “preference” for cities are taken as the independent variable, and the urban economic development quality are taken as the dependent variable for a linear regression analysis. Taking Wuhan as example,  $R^2 = 0.256$ , which means that the imitative effect achieves the requirement of the established linear fitting.  $Sig = 0.09 < 0.05$ ; DW value is 0.770 which is smaller indicates that the self-related phenomenon exists. It relates to the data feature of sample which is time series (Table 5). As shown in the Figure 2 the central “preference” regression model standardization residual normal P - P diagram, scatter diagram roughly appears as a linear shape, namely the residual normally distributed, the central “preference” regression model has a preferable degree of fitting.

**Table 5 Analysis table of the integral test results of the central “preference” regression model**

Model	R	R square	adjusted R square	F value	Sig.value	Durbin-Watson
1	0.540	0.292	0.256	8.243	0.009	0.770



**Figure 2 Normal-state p-p diagram of the central “preference” regression model**

However, data analysis results show that Shanghai, Guangzhou, Chongqing, Zhengzhou are not approved by the significance test, namely, the quality of economic development and the central government support for the city’s “preferences” does not have relevant relations. Beijing, Tianjin, Chengdu and Wuhan passes the significant test. (Table 6)

**Table 6 The regression coefficient analysis table of central government “preference” supports**

Model	Non standardized coefficient			Standardized coefficient	T	Saliency	
		B	Standard error	Beta		Sig.	Verification
Beijing	(constant)	0.098	0.97		0.101	0.92	
	Central government favoritism	1.949	0.631	0.568	3.088	0.006	Pass
Tianjin	(constant)	-0.765	0.138		-5.536	0	
	Central government favoritism	-1.573	0.694	-0.452	-2.266	0.035	Pass
Shanghai	(constant)	7.008	1.08		6.492	0	
	Central government favoritism	-1.496	0.723	-0.42	-2.07	0.052	Not pass
Guangzhou	(constant)	4.04	0.598		6.76	0	
	Central government favoritism	1.509	1.544	0.213	0.977	0.34	Not pass
Chongqing	(constant)	-2.743	0.219		-12.533	0	
	Central government favoritism	0.415	0.405	0.224	1.026	0.317	Not pass
Chengdu	(constant)	-2.915	0.373		-7.821	0	
	Central government favoritism	-1.562	0.585	-0.513	-2.672	0.015	Pass
Wuhan	(constant)	-0.916	0.502		-1.823	0.083	
	Central government favoritism	5.076	1.755	0.543	2.892	0.009	Pass
Zhengzhou	(constant)	-2.844	1.322		-2.152	0.044	
	Central government favoritism	0.649	1.102	0.13	0.589	0.563	Not pass

### 3.2 Result analysis

According to the regression coefficient analysis table of the central government favoritism support, a regression equation is established, in which the central government support of “preference” is taken as the independent variable, and the urban economic development score is taken as the dependent variable:  $y = kx + b$  ( $k$  is the regression coefficient of government “favoritism”, and  $b$  is constant). As the theoretical model shown: If the coefficient of variables is positive, then the correlation is significant, indicating that the government’s “favoritism” support has a great impact on the economic development of the city; if the coefficient of variables is negative, indicating that there is a correlation but below the average level, namely that the government’s “favoritism” support has a certain influence on the economic development of the city, but it is not outstanding. Meanwhile, there are four cities that have not passed the correlation analysis (the significance coefficient is greater than 0.05). It shows that favoritism support does not have obvious effect on promoting the urban economic development which means other factors have greater influence on economic development. In order to ensure the comparative analysis of the same economic development level, this paper will classify and separately analyze the eastern, central and western regions due to the regional differences in China’s economy and the obvious stairway development state.

#### 3.2.1 Eastern cities: Beijing, Tianjin, Shanghai and Guangzhou

The eastern region has superior geographical location, convenient transportation, the well-developed scientific and technological education, as well as remarkable achievements in opening up to the outside world. It is the engine and stabilizer of China’s economic development. In the correlation regression analysis, Beijing and Tianjin passed the significance test, namely, the

government favoritism support has positive influence on the economic development of the city. Shanghai and Guangzhou which are also in the east, failed to pass a significant test which means that the government favoritism support is unrelated to the city's economic development.

Beijing, as the political center of the country, is at the top of the administrative hierarchy. Therefore, its economic development represents not only the level of economic development of a city, but also the level of a country. As a representative of the state, Beijing's urban infrastructure, industrial structure and development guideline will be all influenced by the central government. In result, its economic development is closely combined with the central government's planning guidance.

Accordingly, this has led to a significant correlation between the development of its city economy and the government favoritism. Tianjin and Beijing are generally interdependent. However, Tianjin is more dependent on Beijing and the growth of its economic status is closely linked to Beijing's political status and economic needs<sup>[7]</sup>. At the same time, Tianjin and Beijing belong to the Jing-Jin-Ji area, which is treated as a unified economic entity in many ways by the central government. The flow of economic factors and the construction of infrastructure have been strengthened, which is in line with the policy of the country's transformation from "point-shaped pull" to "face-shape combination" in the direction of economic development<sup>[8]</sup>. Therefore, in order to improve the economic development level of the whole Jing-Jin-Ji area, the economic development of Beijing and Tianjin will be greatly affected by the central macro policies. We also find that the marketization index in Beijing and Tianjin was ranked poorly which is far lower than those in Shanghai and Guangzhou according to *China Market Index Report* written by Fan Gang and Wang Xiao-lu.

Shanghai and Guangzhou, as the forefront of reform and opening up in eastern China, have higher degree of economic marketization. As we all know, there are four inevitable scenarios for the relationship between the government and the market based on Hayek's theory: Both the government and the market are effective; the government is effective and the market is out of order; the market is efficient and the government is out of order; the government and the market both fail<sup>[9]</sup>. So the active private economy will further encourage the government to formulate policies to relax control and protect the private economy which will help to improve the degree of marketization. If the market is in a valid state, the influence of government will reduce. Consequently, central government favoritism has little impact on the economic development of Guangzhou and Shanghai.

### 3.2.2 Central cities: Zhengzhou and Wuhan

China's central cities with great development space are rich in resources and transportation. But Zhengzhou and Wuhan, which occupy a strategic position in the central region of China, have different performances on the correlation between the government favoritism and the economic development: Zhengzhou doesn't pass the significance test, which means that the central government favoritism for Zhengzhou has no correlation with its economic development. However, Wuhan city passed the significance test and showed that there was a strong correlation.

The main reason for this difference is that the economic foundation and urban development pattern of Wuhan differ from the ones of Zhengzhou. The slow development of the high-tech industry in Zhengzhou has caused the unreasonable economic structure and insufficient support for economic development. Besides, the quality of opening up in the central region is not high, which causes the slowly developing economy. Tiebout studied an important model (Tiebout model) in 1962, demonstrating that the regional multiplier effect would be stronger in the long run<sup>[10]</sup>. Zhengzhou has weak economic base, and the use of favoritism support is less than expected in the short term. Furthermore, Zhengzhou has a double cross status because of the intersection of the Beijing-Guangzhou railway and the Longhai railway as well as the crisscross of highways and main trunks<sup>[11]</sup>. The construction of integrated transportation hub is of great significance to the development of Zhengzhou's economy. It is one of the important links to promote the development of Zhengzhou's economic and social development, and the traffic becomes the mother of Zhengzhou's economy. So Zhengzhou's economic development is more dependent on being a transportation hub.

However, Wuhan is now directly benefiting from the overlapping support of the country's three major policies which are "Central rise strategy", Comprehensive reform of "two types of society" and East lake independent innovation demonstration zone construction<sup>[12]</sup>. The central government wants

Wuhan to be a strategic pivot of the “central rise”, so that it is strongly supported by the state when it comes to economic development. As a strategic pivot point in the central region, national policy has a remarkable effect on the development of Wuhan’s economy. The attention from the state and their own economic base lead to the difference in the correlation with government favoritism, even there is no correlation for Zhengzhou.

### 3.2.3 Western cities: Chongqing and Chengdu

Although Chongqing is a municipality directly under the central government, its economic development is less affected by the central government’s favoritism support. The reasons are as follows: Chongqing, after becoming a municipality directly under the central government, has a late development and a weak foundation for economic development. After going through the western development policy, the industrial structure which has low proportion of high and new technology industries and lack of strong technical support for enterprise development is still dominated by heavy industry<sup>[13]</sup>. It is hard for them to make full use of policy support offered by the state. However, Chongqing is located at the intersection of the Yangtze river and Jialing river which make it the only city in the western region that has integrated three-dimensional transportation<sup>[14]</sup>. With the constant improvement of transportation system and level of opening-up, continuously building of external channels, Chongqing is focusing on making itself an open and international inland city, and the amount of foreign investment has reached 32.8 billion by 2015. In the process of economic development, Chongqing relies more on its own advantages and less dependence on policy.

Chengdu is the capital of Sichuan province for a long time, as well as the financial, commercial, transportation, communication hub and technology center of the southwest region determined by the state council. It gathers power of the whole province to develop its economy. As the first major city in the southwest region, it is rightly regarded as a policy plateau supported by the central government. Besides, Chengdu’s terrain is blocked because of its location in the Sichuan basin. It is difficult for the people to communicate with outside and there is no advantage in economic development as well. So Chengdu economic development is inextricably linked with the central government favoritism support because it mainly relies on policy support to develop the economy.

Before becoming a municipality directly under the central government, the provincial government of Sichuan has been developing Chongqing as the second largest city after Chengdu<sup>[15]</sup>. In all aspects, such as investment and construction, they tend to prefer Chengdu which is also why Chongqing has bad economic base after it became a municipality directly under the central government. The efficiency of the government favoritism support is so low that it can only exploit its advantages to develop economy. However, Chengdu has always been developed as a capital city, because the economic development based on policy is stronger than the economy that depends on its own conditions. It plays an important role in the difference of dependence between the two cities and the government favoritism.

### 3.3 Conclusions and recommendations

Through the empirical test, we find that there are three possible correlations between government “preference” and urban economic development, but they do not play a decisive role. Also, there are three factors influencing the existence of correlation and correlation degree: urban economic foundation, urban development characteristics and development potential. In addition to the government favoritism support, city economic basis, development characteristics and development potential also have important impacts on a city’s economic development. The four patterns of urban economic development are summed up as follows:

1. Relying on policy support. Achieving the goal of promoting economic development through various policy preferences such as reduction of land price and taxation, which means that economic development and policy direction are inseparable. For example, Beijing and Chengdu’s economic development are greatly influenced by policies.

2. Relying on the economic base. The urban economic base refers to the size and structure of the economy of a city. When the economic base is strong and the market economy is fully developed, the government favoritism has no influence on urban economic development. For instance, for cities like Shanghai and Guangzhou which are at high level of economic development and have active private

economy, the government favoritism has little or no effect on its economic development.

3. Relying on urban features. This kind of city usually takes advantages of geographical location, natural resources and politics to develop the economic development model with urban characteristics. By contrast, the government favoritism support seems minuscule when it comes to its impact on economic development. Chongqing, for example, makes full use of the integrated transportation of the Trinity to build an open international metropolis and achieve rapid economic growth.

4. Relying on urban potential. Urban development potential refers to the potential capacity of urban economic development. The advantages of the city in natural, social, economic and other fields are enormous. However, it cannot make full use of its advantages, so it needs to tap the potential of power from the outside like government to realize rapid economic growth. For example, Wuhan, a city with its unique advantages in location, science, education, industry and water resources, has shortcomings in the economy development so that it needs help from government to reach the goal.

By analyzing the correlation between the government favoritism and the urban economic development, this paper summarized the urban economic development patterns into four categories. Therefore, the central government should allocate the resource according to their specific situations: For cities with a high degree of economic development, administrative power should be used as a complementary means to promote economy development. For cities with good development potential, the “government orientation” should gradually turn into “government guidance” in order to help them reach rapid economic growth. For cities that rely on policy support, the central government continues to guide economic development through policy supports. At the same time, we must gradually “let go” to realize the independent development of urban economy and gradually seek to meet the development path of urban economy. For cities with special features to develop the economy, the government should escort the development of its economy and gradually help them to form the core competitiveness of their economic development. In general, although the central government favoritism support is not decisive for urban economic development, it will also have important influence on some cities. Therefore, the government’s approach to the development of urban economy should be adjusted from “promotion to strength” to maximize the efficiency of resources and form a harmonious and coordinated urban development pattern through the rational resource allocation.

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## Innovation of Urban Basic Level Public Service: Perspective of Actors \*

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**Abstract** Urban basic level public service is provided by collaborative network including sub-district office. The sub-district office provides basic level public service under the leadership of Street Party Working Committee. In the process of providing basic level public service, the sub-district office innovates in aspects of ideas, behavior and social network. In the aspect of idea, because the list of basic public service makes the responsibility clear, and because incubation of non-profit organization is accepted by policy, sub-district office recognizes its concrete function including direct capital and personnel support, performance appraisal, etc. and its function display can resort to collaborate across the organization. In the aspect of behavior, the reform of the administrative examination and approval system standardizes the distribution of power between different levels of government and different departments, resulting in the power of sub-district office sinking to the community. At the same time, the rise of social forces highlights the volunteer mechanism in the process of providing basic level public service, collaboration between the sub-district office and non-profit organizations are more frequent. In the aspect of social network, public demand for more comprehensive, more convenient and higher quality public service pushes the sub-district office to pay attention to building a collaboration network with the community residents committee, non-profit organizations, the property management company and the owners' committee.

**Key words** Urban basic level, Public service, Collaborative network, Actor

### 1 Introduction

China is in the transition period. With the introduction of market economy, rapid economic growth is accompanied by a large number of social upheavals. But China faces the potential pressure that the urban basic level government did not take enough to match the economic and social changes in providing public service.<sup>[1]</sup> At the beginning of the founding of new China, facing the enormous enthusiasm of the construction, China set up a system to provide public service such as education, housing, pension by public institution.<sup>[2]</sup> However, with the reform of public institution system, a new type of urban basic level public service provided by multiple organizations is calling for.

### 2 Reasons of urban basic level public service innovation

#### 2.1 Public policy innovation leading to new ideas

On the one hand, public policies provide detailed areas and responsibilities for the government in public service.<sup>[3]</sup> In 2012, as the China's first national special planning of public service, the "twelfth five-year plan" for the national basic public service system has been clear about eight areas of public service including education, employment, social security, social services, health care, family planning, housing, culture and sports. In 2017, the "thirteenth five-year plan" about the basic public service makes a power list for the government in the 8 areas of the basic public service. The urban basic level governments get the idea from these public policies that they must take responsibilities to provide urban basic level public service.

On the other hand, public policies are approved other organizations that may provide urban basic level public service. In the process of providing public service, the urban basic level governments gain the idea to collaborate with various types of organizations in the society and market. For example, urban basic level government could purchase public service from the non-profit organizations or enterprises, could establish long-term public-private partnership (PPP) to provide public service, as

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well as could encourage residents participate in public service provision voluntarily. It is worth mentioning that the Communist Party plays an important leading part during the provision of urban basic level public service.

### **2.2 Structural change leading to new behaviors**

On the one hand, the internal power structure changes.<sup>[4]</sup> With the accelerating of the reform of the administrative approval system which is aiming to set up the system of the list of public power, the list of public responsibilities and the list of negative items, the relations between the sub-district office and the community in the areas of power and responsibilities distribution are changing. According to the field research in sub-district offices in Chengdu City, Sichuan Province, the public power and public responsibilities of the community is listed in 69 work items, within the areas of safety, urban management, human resources and social security, civil affairs, housing style, comprehensive governance, family planning and health, disabled persons' federation, public security and so on. The sub-district office takes 10 measures to reduce the financial burden of urban and rural communities, including adjusting the community scale scientifically, deepening the new urban and rural basic level social governance mechanism, establishing community items access system, standardizing community housing, promoting community informatization level, clearing and simplifying performance assessment and job record of community, strictly regulating community seals use, perfecting the evaluation system, strengthening urban and rural community service ability, emphasizing the organization and leadership. Besides, there are numerous lists to restrict the power of the communities which show clearly the trend that power is sinking into the community from the sub-district office. These lists include the autonomic items list by law of autonomous organization of basic level in urban, the main items list by law of autonomous organization of basic level in urban to help the government, the items list of can-buy public service, the negative items list of community work and the supporting explanations about these lists. This internal power structure change means that in the process of urban basic level public service provision, the distribution of power between sub-district office and community is clearer and their power and responsibilities are more perfectly matched.<sup>[5]</sup>

On the other hand, the external power structure changes, which means the market inforce and the social inforce become stronger than ever.<sup>[6]</sup> This change means the separation of powers from the government to the society in which Non-profit organizations are the main power, leading to highlight the significance of volunteer mechanism in the process of providing urban basic level public service. Besides, this change means the distribution of power between sub-district office and Non-profit organizations is clearer and their power and responsibilities are more perfectly matched.<sup>[7]</sup>

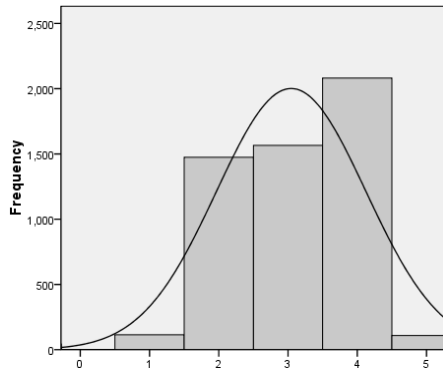
### **2.3 Public demand promotion leading to collaboration**

First of all, public demand on more comprehensive public service push the sub-district office pays attention to build collaboration network. According to the 2013 Chinese General Social Survey (CGSS) data of 5411 samples, when asked about the satisfaction on the adequacy of public service resources, 1.4% of the respondents said very dissatisfied with, while 28.5% of the respondents said not satisfied with and 32% of respondents said couldn't for sure. If the three combined said the respondents hold negative attitude towards the adequacy of public service resources, 61.9%, more than half, are shown dissatisfaction, as in Figure 1 below. Some "soft" urban basic level public service such as community building, cultural activities could be done by construction of collaboration.

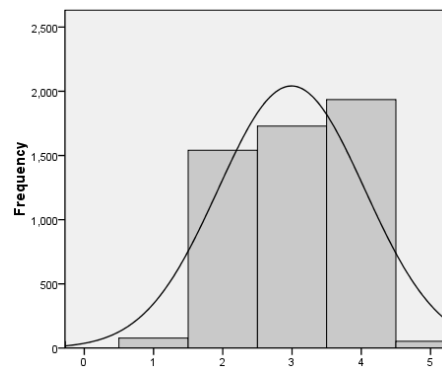
Secondly, public demand on more convenient public service push the sub-district office pays attention to build collaboration network. According to the 2013 Chinese General Social Survey (CGSS) data of 5411 samples, when asked about the satisfaction on the convenience to gain public service resources, 2.1% of the respondents said very dissatisfied with, while 27.2% of the respondents said not satisfied with and 28.9% of respondents said couldn't for sure. If the three combined said the respondents hold negative attitude towards the adequacy of public service resources, 58.2%, more than half, are shown dissatisfaction, as in Figure 2 below. Some "smart" urban basic level public service such as office hall to collect materials, collaborative team with volunteers could be done by construction of collaboration.

Thirdly, public demand on higher quality public service push the sub-district office pays attention to build collaboration network. According to the 2013 Chinese General Social Survey (CGSS) data of

5411 samples, when asked about the satisfaction on the specific areas, the mean count between 58% to 67%, as in Table 1, which means there are a large space for the urban basic level public service to promote. Some “higher level” urban basic level public service such as public space in community, security monitoring machines in community could be done by construction of collaboration.



**Figure 1 Histogram of satisfaction on the adequacy of public service resources**



**Figure 2 Histogram of satisfaction on the convenience to gain public service resources**

**Table 1 Satisfaction on the specific areas of urban basic level public service (%)**

	Basic public education services	Basic public health services	Basic public housing services	Social governance	Employment
mean	67.95	65.18	58.82	64.16	62.18
	Employment	Social security	Basic social service	Culture and sport services	Infrastructure
mean	62.18	65.62	63.99	63.04	64.07

### 3 Innovation of public service: Collaboration network

The sub-district office pays attention to build collaboration network with the community residents committee, non-profit organizations, the property management company and the owners’ committee.

#### 3.1 Actor of Street Party Working Committee and sub-district office

The organization structure of the sub-district office is designed to match the design of the district government, different with the departments of Street Party Working Committee. But the sub-district office means the same with the Street Party Working Committee in concern of workers and works.<sup>[8]</sup>

Taking Maizidian Sub-district office in Chaoyang District, Beijing as an example. The Maizidian Street Party Working Committee is in charge of issues of decision making on areas including urban management, community building and regional economic development, of getting together the sub-district office, the labor union, the communist youth league, women’s federations and other people’s organizations, of organizing the party members to participate in community construction, and of resolving contradictions among the people to ensure political and social stability of the community. While the Maizidian Sub-district office is in charge of concrete issues of maintaining health and beautify of the environment, of protecting public security and traffic safety, avoiding fire prevention, of promoting employment and social insurance, of marriage registration management, family planning, statistics and civil mediation work, of protecting the interests of the minorities, women, juveniles, the elderly and disabled people, of developing infrastructure, of cultivate community culture and volunteers team.

It is worth mentioning that the function of sub-district offices show diversity. In some places, such as Taicang County, Suzhou City, Jiangsu Province, and Guiyang City, Guizhou Province, sub-district offices are cancelled on a trial basis, implementing neighborhood block system. However, in some other places, such as Chengdu City, Sichuan Province, except Jinjiang District, all the sub-district offices have economic function, which means the sub-district offices take responsibilities to invite investment.

### **3.2 Actors within Community Level**

Actors within Community Level are Community Party Committee, community service station and community residents committee. Compared to the background processing character of the sub-district office, the community service station is the front desk dealing with affairs such as reception, material collection and preliminary review. The community service station work under the guidance of the sub-district office, while the Community Party Committee work under the guidance of the Street Party Working Committee.

Although the community residents committee separate from the sub-district office in the static structure, it work together with the Community Party Committee.

According to the field research in sub-district offices in Maizidian Sub-district office in Chaoyang District, Beijing, the communities take part in community governance. People from various communities get together and share their plans about community governance, formatting and discussing a total of 21 proposals at one time. The atmosphere there is warm and peaceful.

### **3.3 Actors of district party committee and district government**

The sub-district office works under the guidance of the district government, while the Street Party Working Committee works under the guidance of the District Party Committee. The district government owns independent function of public budget but the sub-district office doesn't. And the district government owns more independent administrative approval power but the sub-district office owns little.

### **3.4 Actors of grid administrators**

According to the field research in sub-district offices in Maizidian Sub-district office in Chaoyang District, Beijing and Shuanggulu Sub-district office in Chengdu City, Sichuan Province, the community residents committee and the Community Party Committee often hire grid administrators to provide basic level public service especially in the area of social governance. The basic approach is to divide the street area into different grid units in geographic space according to population, ground, things, materials and organizations. Urban basic level public service is provided within each grid units. The grid administrators take in charge of comprehensive treatment of social security within each grid units. The grid administrators temporarily employed by the community and get usually low salary from the sub-district office.

### **3.5 Actors of non-profit organizations**

Non-profit organizations are incubated by the sub-district office or the district government, to establish a long-term mutual trust relations with government, and to provide public service such as community building. Some government provide basic level public service through hatch non-profit organizations, in the form of purchase service from non-profit organizations. For example, a non-profit organization named "Aiyouxi" carries on basic level public service of community construction, frequently organizing community construction activities such as charity selling or charity storing.

### **3.6 Actors of property management company and owners' committee**

Based on different kinds of residential community, the property management company is playing the role to help provide paid public service, such as facilities management, order maintenance, environment maintenance, the elderly college, leisure entertainment, rehabilitation therapy, holiday arrangement and pension services. While the owners' committee are playing the role to provide self-help public service, such as fighting for the owners' interests when neither the community residents committee nor the property management company want to deal with things like peeling, elevator accident or parking, and setting up and implementing the rules and procedure when the owners raise money for maintenance construction.

## **4 Conclusions**

Urban basic level public service is provided by collaborative network including sub-district office. The sub-district office provides basic level public service under the leadership of Street Party Working Committee. In the process of providing basic level public service, the sub-district office innovate in aspects of ideas, behavior and social network. In the aspect of idea, because the list of basic public service make the responsibility clear, and because incubation of non-profit organization is accepted by

policy, sub-district office recognize its concrete function including direct capital and personnel support, performance appraisal, etc. and its function display can resort to collaborate across the organization. In the aspect of behavior, the reform of the administrative examination and approval system standardizes the distribution of power between different levels of government and different departments, resulting the power of sub-district office sinking to the community. At the same time, the rise of social forces highlights the volunteer mechanism in the process of providing basic level public service, collaboration between the sub-district office and non-profit organizations are more frequent. In the aspect of social network, public demand on more comprehensive, more convenient and higher quality public service push the sub-district office pays attention to build collaboration network with the community residents committee, non-profit organizations, the property management company and the owners' committee.

Under the perspective of actors, as urban basic level government, the sub-district office play a key role of actor, building a kind of collaboration network when providing urban basic level public service. Sees the picture of collaboration network within the ellipse bounded by the dotted line. The organization structure of the sub-district office is designed to match the design of the district government, different with the departments of Street Party Working Committee. But the sub-district office means the same with the Street Party Working Committee in concern of workers and works. Compared to the background processing character of the sub-district office, the community service station is the front desk dealing with affaires such as reception, material collection and preliminary review. The community service station work under the guidance of the sub-district office, while the Community Party Committee work under the guidance of the Street Party Working Committee. Just like the relationship between the sub-district office and the district government, and that between the Street Party Working Committee and the District Party Committee. Although the community residents committee separate from the sub-district office in the static structure, it work together with the Community Party Committee. The community residents committee and the Community Party Committee often hire grid administrators to provide basic level public service especially in the area of social governance. Non-profit organizations are incubated by the sub-district office or the district government, to establish a long-term mutual trust relations with government, and to provide public service such as community building. Based on different kinds of residential community, the property management company is playing the role to help provide paid public service, while the owners' committee are playing the role to provide self-help public service. It is the basic reality that collaboration network to provide urban basic level public service exist. Different kinds of organizations take responsibilities as well as cooperates in the collaboration network. The next step to cultivate this innovation is to specify the power list in this area of providing urban basic level public service.

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## Problems and Countermeasures of Government Response in Civic Network Participation in China

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**Abstract** Network participation has been an important way for citizens to express their opinions while the government response is also the premise of the sound development of civic network participation. Nowadays, the government response in civic network participation has many problems, such as weak response, incomplete information and content, inadequate application of government platform and different understanding of network. To this end, the government should do an effective response promptly, especially in the appeal of citizens and strengthen the freedom of information to enhance the credibility of government. At the same time, the government also needs to perfect the platform of multi-government affairs in order to support the active interaction between people and government, adhere to the concept of cooperation to promote harmonious communication, and intensify network governance through the cooperation and guidance of all departments.

**Key words** Civic network participation, Network public opinion, Government response, Network governance

### 1 Introduction

The emergence and rapid development of the Internet have brought about many changes in people's life while network participation has become an integral part of politics and people's life. Thanks to the application of Internet, it is convenient for people to express their interests demands. For instance, through a series of network platforms such as the micro-blog, WeChat, websites and forums, it is more efficient for both people and the government to achieve a communication, which will prompt two-way communication of information and facilitate the government to understand public opinion more profoundly. Thus, civic network participation plays a very positive role in promoting the process of democratization.

Civic network participation doesn't aim at the event itself, but the interests of citizens. The goal of civic network participation is that it always hopes relying on the expression of public opinion on the Internet to promote the government's decision-making and actions so as to better meet the interests of citizens. When people participate in the network, what they cared is not only freely expressing their views of hot events on the Internet, putting forward their demands on people's livelihood, supervising and questioning on the behavior of the government, but pay more attention to get the timely response from the government after expressing the public opinion. As a result, the response to the public opinion in the network is quite important. At the same time, timely, positive and effective response of the government can facilitate the healthy development of civic network participation.

What are the characteristics of the citizen network participation? What's the influence of the government response to the civic network participation? what kinds of problems exist in the government response to the civic network participation and how to improve these responses? All of these are worthy of concerning and researching.

### 2 Civic network participation and government response

Network participation refers to the citizen's network political participation, that is, the behavior and process of citizens who express their political will, participate in political activities and exert influence on the decision-making of the political system by means of the Internet<sup>[1]</sup>. Compared with traditional citizen participation, network participation has its own special positive effects. Firstly, network participation is quick. Citizens can express their wishes and opinions through the Internet, and the government can also obtain the information immediately. Secondly, network participation has the feature of equality. There is no need to worry about identity on the Internet. Anonymous speech is used

freely. What's more, the traditional hierarchical relationship is broken in this kind of environment. Furthermore, there is no need to worry about getting revenge when you reflect the real problem. Thirdly, network participation is direct. The closed and bottom-up form of information exchange has a great hierarchical barrier while in the open network, the information is spread in the network, which help people to break through the hierarchical barriers to directly reflect their demands to higher authorities and avoid failures in traditional letter petition. Fourthly, network participation is interactive. All parties can interact with each other through the Internet, and the government can better understand the aspirations of citizens when interacting with them.

Network participation also has some negative effects. At first, the representativeness of network participation is low. Because of Internet skills deficiency or cultural level limitation, many citizens are unable to use the Internet so that they can't stride over the threshold of the Internet. From the data of Internet users' structure revealed by the latest thirty-ninth "Statistical Survey Report on Internet Development in China", it can be seen that the network participation still has the representative structural imbalance. Secondly, network participation is more prone to having group polarization. Through the high-frequency information exchange, citizens will form a network community. At the same time, the general public is easy to be influenced by the group views and also blindly obey the group opinions. As a result, they can not acquire the ability to independently and rationally analyze and consider. Thirdly, the information authenticity of network participation is difficult to distinguish. The network has some characteristics, for instance, the explosive number and extensive resources of information and falsity of contents of network. Under such circumstances, it is easy for people to be misled by the false information as well as the reactionary and incendiary remarks, thereupon it will cause the emotional and irrational network participation which may even have an effect on government's decision-making and social instability.

With the continuous development of big data and information technology, civic network participation has gained better technique support. Meanwhile, it has brought new development space and test for the government's network governance. Apart from sound technical support, the interest of citizens in the network governance is exactly the key point. What's more, the ultimate goal of civic network participation is through expressing their opinions on the Internet to influence the behavior of the government which can better satisfy the interest of people. Therefore, the key point to decide whether the goal of network participation is effective is the government's response to the network public opinion and their follow-up behavior.

The government response in civic network participation is the process to have an efficient and real-time communication with citizens through the network and understand the interests of citizens, timely response to public opinion on the Internet, and guide citizens to orderly participate in the network. The government's response is not unilateral, requiring interaction between the government and its citizens. The interaction between government and people in the network, citizens can through the network supervise and question the government's behavior and express their demands. At the same time, the government can through the network accept public supervision, answer the questions raised by the citizens, and consider the acquirement of citizens to respond in a timely manner, too. In this process, the government should not respond superficially, instead, it should eliminate false words. The more important part for citizens is the government's specific behavior, focusing on what the government will do instead of what it will say.

When the government and the citizens form a positive interaction, the government actively and forcefully responds to the citizens, and the citizens actively and rationally participate in the network. At this point, the positive effect of civic network participation can be effectively taken into effect, and civic network participation plays a positive role in improving government decision-making, promoting the democratization and helping social governance. While the interaction between the two is in a negative interactive relationship, the government does not respond or passively responds to the citizens, and citizens are unwilling to participate or participate irrationally in the network. Being in such situation, the negative effect of citizen participation in the network is to expand, which will cause resentment of people and even decrease the credibility of the government and greatly affect the government to make the right decision<sup>[2]</sup>. What's more, the negative effects of the network may even

transform into mass incidents in reality, causing social unrest. Therefore, a positive and effective government response is crucial to the sound development of civic network participation.

### **3 The main issues of the government response in civic network participation**

#### **3.1 The poor government response**

Nowadays, the citizen participation in the network has the problem of ineffective government response, mainly reflected in the following three aspects. Firstly, the government does not respond, ignoring the public opinion in the network and looking forward to appease the storm of public opinion through the time. In this case, it often causes serious consequences. Some reactionary forces may take the opportunity to spread rumors and stir up public sentiment through the Internet, trying to spark social turmoil or unrest. Secondly, the government responds both passively and slowly. Especially in emergencies involving government network events, the government did not respond in the first time. When the network public opinion expression converging to the strong pressure, the government is pressured to do the passive response, having missed the best time to respond. At that time, the situation is difficult to control. Thirdly, the government makes a perfunctory response, especially to the interests of the citizens and the people's livelihood on the government website. Although the government makes a timely response, the perfunctory response and empty information are hard to meet the demand of the public and have no practical value, which will reduce the enthusiasm of the civic network participation.

#### **3.2 The faultiness of information**

Information asymmetry will reduce the effectiveness of citizen participation in the network. Although the government has improved in information publicity, the content of information is still not comprehensive. Comprehensive information should be consistent with the standard of "5W1H", that is: When, Where, Who, Who, What, Why, How. Especially after an emergency, citizens are more eager for the government to make public know the most complete, comprehensive, truthful and authoritative information in a timely manner. Sometimes, the government in order to conceal negative information, only open a positive message, even fake news. Once the public know themselves to be deluded, they will have a great distrust of the government. At last, the government's credibility is undermined<sup>[3]</sup>.

#### **3.3 The inadequate application of government platform**

In the era of Internet, the accomplishment of government response mainly achieved through the "two micros and one end" (which refers to the Applications of WeChat and Microblog as well as the mobile clients) and the official website of the government.

The response platform used by the government currently is more efficient than the traditional one. By the end of December 2016, the number of users, who feel very satisfied or relatively satisfied, have reached 48.5% of online government services. Although it greatly improved compared to the last year, there is still a long way to go<sup>[4]</sup>. The problem of government platform mainly displays in four aspects. First of all, some government official websites have a long content update cycle and low update frequency. As a result, the government official website has become a "face project", and didn't realize the actual service role of government platform. Moreover, the government official website information is lack of integration. The ideal government official website is a clear and concise list of information, but in reality, the government official website is rather like a maze of information. In this maze of information, the enthusiasm and initiative of citizens will be affected. Finally, the new government platform utilization rate is not high. With the development of Internet information technology, the use of micro-blog, WeChat and client is becoming the ordinary fare. However, the number of micro-blog, WeChat and government portal has surged, the response speed and the release of the content are not enough to meet the needs of the citizens.

#### **3.4 The understanding of the network is different**

Administrative communication refers to the exchange of information between the administrative system and the outside world. In essence, the government response is also a form of administrative communication. In the government's response to administrative communication, the positioning of the government and citizens is different so that the understanding of the network between the two sides is also different.

The rapid development of the Internet era takes the birth of ambivalence of some local government. On the one hand, they want to develop the local economy depending on the development of the Internet. On the other hand, they also fear of the negative effects of the Internet. This ambivalence prevents the production of healthy ecology of the Internet. Because of the special status of the government, the government is not only the controller of information gathering, but also the gatekeeper of information dissemination. Considering the reasons for their own interests or stability, the government will prevent the spread of information that is not conducive to itself. In the function of the Internet, the government pays more attention to the publicity and education functions of the Internet, shows a one-way trend of information dissemination, and lacks the enthusiasm to respond to the demands of the masses. In some cases, the government even regards public opinion in the Internet as a negative factor that interferes with the operation of power, which leads to the unwillingness of the government to disclose relevant government information. From the current practice, the implementation of government information disclosure benefits from the strong implementation of the higher government and the strong demand of citizens<sup>[5]</sup>.

From the point of view of citizens, they regard the Internet as an important means of safeguarding their own rights and interests, and also have great expectations for network rights protection. "Petition is not as good as the Internet" well reflects the current status of this mentality. At present, some problems involving the rights and interests of citizens obtain government attention and are resolved through public opinion of the network, which cause many citizens regard the network as the only way to solve the problem and ignore the regular channel of solution in reality.

## **4 The government response measures in the civic network participation**

### **4.1 Timely and effective response pointing to the aspirations of citizens**

The aim of government service is to satisfy the fundamental interests of the overwhelming majority of the people. The realization of the public interest needs the government system as a guarantee, which needs the government to take a long-term construction. In the process of realization, resolving the conflicts of interest and contradictions among the parties is the core issue that the government pays attention to. Furthermore, an important part of resolving conflicts of interest and contradictions is to do a good job of government response, to understand the actual needs of the people, and to respond to the public demands in a timely manner.

Thanks to the advent of the Internet era and the rapid development of information technology, network information dissemination has become faster, more frequent and richer. Because of the characteristics of the times, it is easy for citizens to form a collective interest in the network, and to use the power of the network to carry out the interests of demands which forms a powerful online public opinion. The government must attach great importance to the appeal of people's interests in the network for the interests demands in the network are the reaction of people's real situation.

Although the network provides the channel of civic participation for the citizens, for people, they are most concerned about whether their own appeal is conveyed to the government and whether the government consider them, that is, whether the government will respond them or not. The citizens send information to the government via the Internet, and the government responds to them. This process effectively connects the government and the citizens, and satisfies both sides. The government obtains the public opinion through the network, and constructs the good administrative communication channel through the government response to meet the citizens' interest appeal. In the process of government response, the government should be "people-oriented" and respond to the demands of the people in a timely and effective manner.

### **4.2 Strengthen information disclosure and enhance the credibility of the government**

Information publicity is a focal point of citizen network participation and government response. "The People's Republic of China Government Information Disclosure Ordinance", which has been put into effect, provides a legal guarantee for citizens to obtain government information. The rapid development of the Internet and the emergence of big data swept obstacles in the technical level for the government information disclosure. In addition to information concerning state secrets, trade secrets and personal privacy, the government should timely reveal information to meet the needs of citizens



for access to government information.

Especially after the emergency, citizens are eager to know the truth and hope to get the real information. At this time, the government can not make up fake information just to cover up bad news, instead, it should make real timely and authoritative event information disclosure, reduce information asymmetry so as to promote the benign interaction between the government and the citizen in the Internet, to maintain the credibility of the government, and to create a healthy image of the government.

#### **4.3 Improve the platform of pluralistic government and support the interaction between the government and the people**

Citizens are now using the government platform—two micro and one client to express their interest demands, and expect to actively and effectively communicate with the government. For the improvement of government platform, we must change from quantity-oriented to quality-oriented. The service function of the platform in the government platform should be effectively implemented, which should also regard solving the actual needs of citizens as the starting point so as to strengthen the content construction of WeChat and micro-blog platform. Furthermore, both WeChat public number and micro-blog certification number should timely release information, actively respond to citizen, and improve the overall service performance. In addition, we should strengthen the promotion of “two micro and one client”, which will enable more citizens to participate in the positive interaction between the government and the people. For example, we should guide the citizens who are not clear about the government platform in the form of propaganda. In the construction of the government portal website, special interactive columns should be set up to enhance the enthusiasm of citizens to participate in the Internet, so as to solicit public opinions more extensively on social hot issues.

#### **4.4 Adhere to the concept of cooperation and promote harmonious communication**

Government is an important part of public management, but not the only participant. Now, the government needs to follow the idea of cooperation to link the government and the citizens to conduct social governance together<sup>[6]</sup>. Therefore, it is very important for us to sort out the differences between the government and the people and understand the real aspirations of the citizens. Governments at all levels need to enhance their awareness of service and pay attention to the interests of citizens. In daily work, they should regard the accomplishment of interests of citizens as the starting point. In addition, when facing problems and shortcomings in the work, they must face the criticism of the people on the network, respond promptly, admit mistakes and take responsibility. In order to realize the harmonious cooperation between the government and the masses in the true sense, the government should not overstate the negative effects of public opinion on the Internet and not control and repress the online public opinions, but should use the network featuring the rapidity and directness, through the network to reduce the information transmission level, so as to boost political harmonious communication and promote social cooperation governance<sup>[7]</sup>.

#### **4.5 Departments should cooperate to guide and strengthen network governance**

In the age of Internet, the speed of information dissemination is fast and complex. Some people use rumors in the Internet, disguising as civilians to pressure on the government so as to seek their own interests. Therefore, the government should pay prompt attention to and respond to Internet rumors to reveal the truth. Information management is the most direct way of government response. Publishing authoritative information, verifying the authenticity of the information, guiding the positive information, and timely pushing the new information, all these methods can help the government control the behavior of network group caused by network information. If the government wants the users trust the messages sent by it, it must improve its ability of response. Such a response is valuable. In order to avoid all negative events, all actions must be cautious. Departments must work together to deal with network events. Work based on fact can only effectively respond to network events. In order to high-efficiently prevent large-scale network group behavior, the primary task of all departments is to strengthen the organization and guidance, especially to prevent the irrational behavior of the network, to fully understand the regularity around the network group behavior and strengthen the organization and guidance to reduce the scale of the network cluster behavior<sup>[8]</sup>, and to controls the network onlookers and large-scale network group behavior caused by some sensitive network public crisis

information. The treatment of public crisis events should be cautious and the government should pay close attention to trends in all the network of public opinion. Once a little problem happens, it should immediately responds. At the same time, the government also should reveal the truth in the first time. By improving the quality of network participants to guide users to abide by laws and regulations, rationally participate in the network and express their interest demands.

## 5 Conclusions

The interactive relationship between civic participation in the network and government response is bidirectional. When the relationship is positive, the strong government response would accelerate the healthy development of civic participation in the network. Thus, the civic network participation would play a vital role in the improvement of government's decision-making as well as the promotion of democratization and social governance. While the relationship is negative, the passive government response would expand the adverse effect of the civic network participation. What's more, online public opinions would influence the government to make the right decisions, reduce the credibility of the government, and even cause social turmoil.

Taking the actual situation in our country into consideration, the government needs to finish the following five tasks to reinforce the response ability and push the progress of network participation forward. Firstly, it is necessary for us to make a strong respond timely in the aspirations of the citizens. Secondly, strengthening information publicity needs to be done by us to increase the credibility of the government. Thirdly, it is significant for our government to improve the multi-government platform in order to accelerate the sound interaction between the government and people. Fourthly, we should always uphold the concept of cooperation, and strive to promote harmony and communication between the government and people. Fifthly, all departments should work together to strengthen organization and guidance so as to achieve efficient network governance.

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## Further Research on the Development of Public Private Partnership in China

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**Abstract** Since 2013, with the increase of local government debt and the unsustainable land finance, the Chinese government has been launched a series of measures to promote the development of public private partnership (PPP) in urban infrastructure construction and public service areas in the hope of promoting urbanization and hence promoting economic development. Four years later, how has China's PPP been developing, what problems exist, and what should China do next? Based on the introduction of the concept of PPP, the classification of PPP management pattern and the origin of PPP, this paper analyzed at first the history of PPP development in China, then elaborated the status quo and the obstacles of China's PPP development, and finally put forward the countermeasures for promoting the development of PPP in China.

**Key words** Public private partnerships, PPP model, Land finance, Urbanization, Risk-sharing mechanism, Urban infrastructure construction, Public utilities

### 1 Introduction

There is no generally accepted definition of Public Private Partnership (PPP) in the academic circle although it has been an important way for many countries to carry out infrastructure construction and provide public services. The Asian Development Bank defines PPP as a series of partnerships between the public sector and private sector entities to carry out infrastructure construction and provide other services. The United Nations Development Programme (UNDP) considers PPP as a form of cooperation between government, profit-making enterprises and non-profit organizations to complete a project. The World Bank, however, believes that PPP is a long-term contract between the private sector and government agencies to provide public assets and public services, while the private sector has to undertake significant risks and management responsibilities.

Although the definitions of PPP are not exactly the same given by different organizations and experts from different perspectives, it can be found, from the definitions of PPP, that the PPP has three important characteristics: partnership, benefit sharing, and risk sharing. Partnership requires the government and non-government market participants, as equal civil subjects, abide by the contractual spirit and negotiate legal agreements. Benefit sharing requires ensuring the social capital to obtain a reasonable return on investment in accordance with the provisions of the agreement and avoid the government default and other possible projects caused by operation problems, which may make the social capital not be able to recover the return on investment. Risk sharing requires that each risk be undertaken by the partner who is better at dealing with the risk to minimize the overall risk of the project.

PPP management patterns can be classified differently according to different standards. The World Bank divides the PPP model into three categories: outsourcing, franchising and privatization. Outsourcing is subdivided into modular outsourcing (which includes service outsourcing and management outsourcing) and integrated outsourcing (which includes Design-Construction, Design-Construction-Maintenance, Operation and Maintenance, and Design-Construction-Operation). Franchising is subdivided into TOT (Transferring-Operation-Transferring) (which includes Purchasing-Renewal-Operation-Transferring and Leasing-Renewal-Operation-Transferring), COT (Construction-Operation-Transferring) (which includes Construction-Leasing-Operation-Transferring and Construction-Possession-Operation-Transferring), and others (which includes Design-Construction-Transferring-Operation and Design-Construction-Investment-Operation). Privatization is subdivided into full privatization (which includes Purchasing-Renewal-Operation and Construction-Possession-Operation) and partial privatization (which includes equity transferring and others).

In 1970s, the United Kingdom actively introduced private sectors to participate in the construction

and operation of public projects in order to solve the problem of financial shortage in the economic depression. In 1992, the United Kingdom proposed the PFI (Private Financing Initiative) which became an important model to promote the cooperation between the government and the private sector after the introduction of market-oriented competition in the field of public services and was fully promoted in 1997 in the field of public infrastructure in the whole society. After the United Kingdom, in 1980s, the PPP model had been widely adopted successively in the United States, Canada, France, Germany, Spain, Australia, New Zealand, Japan, and other western countries.

## 2 The development history of PPP in China

In 1984, China successfully implemented the first BOT project, Shenzhen Shajiao B Power Plant project. Since then, PPP has been developing more than 30 years in China. The history of the development of PPP in China can be divided into 5 stages in general: exploration, small-scale pilot, promotion pilot, temporary stagnation and further promotion.

### 2.1 Stage of exploration (1984-1992)

In the 80s of last century, with China's opening to the outside world, foreign capital gradually participated in the investment and construction of various fields in China, and began to try to invest in the field of public infrastructure. The PPP projects in this period did not attract the attention of the central government and were mainly carried out spontaneously by local governments at all levels and social capital. Local governments at various levels also had not issued relevant policies to regulate the operation of PPP. The PPP projects had no public bidding links and were usually initiated by social capital and reached agreements with the government through negotiations.

At this stage, the social capital in the PPP projects was dominated by foreign capital and the implementation of the PPP project mainly took the form of BOT. The representative of PPP projects were Shenzhen Shajiao B Power Plant, Guangzhou White Swan Hotel, and Beijing International Hotel.

### 2.2 Stage of small-scale pilot (1993-2002)

In October 1992, the 14th National Congress of CPC (the Community Party of China) established the reform target of socialist market economy system, which provided a theoretical basis for the reform of investment and financing of public infrastructure market. In 1993, SPC (the State Planning Commission) began to study the reform of the investment and financing system, including the feasibility of the BOT model. Subsequently, SPC, the Ministry of FEC (the Ministry of Foreign Economic Cooperation) and the Ministry of Construction promulgated relevant policy documents to encourage social capital to cooperate with governments in the construction of public facilities. China set off the first wave of PPP fever in 1997; however, with the advent of the financial crisis in 1998, the PPP projects in China bottomed out.

At this stage, the social capital involved in the PPP project included state-owned capital, private capital and foreign capital while foreign capital was still the main factor. And BOT was still the main form of PPP projects. The representative of PPP projects included Laibin B Power Plant, Quanzhou Citong Bridge, Chengdu Sixth Waterworks, and Wuhan Tangxunhu Sewage Treatment Plant.

### 2.3 Stage of promotion pilot (2003-2008)

In November 2002, the 16th National Congress of CPC put forward that China's socialist market economy system had been basically established and the market had been playing a fundamental role in the allocation of resources, which provided a theoretical basis for the promotion of PPP. In 2003, the decision of the third Plenary Session of the 16th CPC Central Committee pointed out that the non-public capital was allowed to enter infrastructure, public utilities and other industries and fields which were not prohibited by legal provisions. Chinese main cities set off the second wave of PPP climax. The Ministry of Construction promulgated *Opinions on Speeding up the Marketization of Municipal Public Utilities* and *Measures for the Administration of Franchise of Municipal Public Utilities* respectively in 2002 and 2004, which became the main basis to carry out the PPP project at that time.

At this stage, the social capital of PPP projects was mainly foreign capital and state-owned capital, and the management of PPP projects mainly adopted the form of BOT. The representative of PPP projects included Beijing Metro Line 4, Hangzhou Bay Bridge, Hefei Wangxiaoying Sewage

Treatment Plant, Beijing National Stadium, Beijing Tenth Waterworks, Beijing Gaoantun Incineration Power Plant, and Lanzhou Veolia Water Group, some of which ended in failure.

#### **2.4 Stage of Temporary Stagnation (2009-2012)**

In 2008, the global financial crisis broke out and caused the global economic growth to decline. The Chinese government implemented an aggressive fiscal policy to cope with the economic downturn and launched a 4 trillion economic stimulus package, which pushed the PPP forward into a standstill. At this stage, the investment and financing of local public infrastructure projects were mainly carried out through the local governments' investment and financing platforms, which could obtain adequate and relatively cheap funds by such financing methods as credit loan, city bonds, land-sales revenue, land mortgage loan.

There are few PPP projects at this stage, the representative of which was Beijing Metro Line 14. Later in this period, private capital began to participate in the PPP projects although still subject to considerable restrictions.

In 2013, the new government came to power. In order to cope with the difficult situation and promote the development of economy, the governments from the central and to the local issued a series of PPP-related policies and regulations and launched a number of PPP pilot projects. The development of PPP in China set off the third climax and entered the stage of further promotion.

### **3 The status quo of PPP development in China**

#### **3.1 The background of PPP development at the stage of further promotion**

In March 2013, when the current government came to power, China was facing a severe economic situation. The growth rate of GDP dropped from the highest 14.1 percent in 2007 to 7.65 percent in 2012, so it was urgent for the current government to find new economic growth points. Urbanization was considered by the current government as a good economic growth point at that time. *New National Urbanization Plan (2014-2020)* adopted in March 2014 provided that the urbanization rate of resident population in China should reach about 60% by 2020 while the urbanization rate of resident population in China at that time was only 54.77%, which meant that China would still need to invest heavily in construction of public infrastructure projects in the next 5 years.

Meanwhile, the 4 trillion economic stimulus package, which was introduced by the previous central government to cope with the global financial crisis, had been leading to the rapid increase of the local governments' investment and financing platforms and the rapid expansion of local governments' debts. According to *the Audit Results of the National Governments' Debts in 2013* (Announcement No.32, 2013 of the National Audit Office of PRC), by the end of June 2013, the debt which the central government and the local governments bore the responsibility to repay, amounted to 20.70 trillion yuan, a fairly rapid growth compared with 6.71 trillion yuan of the end of 2010.

Under these circumstances, the Chinese government was facing a realistic problem in the process of urbanization: on the one hand, the construction of public infrastructure projects needed to invest a lot of money, on the other hand, the scale of local governments' debts was rather huge and the land finance of the past was obviously unsustainable. To solve the problem, the Chinese government put forward the concept of PPP for the first time in 2014 in order to attract private capital to participate in the investment of public infrastructure projects, which set off a new upsurge of PPP.

#### **3.2 Regulations relating to PPP development at the stage of further promotion**

One of the important measures to promote the development of PPP at this stage is that the government had promulgated a series of laws and regulations relating to the PPP development. The intensive introduction of PPP-related laws and regulations was both in order to encourage private capital to participate in the construction of public infrastructure and in order to regulate the development of PPP. The main PPP-related policies and decrees promulgated at this stage are shown in the following Table1.

**Table 1 Legal Documents to Promote the Development of PPP at Stage of Further Promotion**

Date of issuance	Issuing agency	Name of document
2014-05-18	the NDRC	<i>Circular of the National Development and Reform Commission on Releasing the First Batch of Projects in Infrastructure Field Encouraging Social Capital to Invest</i>
2014-09-23	Ministry of Finance	<i>Circular on the Issues Relating to the Use of the Public-Private-Partnership Model</i>
2014-11-16	the State Council	<i>Guiding Opinions of the State Council on Innovating the Investment and Financing Mechanisms in Key Areas and Encouraging Social Capital to Invest</i>
2014-11-29	Ministry of Finance	<i>Circular on the Issuance of Operational Guidelines of the Public-Private-Partnership Model (for Trial Implementation)</i>
2014-11-30	Ministry of Finance	<i>Notice of the Ministry of Finance on Relevant Issues Concerning the Implementation of Public-Private-Partnership Demonstration Projects</i>
2014-12-30	Ministry of Finance	<i>Notice on Standardizing the Administration of Public-Private-Partnership Contracts</i>
2015-02-13	Ministry of Finance Ministry of Housing, Urban and Rural Construction	<i>Notice on the Promotion of Public-Private-Partnership Projects in Municipal Public Domain</i>
2015-04-07	Ministry of Finance	<i>Notice of the Ministry of Finance on Issuing the Guidelines for the Demonstration of the Financial Bearing Capacity of Public-Private-Partnership Projects</i>
2015-05-19	General Office of the State Council	<i>Circular of the General Office of the State Council Transmitting the Guiding Opinions of the Ministry of Finance, the Development and Reform Commission and the people's Bank of China on Promoting the Public-Private-Partnership Model in the Field of Public Service</i>
2015-06-25	Ministry of Finance	<i>Notice on Further Improving the Demonstration Work of Public-Private-Partnership Projects</i>
2015-12-08	Ministry of Finance	<i>Notice of the Ministry of Finance on the Implementation of the Policy Replacing Subsidy with Incentives for Public-Private-Partnership Projects</i>
2015-12-18	Ministry of Finance	<i>Notice on the Issuance of Guidelines for the VfM Evaluation of PPP (for Trial Implementation)</i>
2016-05-28	Ministry of Finance the NDRC	<i>Notice on Further Joint Work on Public Private Partnership (PPP)</i>
2016-10-11	Ministry of Finance	<i>Notice on Further Promoting Public Private Partnership in the Field of Public Service</i>

### 3.3 Demonstration projects and the project database at stage of further promotion

Another of the important measures to promote the development of PPP at this stage is that the Ministry of Finance has been launching a series of national demonstration projects together with other ministries and commissions and had established in 2015 an Integrated Information Platform of National PPP and a PPP Project Database to collect the data of national PPP projects and the projects to be implemented in the PPP model.

According to the Sixth Quarterly Report of the Information Platform of National PPP and the PPP Project Database released by the Ministry of Finance in April 28, 2017, as of the end of March 2017, the national PPP projects input the Database had totaled 12287, with an investment of 14.6 trillion yuan, covering 31 provinces (autonomous regions and municipalities) and the Xinjiang Corps and 19 industry sectors, among which the signed and landed projects were 1729, an investment of 2.9 trillion yuan, covering 29 provinces except Tianjin, Tibet (autonomous regions and municipalities) and Xinjiang Corps and 19 industry sectors. The landing rate was 34.5% (landing rate refers to the ratio of the number sum of the PPP projects at the two phases of execution and transferring to that at the four phases of preparation, procurement, execution, and transferring, without regard to the number of PPP

projects at the identification phase).

Since 2014, the Ministry of finance has launched 3 batches of national PPP demonstration projects. According to the Sixth Quarterly Report of the Information Platform of National PPP and the PPP Project Database, as of the end of March 2017, the total number of national demonstration PPP projects had reached 700, with a total investment of 1.7 trillion yuan, among which the first batch of PPP demonstration projects in 2014 were 22 (initially 30, 8 taken out one after another), a total investment of 71.4 billion yuan, the second batch PPP demonstration projects in 2015 were 162 (initially 206, 44 taken out one after another), a total investment of 487.1 billion 100 yuan, and the third batch of PPP demonstration projects in 2016 were 516, a total investment of 1.1616 trillion yuan.

### **3.4 The characteristics of PPP development at the stage of further promotion**

By analyzing the Sixth Quarterly Report of the Information Platform of National PPP and the PPP Project Database, it can be found that the development of PPP at the Stage of Further Promotion had the following characteristics.

(1) Low signing rate. The number of national PPP projects in the Database was 12287, with the value of 14.6 trillion yuan while the number of signed and landed projects was 1729, with the value of 2.9 trillion yuan, respectively accounting for 14.07 percent and 19.86 percent. The number of national demonstration PPP projects was 700, with the value of 1.7 trillion yuan while the number of signed and landed projects was 464, with the value of 1.19 trillion yuan, respectively accounting for 66.29 percent and 14.03 percent although a lot of that which failed to be implemented in the form of PPP were taken out from demonstration.

(2) Single return mechanism. Among the national PPP projects in the Database, the projects paid by the governments and by the governments together with the market were 7454, with the value of 9.7 trillion yuan, respectively accounting for 60.7% and 66.9%.

(3) High degree of industry concentration. Among the national PPP projects in the Database, the industries whose number of entered in the top three were municipal engineering, transportation, and tourism, accounting for 53.7 percent of the total number of PPP projects. Among the national demonstration PPP projects, municipal Engineering, transportation, and ecological construction and environmental protection landing projects occupied the top three, totally accounting for 64.7% of the 1 landed demonstration projects.

(4) Uneven regional distribution. The provinces whose number of PPP projects was in the top three in the Database were Guizhou, Shandong and Xinjiang, together accounting for 32.4% of the total PPP project number; however, Henan, Shandong, and Yunnan occupied the top three of landed demonstration projects, totally accounting for 26.1 percent.

(5) Low participation of private enterprises. In comparison, private enterprises are more willing to participate in national demonstration projects. Private enterprises, however, only involved in 215 of the 455 signed demonstration projects, accounting for 47.3%.

## **4 The obstacles of the PPP development in China**

From the above analysis, it can be seen that, in the process of promoting PPP, there are such problems as the low signing rate of PPP projects, the low participation of private enterprises and the government paid mainly. China is far from reaching the original objective by the implementation of PPP model to attract private capital to participate in, to reduce the burden on the government, to promote the construction of infrastructure and public service facilities, and to promote vigorously urbanization and economic development. Then, what factors have caused those problems, and what obstacles have been restricting the development of PPP in China? The obstacles can be analyzed from the two aspects of public sectors and private capital.

### **4.1 The obstacles from public sectors**

The obstacles from public sectors which have been restricting the PPP development in China are mainly as follows:

(1) The legal system for the application of PPP is lack. At present, Chinese PPP-related laws and regulations are mainly formulated by departments and local governments. The low level of laws and regulations restricts their effectiveness. Moreover, many laws and regulations have two versions

respectively by the Ministry of Finance and the National Development and Reform Commission, having not formed a complete legal system. Some specific operation management of PPP projects is carried out with reference to *the Franchising Law, the Government Procurement Law and the Bidding*, which however do not fully involve the various problems that may occur in the construction of PPP projects.

(2) The government's contract spirit is weak. In the traditional infrastructure construction, the government has been in a strong position, but lack of contract spirit. The government makes all kinds of promises at the beginning of attracting investment fails to pay in accordance with the contract after the completion of infrastructure construction, which seriously damages the legitimate rights and interests of social capital. Especially in the face of the government changing or major policies being adjusted, the prevarication among the government's departments becomes even more serious. The long-term weakness of the government's contract consciousness has seriously affected the application and popularization of PPP model

(3) The price formation mechanism of PPP projects is irrational. The construction and use of public infrastructure and utilities has the characteristics of non-excludability, positive externalities and natural monopoly and cannot be formed a reasonable price only by the market, whose price must be decided jointly by the government and the market. However, the traditional cost-based pricing method and return on investment (ROI) method are easy to lead to asymmetric information, difficulty in determining standards and unfair sharing of risks.

(4) The government's supervision is imprecise. The definition and division of powers and responsibilities among different departments and levels of the governments in China is fuzzy, which makes the supervision in some public services rather confusing and hence increases the investment risk of private capital.

#### **4.2 The obstacles from private capital**

The obstacles from or to private capital which have been restricting the PPP development in China are mainly as follows:

(1) The investment risk of PPP projects is too high. The investment in urban infrastructure and public service facilities has the characteristics of large amount of investment funds, long payback period of investment, and single channel of return on investment (most or even all of their return on investment comes from the government's financial payment), so private capital faces great risks when participating in PPP projects. Once there is a problem in the investment process or the government defaults on its payments, small and medium enterprises are prone to financial risk of breakage and fall into a serious predicament.

(2) The principle of risk sharing is lack. The application of PPP model in China is far from mature yet, and there are still many deficiencies. Especially in the prediction and management of risk, both the government and the private sectors are lack of the risk pre-assessment and pre-demonstration of risk and the risk responsibility is unclear in the contracts, which makes it easy for the PPP project to get into trouble. Meanwhile, the government is accustomed to shirking its responsibility when authorizing a project to private investors. The uneven distribution of risk leads to an increase in the overall risk for private investors and ultimately increases their costs.

(3) The examination and approval procedure is too complicated. There are still high barriers in China for private capital to invest the construction of urban infrastructure and different government departments have different requirements for project approval, so private capital need cost a lot of time and effort in order to obtain the approval of PPP projects, which reduces the efficiency of the project.

(4) Professional institutions and talents are scarce. The operation of the PPP model requires complex legal, financial and financial knowledge. Because the PPP model is used relatively late in China and many conditions are far from mature, so the governments and many enterprises, especially in the two or three tier cities, do not know enough about PPP and the professional organizations and professionals are very scarce.

### **5 The countermeasures for promoting the PPP development in China**

Knowing the problems and the obstacles of the development of PPP in China, then what



countermeasures should be taken to promote it?

(1) Formulate PPP investment and financing management laws and regulations. The effective operation of the PPP model requires a comprehensive set of laws and regulations to regulate and constrain the conduct of the participants of PPP projects, so it is necessary to draw formulate a management regulation of PPP projects at the national level. The basic framework of the management regulation of PPP projects should include: the scope of application of PPP model, set-up procedure, bidding procedure, franchise agreement, risk sharing, rights and obligations, supervision and management, the legal application and the way of solving disputes, etcetera.

(2) Strengthen the contract spirit of government departments. The lack of contract spirit and spirit of rule by law is one of the key factors that restrict the development of PPP. A perfect contract system should be established to clarify the responsibilities of government departments, to define clearly the basis for judging the breach of government departments, and to provide corresponding penalties for breach of contract. Especially the punishment measures go directly to the relevant government departments and heads. At the same time, government departments should regularly announce the progress of PPP projects to the public and be supervised by the public.

(3) Develop standardized procedures for approval of PPP projects. From the traditional mode of investment and financing to the PPP model, the government, in infrastructure construction, should change from the leading role of the past to the role of the cooperator with the private sector and the supervisor of the completion of projects. The central government's regulatory authorities shall formulate standardized procedures for examination and approval of PPP projects so that PPP projects throughout all the country can be referred to carry out.

(4) Draw up a perfect risk sharing mechanism. To ensure the smooth implementation of PPP projects, it is very important to strengthen the identification of risks and determine the risk sharing mechanism in specific operation. Risk sharing should be based on risk-taking capacity. The government should take policy risks for it has a strong grasp and control over policy changes while the social capital should undertake the management risk for it has strong management ability. The risk of force majeure shall be shared by the government and private capital in the light of the actual situation of the risk.

(5) Speed up the training of professionals. The implementation of PPP model is a combination of theory and practice. The operation of PPP projects is very complex, involving many procedures, such as bidding, negotiation, financing, management and so on, which requires professional talents to complete. The study of PPP-related professional knowledge and actual case study can be taken to train PPP officials and talents. On the one hand select outstanding talents to learn foreign advanced theories and successful experiences so as to improve the level of the research and development of PPP; on the other hand strengthen the education and training of local talents so as to improve the quantity and quality of PPP talents.

## 6 Conclusions

Since 2013, China's PPP model has made a great progress, but China has not achieved its initial purpose of promoting urbanization and economic development by implementing the development of PPP. There are problems with the existing PPP model in china. China needs to overcome some obstacles to promote the further development of the PPP model.

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## Research on Performance Management of Local Government from the Perspective of Sustainable Development \*

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**Abstract** Taking the L district of Xi'an as an example, combining the dilemma faced our country in the development of economy and society and the difficulties that the local government meet in the practice of target responsibility assessment, this article comes up with the assessment model of the targeted responsibility of local government from the perspective of sustainable development and sets up the evaluation indicator system of target responsibility assessment with the basis of the balanced scorecard . Furthermore, it discusses the implementation process and the problem in assessment of the targeted responsibility of L district's. At last, this article puts forward the suggestions on implementation process of performance management of local government from the perspective of sustainable development.

**Key words** Xi'an, Sustainable development, Performance management, Target responsibility assessment

Since 1978, our country has achieved a big success in the economic development. However, we have paid too much for the resource and environment. Under this background, Chinese government pays much attention to this condition so as to come up with a series of concepts including sustainable development, recycling economy, scientific outlook on development to enhance the development of economy and society<sup>[1][2]</sup>. For full implementation of scientific outlook on development, Shaanxi provincial government uses the new standard to check the work performance and the development achievement in order to lead the direction of development. Since 2008, under the visual threshold of sustainable development, the target responsibility assessment has been carried out in the 11 urban areas and 88 provincial units. We take L area in Xi'an as an example to discuss the implementation process and effect analysis of target responsibility assessment from the perspective of sustainable development in Shaanxi Province<sup>[3]</sup>.

### 1 Overview of target responsibility assessment from the perspective of sustainable development in L district of Xi'an City

#### 1.1 The reason of target responsibility assessment under the visual threshold of sustainable development in L district of Xi'an City

Since 1978, with the economic construction becoming the national central task, there are some deviations in view of achievements of the government departments,. Prominently, the concept of political achievements is alienated into "GDP" view. They only "focus" the performance in the GDP, which brings a lot of problems affecting the development of society, the harmony between the human beings and nature, and particularly, impede the promotion of the comprehensive development of human beings. With the new concept of development, we must not only pursue the growth man-made wealth (the traditional GDP), but also focus on sustainable development of society ("green GDP") as well as people's health and overall development. In conclusion, we need to use the new concept of development while considering issues. Now, people are beginning to establish a new concept of development, but the phenomenon of measuring achievements with traditional development concept is still quite serious. It requires that all levels of government departments should not only focus on economic development, social development but also concern about sustainable development.

#### 1.2 The method of target responsibility assessment from the perspective of sustainable development in Xi'an L district—The introduction of the Balanced Scorecard model

In 2008, proposing the modern public management theory as the guide, based on the Balanced

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Scorecard and other advanced management technology and information technology as the support, the municipal government created a governance model featured “low cost administration, strong sense of legality, high performance in management, excellent service quality.” As a new performance evaluation tool, balanced scorecard not only consider the social output and budget constraints of governmental organizations, but also consider a list of leading indicators for the sustainable development of the government such as the internal process management and capacity building of civil service [5]. Depending on four dimensions including the customer (the public), social output, internal process management as well as learning and growth, balanced scorecard achieves a range of balances such as the balance between long-term and short-term goals (see Figure 1), between leading indicators and lagging indicators, between internal staff and external customers, and between process management and objective management. Based on balanced scorecard, the governmental performance management model solving the shortcomings that the traditional governmental performance management model itself hard to overcome, is a kind of effective management tools and mode selection.” sustainable development for the construction of “harmonious society” relying on the “sustainable development”. [4][5]

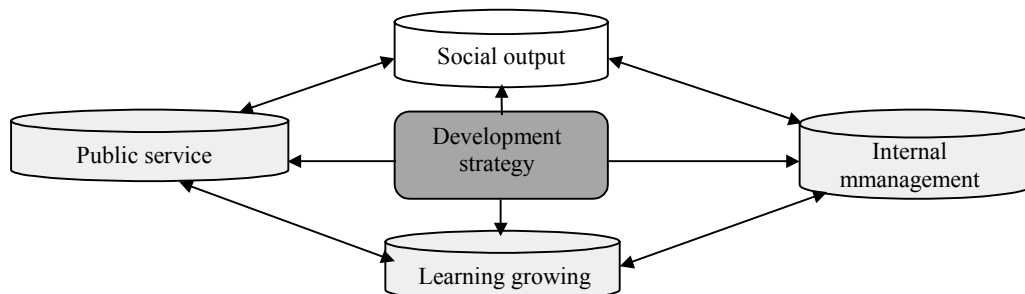


Figure 1 Framework map of evaluation of balanced scorecard of government in L district

## 2 The implementation process of target responsibility assessment based on the sustainable development in the government of L district

### 2.1 The principle, scope and leadership of assessment

The basic principle of assessment: assessment work must insist on the principle of scientific development, performance, objective and impartial, masses accepted and comprehensiveness and put the priority of the assessment of economic and social development so as to fully embody the new ideas of people-oriented and harmonious development, strive to achieve the combination of normal and regular inspections, of the quantitative and qualitative assessments, of the superior assessment and social evaluation, and to make every effort to comprehensively and accurately assess the work performance of the towns and district-level departments.<sup>[6]</sup>

Assessment scope: towns, street agencies, district party committee and district-level national departments, various mass organizations, the district government committee and vertical pipe units (Hereinafter referred to offices in towns and district-level departments)

Assessment leadership: Establish target responsibility assessment leadership team of L district. The first team leader and the group leader are appointed by the district Party committee and the leading comrades of the district government respectively. The deputy team leader is appointed by the district level leading comrades, and the assessment work is under the leadership of the leading group of the annual target responsibility examination of the district. The main responsibility of leading group is to formulate and revise appraisal regulations in accordance with the requirement of the scientific development concept; to decompose this year’s key task released by municipal party committee and the city government and determined by the district committee and the district government; to put forward the annual target assessment indicator made by towns and district-level departments; to study and solve the major issues during the work of assessment; and to examine and approve the assessment results and implement rewards and punishments.

The office of leadership group is located in district committee department whose specific duties is: be responsible for the evaluation of annual target responsibility assessment in municipal party committee and the city government and for the organization and implement of assessment work; carry out routine management and regular supervision and inspection on the operation of the target and task; coordinate relevant departments to take the joint meeting regularly for the assessment work, and to study and solve specific problems; bring forward the comments and suggestions for the use of the assessment results and finish other matters assigned by the leading group.

The implementation process of target responsibility assessment from the perspective of sustainable development of L district in Xi'an can be divided into the several stages below.

## 2.2 The construction of target responsibility of evaluation indicator system from the perspective of sustainable development

The indicators of economic and social development and work target of each district department should be determined by the district committee and the district government considering the whole goal of the economic and social development and the annual target done by the municipal party committee and the city government combining with the actual situation of each department office and town<sup>[7][8]</sup>.

The procedures and measures of target determination: The grass-roots level should be reported to the higher authorities, and the targets should be determined by the higher authorities. The assessment index of the Department should correspond with the long-term goals and annual targets set by the municipal Party committee and the municipal government and the district government and the district government.<sup>[8]</sup>

District-level department goal: various departments in accordance with the annual work points made by the district party committee and the district government and the annual task assigned by the business department combining with their respective functions, the preliminary plan of the annual target and task put forward the goal. The department's functions should emphasize the key objective. The functions, objectives and tasks of the Department should be highlighted, and each target should be quantified, and there should be definite qualitative criteria for what is really not easily quantified.

The design of the Balanced Scorecard evaluation system based on the local government, presided over by the national Ministry of personnel can rely on the "Chinese government performance evaluation indicators system research" and domestic experts design adjustment. At the same time, it can do the appropriate adjustments and increase the requirement of sustainable development according to the core idea of the Balanced Scorecard. The target responsibility assessment index system under the visual threshold of sustainable development of all departments is shown in Table 1:

**Table 1 Target responsibility evaluation indicator system of L district from the perspective of sustainable development**

Target layer	Criterion layer	Index layer	Index layer	Indexes explain
Responsibility evaluation indicator system of L district in the visual of sustainable development	Management performance indicators of L district in the visual of sustainable development	Economic sustainable development Index	Per capita green GDP <sup>1</sup>	Total economy
			Above-scale industrial added value	Industrialization level
			The added value of the tertiary industry	Economic growth quality
			High-tech industrial production growth rate	Technology innovation ability
			Overall Labour productivity	Labor efficiency
Urban per capita disposable income growth	Residents living standards			

<sup>1</sup> Green GDP = traditional GDP - (production process resource depletion all + production process environment pollution all + resource recovery process resource depletion all + resource recovery process environment pollution all + pollution control process resource depletion all + pollution control process environment pollution all + final use resource depletion all + final use environment pollution all) + (resource recovery department new creation value all + environmental protection departments new creation value all)

Namely: green GDP = traditional GDP - resource environmental damage + environmental protection departments new create value

Target layer	Criterion layer	Index layer	Index layer	Indexes explain	
		The social sustainable development index	Rural residents' per capita disposable income growth	Peasant's living standard	
			Urbanization rate	Town construction level	
			The natural population growth rate	Population control ability	
			Town registration unemployment	Social stability	
			Social insurance coverage	Social security breadth	
			Gini coefficient	Income gap	
			Social security spending of GDP	Social security level	
		Ecological resources and sustainable development index	Major cases and accidents	Social security	
			Forest coverage	Environmental bearing capacity	
			Environmental protection investment of GDP	Environmental protection investment level	
			Solid waste comprehensive utilization	Environmental protection	
			Industrial waste water discharge success rate	The water environment management level	
			Yuan GDP energy consumption quantity	Energy consumption	
		Science and technology education sustainable development index	Cultivated land area per capita	Land carrying capacity	
			R&D input of GDP	Investment in science and technology level	
			Education input of GDP	Education investment level	
			The contribution rate of advance of science and technology	Technology level	
		Sustainable Development management cost Index of L district government	College degree or above take a place the percentage of the population	The development of the cause of education	
			The administrative expenses accounts for the proportion of fiscal expenditure	The operations of Government spending	
			Government agency personnel total wages	The government operating costs	
		Sustainable development internal management index of L district government	Social the scale of investment in fixed assets	Government dominant costs	
			Public satisfaction	The evaluation of public to Government	
			Leadership team construction	Performance expectations situation	
			Proportion of civil servants	Civil servants number	
			E-government maturity	E-government level	
				Corruption case incidence	Administration according to law

### 2.3 Clarify procedures and methods of assessment

The annual target responsibility examination adopts the method of combining regular assessment with regular assessment. Usually the assessment mainly adopts monthly reports, quarterly analysis reports, random checks and other methods; regular assessment is divided into six months assessment and year-end assessment.

Establish the main assessment indicators, monthly reports, quarterly analysis and notification system. The towns and relevant district level functional departments, at the end of the month, do the assessment report or write in the form of reports submitted to the assessment indicators of the progress of the task. At the end of each quarter, the district development and Planning Bureau, the District Bureau, Finance Bureau and relevant departments of the district towns will do the objectives and tasks

to complete the report of the District Assessment Office, and the District Assessment Office organized relevant departments to carry out the analysis of the objectives and tasks to complete, and the results will inform the region.

#### **2.4 Assessment results using**

The annual target responsibility area leading group should circulate a notice of the assessment results every year, praise the towns and district-level department which named as Excellent and good, and give rewards. (The reward amounts determined by the District leadership team of assessment)

The annual target responsibility examination result is an important basis for the inspection and evaluation of cadres by the Organization Department, and is linked with the individual annual assessment results of all the cadres and workers of the unit and the examination and appraisal of the bonus. The proportion of units outstanding civil servants within 20%, good units outstanding civil servants ratio at 15% or less, the proportion of qualified units outstanding civil servants within 13%, and poor units cancel outstanding civil eligibility when assess people who are outstanding. The individual annual appraisal bonuses range and order is determined by the district assessment leading group.

### **3 The problems in the course of implementation**

#### **3.1 The assessment of the subject is single and the representation of the participants is not enough**

China's government performance evaluation is mainly superior departments evaluation. The government performance evaluation in China is mainly about the evaluation of the higher authorities, although it can prompt the supervision and guidance of higher authority to the lower levels of government, it is not difficult to see that through careful analysis the government system is superior to subordinate assessment which will inevitably lead to government departments and members only pay attention to their superiors and their opinions, ignoring the social from all walks of life and the opinions of the masses. Although social evaluation and democratic assessment can make up the defects, but they have few scores.

#### **3.2 Lack systematic assessment methods**

Firstly, the source of the assessment information is impeded and the facts which we based on is insufficient. The target that is assessed usually does not pay attention to the work of the government performance assessment record and collect data. When he takes the assessment, he also does not pay attention to the overall arrangement and performance of the material. Thus, it is inevitable that assessment work has fuzzy evaluation. Because of the lack of the basis of assessment and evaluation, the examination and evaluation are usually based on the report by the target, self-examination and self-narration, the phenomenon of "doing well is better than saying well" is unavoidable. Serious problem is that they don't have strict and real assessment material, which also lead to plenty of space of deception. Secondly, the target setting is not specific. The problem, on the one hand, is due to the goals and the task which is set in the beginning is so general. On the other hand, the setting of evaluation system is vague. The survey found that most of the local evaluation results set for "excellent", "good", "general", which hinders the assessment staff to make a clear judgment and choice. They often only do the judgment and evaluation relying on the work of the general understanding and general impression, even on the work of object evaluation of the some partial work of the government. Therefore, the examination result is far from the work done by the government and the performance of the government staff, and it is not difficult for people to understand.

#### **3.3 The extreme imbalance of index, focus on economic development and pay less attention on social development**

The current target assessment of local government is an index system which mainly focuses on economic work and guarantees work. Economic development accounts for 30 of total score (total score of 85 points), while social development accounts for only 16 points. The setting of the goal evaluation which only emphasizes on "economic development" can not adapt to the demands of the development of the time. The public service government should bear the responsibility, in addition to the economic level to correct the "market failure", to provide public products and services, establish fair rules against

monopoly, ensure the orderly and effective market competition, solve the problem of external economic effect; it also should provide a safe, equal, democratic system environment in society level; it can also protect the legal rights, provide stable employment, obligation and social security, reduce the gap between rich and poor, fight against crimes, keep the balance between the environmental aspects and prevent environmental damage, and ensure social health and sustainable development.

### **3.4 The lack of long-term strategic goals makes it easy for governments at all levels to institutionalize their short-term behavior**

The direction of government performance evaluation is not correct, not the government performance evaluation as a positive measure to improve the government management level, but as a means of passive defense. When one aspect becomes a hot and difficult problem in society, we should try to correct it by means of major inspections, special investigations and large competitions. Because the examinational goals is just a annual index, and it is realized as the goal of the government in a year. The governments may feel difficult if they want to juggle work throughout the region coordinated development in both short-term and long-term.

## **4 Conclusions**

Taking the implementation of 3 years into consideration, we may softly draw a conclusion:

(1) In the setting of the index system, we should focus on four principles: paying attention to sustainable development in an all-round way. The index should reflect the representative index of the development of the city and the department. Secondly, we should highlight specific character. The index system should carry out classified examination, the items can be the same, but the scores should be different. Thirdly, attention should be paid to the long-term goal and office-term goal so as to ensure the continuity of the work.

(2) We should combine the evaluation results with the achievements of the leadership award and punishment, adjustment and leading cadre's promotion to achieve the praise and the punishment depending on the practical evidence and to give full play to the guidance and motivation of the assessment establishing the healthy mechanism of assessment.

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## Analysis of EU Countries' Youth Employment Policy Aimed at "NEET" and Its Enlightenment to China \*

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**Abstract** Traditionally, the policy of youth employment was usually focused on the youth work force in order to reduce the youth unemployment rate. Today, European Union(EU) countries expand the coverage of youth employment promotion, pay more attention to the policy fairness by designing youth employment policy based on the "NEET" group. This paper introduces EU youth employment policy aimed at "NEET" at first, and then analyzes the composition and characteristics of the policy, finally proposes the reference for the formulation of the youth employment policy in China.

**Key words** Neet group, European Union, Youth employment, employment policy

### 1 Introduction

The problem of youth unemployment all over the world has led to the increasing proportion of "NEET". The labor survey report of the EU Commission in 2011 showed that 51.2% of the "NEET" came from the unemployed. And the group had made a EU economic loss of 153 billion euros, equivalent to 1.2% of the overall EU GDP<sup>[1]</sup>. In addition, if we take the health costs, the crime costs and the tax losses of the NEET group into consideration, the actual costs will be higher. In China, the proportion of the "NEET" has been increasing gradually. It has evolved from a "family problem" into a "social problem", which poses a threat to social stability and harmony<sup>[2]</sup>. In view of the negative influence of the "NEET" group, the European Union and its member countries have already carried out the corresponding system design and implementation to promote the employment of the "NEET" group<sup>[3]</sup>. This paper intends to analyze the characteristics of EU youth employment policy based on the "NEET" group, and puts forward its reference for the policy design of employment promotion of the related groups in China.

### 2 The definition of "NEET" and the coverage of EU youth employment policy

#### 2.1 The definition of "NEET"

"NEET" is the shorter form of "young people not in employment, education or training", firstly appeared in the United Kingdom. The International Labor Organization defines it as the sum of unemployed youth and non-working youth who are 15-24 years old without receiving education or training. The statistical office of European Union adopts the ILO's (International Labour Organization) definition and refines it into 5 categories. (1) Regular unemployment. It includes the unemployed young people who actively seek jobs in the long-term and short-term; (2) Young people who are unable to enter the labor market because of the need to take care of their family members or their own illnesses; (3) Young people who break away from work, or not actively seek jobs or educational opportunities. They are likely to be antisocial and dangerous; (4) Job seekers who are waiting for opportunities and looking for work. They insist on finding jobs that match their qualifications and educational background; (5) Young people who want to rely on their parents. They travel everywhere, or are immersed in music, art, etc. without work<sup>[3]</sup>.

Chinese researchers define that "NEETs" are between 15-29 years old, with the ability to work, have left school. However, they don't actively search jobs or take part in the professional training. Moreover, they have to depend on their parents to get the main source of lives<sup>[4]</sup>. Compared with International Labor Organization and European Union, China's definition of "NEET" is wider on the age rang, but it is narrower on the coverage, only accounting for a part of young non-labor force. According to the aim of research, this paper adopts the definition of International Labor Organization

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and European Union on the “NEET”, and analyzes the characteristics of the European Union youth employment policy.

### 2.2 The coverage of EU youth employment policy based on the “NEET”

The coverage of traditional youth employment policy is young labor forces, including unemployed youth and employed youth. However, it is more likely for the group of youth to transform between non-labor and labor. Therefore, the neglect of the traditional employment policy to the youth non-labor force is apt to cause the waste of youth human resources. Compared with it, EU youth employment policy based on the “NEET” is more in line with the requirements of social development (as shown in Figure 1).

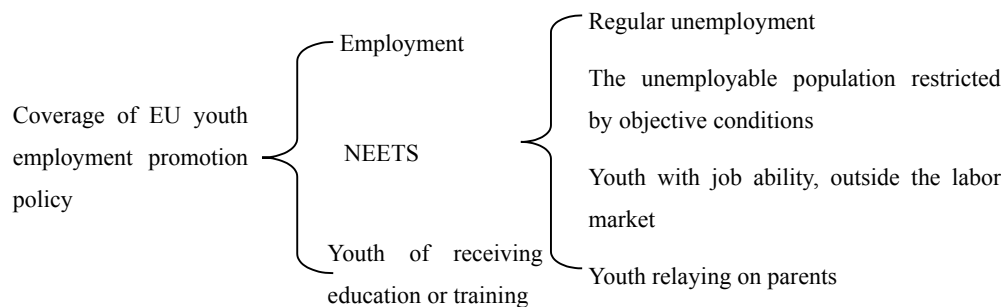


Figure 1 The coverage of EU youth employment policy

### 3 The characteristic analysis of EU youth employment policy based on the “NEET”

Compared with the traditional employment policy which mainly focuses on the youth labor market, EU youth employment policy has expanded its coverage. The key point of the paper is to analyze the characteristics of EU employment policy based on the “NEET”. It mainly consists of two systems (as shown in Figure 2). One is the employment promotion system, which is made up of three vertical modules that are preventive measures, solutions measures, and tracking measures to cover all the unemployed youth, and the key service object is the “NEET”. The other is the employment consolidation system, which is divided into two horizontal modules: policies & measures of active labor market and policies & measures of strengthening job security. The youth employment policy based on the “NEET” and designed by European Union has the following characteristics.

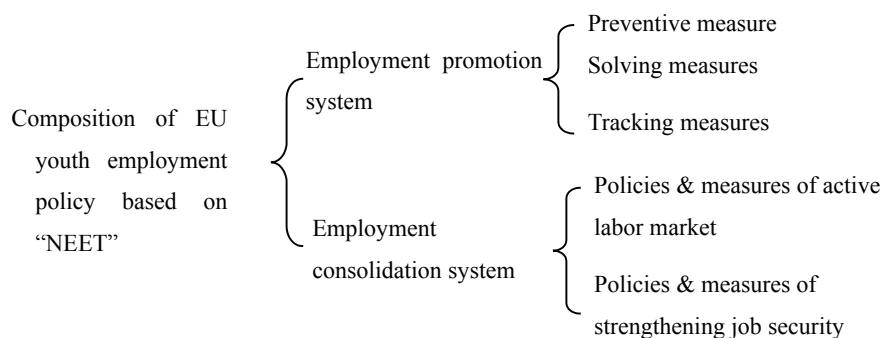


Figure 2 The composition of EU youth employment policy based on “NEET”

#### 3.1 Modularizing policy measures with the aim of targets

##### Designing the precautionary measures module for preventing youth from becoming “NEET”

Studies have shown that young people become part of the “NEET”, which are related to their

attitudes, individual characteristics and other factors[5]. There are great deals of probability that those young people who have stronger inertia and only rely on their parents to get economic source of their own lives would become “NEETs”. Taking schools as the carrier, the life cycle before 24 years old as the scale, the preventive measures of the EU employment promotion system mainly provide the corresponding material and spiritual help in different stages of individual growth, and cultivate the independent consciousness and ability so as to reduce the possibility of young people becoming “NEET”. For example, the measures of improving children’s growth and education, and enhancing children’s sense of independence<sup>[6]</sup>; the measures of helping those who are in trouble going to school, and helping young people to avoid being separated from school education untimely which will make them incompetent for job requirements finally<sup>[7]</sup>.

#### **Designing the solution modules for promoting the return of the “NEET” to the labor market**

According to the pessimistic labor hypothesis, the economic recession in a country makes it more possible for unemployed young people to become “NEETs”. So EU designed solution modules such as financial support mechanism, employment guidance and training, the targeted education and so on, in order to play the core role of the government to help unemployed youth find jobs as soon as possible<sup>[8]</sup>. On the one hand, the “NEETs” are generally lacking money to make living and improve the human capital, so it is important for them to get the financial support from the government. On the other hand, the “NEETs” are made up of the complex population, therefore it is reasonable to provide some flexible employment training and the targeted education for different types of young people. For example, aiming at those young people who are willing to become “NEETs”, the European Union countries generally take the measures by combining education guidance and punitive methods to increase their willingness to work<sup>[3]</sup>.

#### **Designing the tracking measure module for realizing the steady return of the “NEET” to the labor force**

Tracking measure module is the self-discovery and self-improvement mechanism of the European Union employment policy system based on the “NEET”. On the one hand, because of the complexity of the covered “NEET”, and the instability in the labor market, it is necessary to track their dynamic states when they return to the labor market, and to grasp the degree of completion of the solution targets, in order to better ensure the “NEETs” to return to the labor market steadily. On the other hand, tracing the youth population except the “NEET” group, can provide the preventive measures for the “dangerous” young people who may become the “NEET” youth. Through tracing and classifying the youth population, it can provide data support for policy formulation and implementation, to increase the effectiveness of the youth employment.

#### **Designing the active labor market policy module and the job security module for stabilizing the youth employment**

Because the “NEET” is usually characterized by low skills and the weak ability to meet the market demand, it is usually at a disadvantage in the completely competitive labor market: low wages and poor job stability. These factors make it easier for them to quit the labor market. EU countries carry out a series of policies and measures such as reducing or exempting the tax of employers and companies to lower the cost of hiring young people, providing vocational training through the cooperation of the governments and enterprises to improve the comprehensive professional quality of young people, setting minimum wage standards and other policy measures to realize the stable employment of young people including the “NEET” group<sup>[10]</sup>.

In summary, the youth employment policy system of EU countries based on the “NEET” consists of the employment consolidation system and the employment promotion system, which provides a good macro and micro labor market environment for young people to get jobs and enhance the employment stability.

### **3.2 Combining the qualification and supervision of the youth, paying attention to process control**

Youth groups, especially the “NEET” group, will performance more moral hazard when they enjoy the material assistance by the employment policy, which will lead to the waste of state finance and human resources. Therefore, while providing assistance for the young people, the European Union countries will monitor them and make them enter the labor market as soon as possible. For example,

Belgium government regulates that if the graduates under 25 years old are out of work after one to four months' work, they must take part in the courses of employment guidance. If not, they won't get the unemployment premium subsidies and the job-search subsidies<sup>[11]</sup>. It is clear that Belgium government reduces the possibility of unemployed graduates becoming "NEET" through the compulsory measures and the cancel of financial assistance.

### **3.3 Diversifying financing channels with the government as the main body**

Employment promotion is an important component of the unemployment insurance system. Therefore, the funds usually come from unemployment insurance funds. According to the practice of unemployment insurance system in various countries, quite a number of unemployment insurance funds come from governments, employers and employees. However, in view of the wide range of EU youth employment policy for "NEET", the implementation object is usually weak in payment capacity, even has no payment capacity. So in the implementation of policy, the government is obliged to become the main investors. In 2013, for instance, the Italian Government provided 168 million euros to set up youth employment funds based on "NEET"<sup>[12]</sup>. But in 2008, the economic crisis made EU "NEET" rate rise from 9.85% in 2008 to 12.75% in 2013. Under the condition that the fund demand has increased dramatically, it is obviously that diversification of sources of funds is an effective way to solve the financial burden of the government. Belgium, for example, makes full use of social service organizations' donations to increase and promote the youth employment fund to help the "NEET" group<sup>[13]</sup>. It can be seen that the government is the main body of source of fund for the EU employment policy based on "NEET", in the meanwhile, it strives for multi donations. This can avoid the bad influence in the policy implementation when the government's financial fund is insufficient, and also decrease the possibility of welfare crisis due to the government's investing too much on the "NEET".

## **4 The enlightenment of EU youth employment policy aimed at "NEET" for China**

The social problems brought about by "NEET" in China are becoming increasingly prominent, and it is very important to design and implement effective policies. The EU youth employment policy aimed at "NEET" has good pertinence and synergy, and it has certain reference significance to China.

### **4.1 Expanding the coverage of youth employment promotion policy**

The EU countries expand the statistical caliber of unemployed youth, perfect the concept of "NEET" to cover all of the young people in the system of youth employment policies. By contrast, the scope of China's youth employment policy has expanded, but it is mainly aimed at unemployed young people and college students. Other young non-labor force people, such as the unemployed who are out of society, waiting for chances, and "NEETs", are generally excluded from the coverage of the youth employment policies, which results in the waste of human resources. So Chinese government should learn from the practice of the European Union countries, expand the coverage of youth employment policy to all young people, including the youth employment, the "NEET" and those who are receiving education or vocational skills training.

### **4.2 Combining universality with particularity in policy making**

The youth employment policy of the European Union countries has both the prevention, solution and tracking measures for the "NEET", as well as the measures of "one to one" instruction and education for the individual particularity of the NEET group. Implementing the combination of universalization and differentiation, and the cooperativeness of measures, conforms to the basic principles of policy formulation. Chinese government is improving the universality in the implementation of the youth employment policy. But with the coverage expansion of youth employment policy, the policy enforcement groups will be more and more complex. As a result, it is necessary that policy implementation should be targeted in order to achieve good results. Therefore, China should learn from the practice of the European Union countries to design flexible employment promotion policies and measures according to the characteristics of different groups of young people, so as to enhance the adaptability of policies.

### **4.3 Systematicness and cooperativeness in policy measures**

The employment policies and measures designed by the European Union countries for the "NEET" youth are systematic and cooperative. At present, China's youth employment policies are

limited to college students, and China has not yet established a systematic and synergistic policy system. Therefore, on the one hand, while Chinese government tries its best to expand the coverage of youth employment policies, it also pays attention to establishing a systematic policy system, to make. Through the effective convergence between policies and measures, Chinese government will achieve increasing the systematization of the policy. On the other hand, the Chinese government should make a dynamic policy adjustment according to the change of the economic environment and employment situations, to promote the coordination of policies and measures. Finally, the formulation and implementation of China's youth employment policy will achieve the unification of the systematicness and the synergy.

#### **4.4 Qualification check scaling and supervision dynamization**

European Union countries carry out employment audit and supervision in parallel aimed at youth group, so as to achieve the moral hazard minimization. China's youth qualification check, mostly takes place during and after the event, and the regulatory system is not standardized, which will cause the serious "free rider" phenomenon of youth. In this regard, on the one hand, Chinese government should establish the scaling evaluation system from multi-angles, such as the characteristics of youth, family situation, the degree of job searching and efforts, and add the corresponding qualification check to prevent youth from unemployment. On the other hand, the young people will be dynamically supervised on the basis of the timeline according to the scaling evaluation system. In this way, not only can it reduce the moral risk of young groups and save money, but also it can provide the data support for improving the policy system.

#### **4.5 Fund raising diversification**

EU countries raise funds through various social organizations to alleviate the financial pressure of the government. At present, the funds for college students and unemployed youth in China mainly come from the financial allocations of governments at all levels, and the diversified fund-raising methods have not yet been formed. Combining the national conditions, Chinese government should improve the youth employment fund construction, and social organizations should play a part in donation. For example, the establishment of College Students' Entrepreneurship Fund and Employment Fund can increase the youth employment funds.

### **5 Conclusions**

In the face of the decrease of labor supply and the increase of the "NEET" population proportion, the EU youth employment promotion policies and measures, especially for the "NEET" group returning to the labor market, have obviously positive effects. With the development of China's economy and the impact of population control policies, the amount of labor supply has begun to show a downward trend since 2012. In this context, to promote the NTTE's return to the labour market has great significance to China's economic development and social stability. Through drawing on the experience of the policies and measures of youth employment promotion based on the "NEET" group in the EU countries, Chinese government should expand the coverage of the employment promotion policies and measures. Moreover, the design of policies and measures should pay more attention to the combination of the universality and particularity, the systematicness and cooperativeness so as to achieve the goals of the employment stimulation and employment promotion to the youth, especially the "NEET" group. In addition, in order to avoid the moral hazard of the youth, especially the "NEET" group, the process management should be strengthened through qualification check scaling and supervision dynamization in the implementation of the employment promotion policy. At the same time, there should be multi-channels to get financial support to maintain the policy operation with the sufficient capital bases.

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## Local Government Regional Cooperation Transformation and Innovation in the Background of the “Belt and Road” Strategy

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**Abstract** The “Belt and Road” strategy is the significant platform for advancing the regional economic integration and realizing mutual benefit. The Transformation and Innovation of local government regional collaboration governance along the belt and road is an important driving force for the implementation of the “Belt and Road” strategy. Based on Institutional collective action(ICA), this article will be analyzed local government regional collaboration systematically and integrated the strategic ideas of the “Belt And Road” into local government regional cooperation and pointed out that the “Belt and Road” strategy provides new guidance, new impetus and new ideas for regional cooperation. By connecting the local governments with the relevant functions of “connectivity”, we will promote the transformation and innovation of regional cooperation in terms of content and timing.

**Key words** The Belt and Road, Local government, regional cooperation, Transformation, Innovation

### 1 Introduction

In 2013, during Chairman Xi visit Central Asian and Southeast Asian countries, he proposed the strategic conception of “The Silk Road Economic Belt” and “The 21st Century Maritime Silk Road”, collectively known as the “Belt and Road” strategy, get the response of many countries. In May 2017, the “Belt and Road Forum for International Cooperation” was held in Beijing, the leaders of each county attended the meeting. The “Belt and Road” strategy was a long-term national strategy that conformed to the current world economic, political and social trends .It Provides a new direction for the development of local government regional cooperation and governance in China, and also promotes the innovation of regional cooperation governance in content and timing. This is a problem that we should solve how to promote and realize effective convergence of cross - regional cooperation and the “Belt and Road” in two “Connectivity”, and how to broaden the cooperation and perspective of local government in the “Belt and Road”.

### 2 The “Belt and Road” drives local government regional cooperation governance

With the gradual acceleration of the pace of globalization, the government has been in a very complex social environment and organizational environment, coupled with the growing regional problems, as well as the accumulation of local government public affairs, “ the difficulty of regional development of endogenous and exogenous Increasing” (Suo Liming, 2014<sup>[1]</sup>), a single government administrative units seem powerless, so achieve sustainable regional governance mechanism is the inevitable requirement of China’s regional development. Local government regional collaboration governance is the change of the governance form of the administrative district administration(Yang Ai-ping and Chen Rui-lian<sup>[2]</sup>). From the practical effect, the cooperation of the local government region has played a important role in realizing regional coordinated development, narrowing the regional gap and building a service-oriented government.

Based on the hypothesis of motives on local government behavior, when local governments is “economic people”, it tends to pursue the maximization of economic interests, and when local government is “politicians”, it tends to pursue “political championships” (Zhou Lian, 2008<sup>[3]</sup>), which makes cooperative governance appear Multiple dilemmas. There are some difficult problems in defined the boundary and the Strength of interlocal collaboration and means of Establishing cooperation. These problems affecting the enthusiasm and creativity of interlocal collaboration ,and disturbing the establishment of local government network cooperation. At present, China implement “Belt and Road” strategy, make a great significance to promote the transformation and innovation of local government regional cooperation.

First, the “Belt and Road” strategy provides a new direction for the local government regional collaboration of eastern and central regions.

During the 30 years’ reform and opening-up, China’s economy has a rapid development. But as a vast multi-ethnic country, the gap of the eastern, central and western regions is gradually increasing (Ren Wei-de, 2016<sup>[4]</sup>). The eastern coastal areas have convenient transportation and opening up earlier, the development speed and development level was clearly ahead of the central and western regions, and The imbalance between these regions has seriously affected China’s sustainable development. On this occasion, the Communist Party of China put forward the “Belt and Road” strategy, which provided a new orientation for the cross-regional cooperation of local governments in the eastern, central and western regions.

The “Belt and Road” strategy to adapt the needs of China’s economic and social development under new normal ,which adhering to the principle of achieving shared growth through discussion and collaboration ,implementing a balanced and coordinated development concept and create a new local government regional collaboration mode. The government has drafted and published the vision and actions on jointly Building Silk Road Economic Belt and 21st-century Maritime silk Road to promote the implementation of the initiation, instill promote the “Belt and Road” construction, China will give full play to the regional comparative advantages, More active and open strategy to strengthen the East-West interactive cooperation, comprehensively enhance the open economy level. Vision divided China into some blocks, each block to play its own advantages, coordination and cooperation, to achieve a common goal of opening up. Northwest regions and northeast regions as the window open to the outside, should lead the region development. Shanxi, Gansu, Ningxia, Qinghai, Lanzhou, Xi’ning, Heilongjiang, Jilin, Liaoning together to build the western Silk Road core area. At southwest regions, Guangxi, Yunnan jointly promotes the national border trade and tourism cooperation. Inland areas “rely on the middle reaches of the Yangtze River city group, Chengdu city group, the Central Plains urban group, Hubaoe city group, Hachang city group and other key areas to promote regional interaction and industrial agglomeration development, deepening and industrial cooperation along the country”.

The “Belt and Road” strategy runs through many areas of the Middle East and western regions, and focuses on the coordinated development of these regions, which makes the eastern industry to move to the central and western regions faster, and local governments can form cross-regional cooperation. From the perspective of cooperation mechanism, voluntary equality and mutual benefit are the prerequisites for local government cooperation. The construction of “the Silk Road Economic Belt” has created a platform for equal cooperation for local governments, and also provides a link to the eastern, western and western regions, so that the local government to ignore the ideological and cultural differences and a series of elements of the differences in the pursuit of regional development, and in the principle of seeking common ground, participate equally to seek development (Li Ran-ran, 2016<sup>[5]</sup>). In addition, the region has the same goal of opening up or facing the same foreign partners, thus increases the opportunity to reach cooperation between each other, which for the eastern coastal areas and the central and western regions create a new guide in the new historical condition.

Second, the “Belt and Road” strategy provides a new impetus for the local government to establish cooperative relations.

Cross-regional cooperation is an important trend in China’s regional development. In recent years, with the development of China’s economic regionalization and economic integration, the level of cross-regional cooperation has been continuously improved and the level of cooperation has been gradually deepened. Cross-regional cooperation has become a solution to China’s regional development imbalance, governance of environmental issues, deal with public affairs.

After the “Belt and Road” strategy issued, the regional governments responded positively to the call of the central government, published appropriate policies for the region. Chengdu, for example, the government stresses “put the ‘Belt and Road’ building and regional development and opening up together,” “to speed up interoperability, customs clearance and international logistics channel construction”, therefore, Chengdu, Chongqing, Xi’an and Kunming reached a cooperation platform to build the “Cheng-Yu-Xi-Kun (Diamonds) Economic Circle” ,to build an upgraded version of the



western development, and build a strategic platform for the coordinated development of the national regional economy and open a new highland for foreign development. To achieve the “Belt and Road” strategy and the Yangtze River economic zone strategic interoperability, the formation of close economic circle, play a regional advantage, to promote better development in the west. In this context, the regional government leaders of the “Cheng-Yu-Xi-Kun (Diamonds) Economic Circle” also showed a positive attitude. During the period from 2015 to 2016, leaders of Yunnan Province, Guizhou Province and Chongqing Yuzhong District were held The Investment Promotion Seminar in Chengdu clearly stated that active support for regional cooperation had provided new impetus for promoting regional cooperation.

The “Belt and Road” strategy is a long-term strategy and a great new concept of regional cooperation. The central government has formulated the strategy of “The Silk Road Economic Belt” and “The 21st Century Maritime Silk Road”, and stand at the commanding high point for the regional cooperation to lead the direction of “policy communication, equipment Unicom, trade flow, Common people” as five links ideas. Therefore, this strategy recognizes and supports regional cooperation, to a certain extent, ease the risk of cross-regional cooperation, so as to promote the construction of “vertical embedded governance mechanism” (Xing Hua, 2014<sup>[6]</sup>). At the same time, it is easier to reach a consensus across regional cooperation, and jointly promote the development of the region to address the existing problems between the regions.

Finally, the “Belt and Road” strategy provides new ideas for local government cross-regional cooperation.

With the development of cross-regional cooperation governance, the trend of local government regional collaboration has been deepening and the direction of cooperation has become more and more extensive. From economic cooperation to ecological governance and innovation development, economic development, resource integration and service-oriented government construct the main driving force of regional governance (Wang Yi, 2014<sup>[7]</sup>). The “Belt and Road” strategy for the local government’s cross-regional cooperation provides a cooperative thinking in regional economic cooperation firstly, on this basis, the local government signed cooperation agreements, formulate regional cooperation planning. so as to broaden the channels and direction of cooperation continuously.

Chengdu and Xi’an, for example, belong to the southwest and northwest of the center in city, with similar geography, close relatives, similar market conditions and unique experience. And they have a common goal of building national central city. In terms of industrial collaboration and economic cooperation, the two sides integrate into the “Belt and Road” strategy actively and work together to “go out”, implement economic cooperation and infrastructure construction, and develop the Western tourism together simultaneously. In addition, in February 2015, Chengdu, Wuhan, Luzhou signed the “Port Logistics Strategic Cooperation Framework Agreement” in Chengdu Tianfu Metro Conference Center, focus on promoting the port planning cooperation, construction cooperation, channel cooperation and other aspects of full cooperation, and sign an agreement as an opportunity, integrate into “Belt and Road” strategy and the Yangtze River economic zone construction actively, support and encourage the two cities and surrounding enterprises to use the traffic between EU and China to carry out international trade and international logistics business. Promoting the industrial structure adjustment in Chengdu, Wuhan and Luzhou, establishing a pragmatic and efficient work synergy mechanism, mining and discovery the cooperation points and complementary points, broaden the areas and space for collaborative development.

The principle of achieving shared growth through discussion and collaboration what is the “Belt and Road” strategy insisted connects with “the awareness of regional cooperation”, “the awareness of regional win-win”, “the awareness of Regional Service” which derived from the concept of regional cooperation (Fang Lei, 2014<sup>[8]</sup>), that links up Cross - regional cooperation and the Connectivity between regions. With the “five-way” idea of “Belt and Road” strategy to meet the “from point to face, from line to face, promote regional cooperation” approach that President stressed, to promote the direction of regional government cross-regional cooperation gradually.

### **3 The current situation and dilemma of local government regional collaboration governance in China**

Local government regional collaboration governance as a collective governance action of multi-local government, cross-administrative areas and multi-role, need to customer service “institutional collective action difficulties (ICA)”. In the process of local government regional collaboration governance, the local government based on the common interests applies formal or informal institutional arrangements to integrate resources, work together to reaches a cooperation agreement, in the mutual benefit of premise to promote economic and social development. In recent years, the trend of local government regional collaboration has become clear, and the Beijing-Tianjin-Hebei urban agglomeration, Chengdu plain economic zone and Chang-Zhu-Tan urban agglomeration have become the main modes of regional development in China (Suo Li-ming, Yang Feng and Liu Jun, 2013<sup>[9]</sup>), the local government regional collaboration of eastern coastal areas, central and western regions is also being strengthened. At the same time, interlocal collaboration faces many difficulties, has high transaction costs, so need for the central government to provide opportunities to achieve local government regional collaboration governance.

#### **3.1 Current situation of local government regional collaboration governance**

At present, regional cooperation governance has been the basic consensus of academia and related fields as the general direction of handling local intergovernmental issues. To this end, the local government regional collaboration governance bound to experience the stage that from cooperation with the willingness to practice, the current situation can be summarized as the following three aspects:

(1) local government regional collaboration governance presents a multi-centric governance structure. Regional cooperation mainly for the cooperation between local governments, but the local government should not be the main body of monopoly cooperation, government-led. It is the main model of local government regional collaboration governance that non-profit organizations, enterprises and other social organizations cooperative governance For example, environmental groups play an important role in cross-regional environmental governance cooperation.

(2) Horizontal collaboration among local governments is the main form of local government regional collaboration governance. Regional cooperation includes vertical collaboration and horizontal collaboration. The establishment of interregional partnership can help to optimize the allocation of resources between administrative divisions, reduce the vicious competition at the horizontal level, and form a common commitment mechanism, which has a significant effect on the governance of regional problems. the form of Interregional horizontal cooperation mainly in convene regional joint meeting regional, conclude administrative agreements and other forms. Local government horizontal collaboration is not only government-level cooperation, but also between the government functions of the collaboration.

(3) Local government regional collaboration governance is facing administrative system change. In the local government regional collaboration governance, it is necessary to change the current administrative system to meet the requirements of regional integration, when the existing administrative system does not meet the needs of regional cooperation. Institutional economics argues that there are two types of institutional change: induced institutional change and forced institutional change. At present, under the guidance of the Chinese Communist Party and the government, compulsory change is the main model of interlocal collaboration governance.

#### **3.2 Current dilemma of local government regional collaboration governance**

Strengthening the local government regional collaboration governance is the basic trend of governance reform in the world. Although the local government regional collaboration governance has achieved some success, but on the whole, cross-regional cooperation is still more dependent on horizontal cooperation, weak social organization, lack of administrative system supply, regional cooperation into the path Dependent dilemma. Mainly in:

(1) Lacking coordination and cooperation organizations of local government regional collaboration governance. “An organization is generally seen as a decision-making unit, and the control of resources is carried out by the organization” W.W.Latan said (1996<sup>[10]</sup>). With the emergence of cross-regional issues, Local governments are paying more and more attention to cross-regional

governance, and striving to improve their governance capacity and have established close ties with many nonprofit organizations and private organizations. But so far, Lack of coordination to ensure the smooth development of cooperative governance between local governments and cooperative organizations.

First, At present, the local government is generally used in the form of meetings in local government regional collaboration governance. And through the meeting to resolve a problem in a particular area, the results of the consultations are guaranteed by a consensus agreement or a consensus reached by the leaders. Local governments have the nature of economic people, when it comes to substantive interests, it is difficult to reach a unified opinion because of both sides or parties have different opinion.

Second, the cooperative organization lacks information sharing mechanism. According to the economist's point of view, how much information on the amount of information on behalf of the number of resources control, so the more information on the possession of the more resources to get more benefits. Therefore, in the process of local government regional collaboration governance, the local government to master the more information in local government regional collaboration governance has a greater initiative, so as to strive more relevant interests for their own. The cooperative organization lacks information sharing mechanism in cooperation, so the information can't be timely communication, prone to "prisoner's dilemma", leading to a crisis of confidence between each other, co-governance can't proceed smoothly.

(2) Cross-regional cooperation depends on horizontal collaboration, vertical collaboration lacking, it is difficult to solve complex issues of local government regional collaboration governance.

Some scholars pointed out that "horizontal cooperation between local governments based on economic cooperation that is not only conducive to the economic development of local regions, but also to alleviate the imbalance of regional economic development, so as to promote the development of the whole national economy. Therefore, the development of local government cooperation is in line with China's social and economic development trend (Lin Shang-li, 1998<sup>[11]</sup>)". According to the above analysis, horizontal cooperation is the main mode of cooperation in cross-regional cooperation governance. But the local government cross-regional cooperation will face ICA problems, resulting in a lot of transaction costs. Cooperation parties due to the geographical barrier, when need partners to solve cross-regional issues and achieve cooperation goals jointly, it will "free rider" phenomenon, in which case if the lack of vertical cooperation mechanism or third-party mechanism Supervision and monitoring, the formation of cross-regional cooperation may be destroyed or even collapse.

Therefore, when the horizontal mechanism is facing difficulties, in order to alleviate the risk of regional cooperation, it will need for central government intervention. However, China's vertical cooperation is also facing the plight of intervention lacking.

In terms of policies and regulations, for cross-regional cooperation, China has not formed a standardized and legalized regulatory documents, the central government has not set up a special cross-regional governance coordination management. The Outline of the National Land Master Plan and the Urban Planning Law of the People's Republic of China in 1980 did not specify the horizontal cooperation between local governments. In some areas, even if measures are provided for cross-regional cooperation, there are no operational recommendations, such as Article 10 of the Water Pollution Control Act, which requires the establishment of interregional bodies to combat water pollution, but this is only principle and not yet operational. In this case, the local government in the process of cross-regional cooperation, or will form a coalition, the collective boycott of the central government's policy, or because the lack of unified command can't achieve the desired results of cooperation. At the same time, the central government holds a large number of administrative resources and social resources which is a prerequisite for local government cross-regional cooperation, it is difficult to achieve the desired goal if the central government does not participate in these institutional resources to regional cooperation and local government only rely on horizontal collaboration.

(3) The local government regional collaboration governance appearing path dependence, the current local government system is facing difficulties.

With the gradual formation of regional integration, a large number of cross-regional public problems have emerged, such as cross-regional environmental governance issues, cross-regional crime problems, which will involve the common interests of different regions, but also across the local government administrative boundary. When the local government governs public affairs, it will not only face the risk of “system alienation”, but also the lack of institutional supervision obstacles.

“In China, the 25-year reform is carried out along the path of decentralization, due to this reform is an administrative decentralization, local government interests more and more prominent position, the interests of the increasingly strong (Qi Nai-kang, 2006[12])”. Therefore, the existing political system allows the government to look into the administrative region, To achieve the economic interests of the region and environmental goals as economic development policy and environmental governance policy standards. Government only considers the interests of the district. Local governments will have more or less local protectionist tendencies, such as preventing the region’s scarce factors of production and interests outflow, excluding foreign goods in the local sales. At the same time, the disorderly competition and serious local protectionism of the local government can easily make open cooperation and exchange activities into vicious competition.

Since the implementation of the tax system in China, the GDP and fiscal revenue has become the standard of local officials’ performance appraisal. Such institutional standards stimulate the enthusiasm of local officials to a certain extent, has a significant role in promoting the development of local economy. But there are some limitations, local officials only concerned about political promotion and political interests, only focus on economic quantity and Economic growth rate of performance appraisal system, “led to the interests of the administrative, group, monopoly of resources and short-term behavior(Duan Zhi-qiang, 2006<sup>[13]</sup>)” issues, seriously hindered the cross-regional cooperation in the settlement of public problems.

#### **4 The path choice of local government regional collaboration governance, under the “Belt and Road” strategy**

The “Belt and Road” strategy is connectivity strategy (Peng Gang and Ren Yi-jia, 2015<sup>[14]</sup>), that is, China and the outside world connectivity, as well as various regions connectivity, especially in the central and western regions of the connectivity. Under the new historical conditions, the promotion of local government regional collaboration governance should be combined with the promotion of the “Belt and Road” strategy, closely around the connectivity strategy, strengthen the local government regional collaboration governance.

##### **4.1 The choice of cross-regional governance model: Establish cross-administrative division of coordination and cooperation organizations and mechanisms.**

The achievement of interlocal collaboration governance must have some organization carrier that implement and coordinate specific cooperation matters. According to the practice and rules of regional cooperation at home and abroad, the member cooperation at a certain region must establish a communication and coordination organization that can reflect the wishes of the members and obtain the approval of the members. Only by establishing such a coordinated management of the administrative divisions and regional interest institutions, can be make a fair decision to disputes and conflicts of regional interests, to maintain the balance of its cooperative governance.

Mendel argues that “inter-organizational networks are implemented in an interdependent organization rather than within a single organization; efforts to develop, maintain and redesign inter-organizational networks often also contribute to successful policy enforcement (Mandell, 1998<sup>[15]</sup>).” From the basic point of cross-regional cooperation governance, to achieve the desired cooperation goal, local governments must break through the rigid design of administrative division, establish a cooperative organization that is detached from regional interests, to achieve the effective integration of the entire regional resources.

To this end, through a specific system design, the parties agreed to jointly transfer part of the power to establish a consultative body—cross-regional management committee that without changing the original administrative divisions. Or on the basis of leader consultation set up a task force specifically for a governance issue, such as environmental problems, air pollution problems, economic

and trade issues, and so on. For example, the Pan-Pearl River Delta region “9+2 government framework agreement”, based on the leaders meeting, established a cooperative coordination mechanism, as well as the Mainland 9 provinces and Hong Kong and Macao Special Administrative Region of the person in charge of the meeting system. At the same time, in order to further promote cross-regional cooperation and solve cross-regional environmental problems, the Pan-Pearl River Delta parties have jointly developed the “Pan-Pearl River Delta regional environmental protection cooperation special plan (2005-2010)”, and Under the guidance of Hong Kong and Macao governments, Hong Kong Environmental Protection Department and the Guangdong Provincial Environmental Protection Bureau jointly set up a task force responsible for the Pan-Pearl River Delta region’s environmental monitoring, and strive to achieve cross-regional environmental governance effectiveness.

#### **4.2 Establishing governance mechanism that horizontal collaboration-based and vertical collaboration “embedded”**

Legal and administrative order is the main form of formal authority and the main means of restraining local government behavior. In the process of regional governance, it can’t rely entirely on the longitudinal mandatory requirements, but appropriate embedded in the central government administrative order, give guidance to problems that difficult to solve and develop appropriate policies to support. In the case of air pollution control in Beijing, for example, during the APEC, the central government required the local government to strictly follow the relevant pollution control standards through administrative means and administrative orders. At the same time, Beijing and the surrounding city Tianjin, Hebei, Shanxi and other provinces to develop a common program of pollution prevention, set up a special joint agency, to carry out a series of joint governance activities, including joint law enforcement, three stops action, pollution abatement and so on. So the air quality up to standard every day during the APEC, Beijing air quality reached the best level since the Olympic Games.

The principle of achieving shared growth through discussion and collaboration what is the “Belt and Road” strategy insisted pointed out the direction from the national level to the local government’s cross-regional cooperation, and provided new ideas for unbalanced development. According to this, local government can be based on the “Belt and Road” strategy “Remodeling Horizontal Relations among Local Governments (Zhang Jin-gen, 2013<sup>[16]</sup>)” Through sign intergovernmental agreements and memoranda and establish local government regular exchange mechanism and other horizontal organizations to solve the common problem faced (Ye Bi-feng, etc, 2010<sup>[17]</sup>).

#### **4.3 Speeding up the reform of the administrative system, building effective local in tergovernmental cooperation mechanism**

In China, due to lack of cross-regional unified standards of cooperation and principles, So the local government will consider the local economic interests before measure the cost of cooperation. But the regional economic situation, political situation, cultural customs, technology development and other aspects are not same, if lacking of a unified evaluation criteria and incentive system, it is easy to produce the above vicious competition, local protectionism and the spread of political championships. Therefore, in the process of cross-regional cooperation governance, there must be a corresponding system guarantee.

First, establishing incentive mechanism to strengthen the local government’s willing of cooperate. Through establishing a set of cross-domain cooperation officials assessment standards, check the enthusiasm of officials to start cooperation, to break the political championships and vicious competition in cross-domain governance process, to achieve cross-domain governance local government cooperation normalization.

In addition, improving the information exchange and sharing mechanism of local government cooperation, establishing information database of local government cooperation and exchange. The development of modern technology has spawned the widespread use of information database, establish a database of local governments that can share information equally, real-time upload different areas of the situation, such as the region’s natural resources, cultural exchanges, industrial distribution, carry out networking work within the region, establish safe and convenient information channel. This allows the local government to understand the development of other regions, according to local conditions to

cooperate. At the same time, the region of need cooperation but unbalanced development also must practice information sharing, break the local protectionist barriers, increase the common governance of eastern central and western regions, to promote the pace of regional governance with connectivity.

## 5 Conclusions

The “Belt and Road” strategy put forward and implemented by the current countries has promoted local government regional collaboration governance from the time, orientation and content which plays an important role to narrow the regional cooperation gap between the eastern and western regions and to solve the problem of the path dependence of the administrative system in regional cooperation and to achieve regional collaboration. It is essential that promoted and realized the combination of cross-regional cooperation governance and “Belt and Road” strategy. There are two conclusions:

1. Background of the “Belt and Road” strategy, the local government cooperation exists transaction costs and cooperation risks, and it can reduce transaction costs, enhance cooperation trust, reduce the risk of cooperation, form cooperative networks and establish deeper level of cooperation through the establishment of cross-administrative . At the same time, the relevant policies formulated by the state also provide a platform and opportunity for local government regional cooperation. In this case, the local government through continuous cooperation platform, continue to reduce transaction costs and risks, promote local government regional cooperation and innovation.

2. Building a healthy central and local relations, playing the role of central planning, coordination, coordination and control, providing policy support and guidance for the poor areas with the “Belt and Road” policy to benefit along the region, promoting local development through regional cooperation.

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## From the Headline to the Siege Dilemma: Some Analysis on Public and Private Partnership

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**Abstract** With the emergence of a new normal in China's economic development, the public and private partnership (hereinafter referred to as PPP), which is treated as the model of promoting economic and social development for decades in Western developed countries, attracts much attention increasingly from both the government and the public. The recent progress shows that PPP, as the headline, has been widely famed by improving the public supply of goods and services. In this context, most of related studies lay emphasis on the basic concepts, risk prevention, benefit allocation and so on. Unfortunately less researchers put stress on the practical issues, especially on the siege dilemma due to various reasons among key partners, which is neither well analyzed nor solved. This paper, with the aspect of the partners' interest difference, argues that on the basis of clarifying the interest boundaries between the public and the private capitals, the government should not only improve the mechanism and system mainly on the market access, risk sharing and investment return, but tries to enforce the supervision and to build the channels of comprehensive coordination and dispute settlement. It's hopefully regarded as an idea to crack down the siege dilemma and to maintain the win-win and sustainable development.

**Key words** Public and private partnership, Headline, Siege dilemma, Interest difference, Mechanism

### 1 Introduction

With the new normal of China's economic development for a comparatively long term, the growth of gross domestic product (GDP) will be maintained in a stable range, which leads to the termination of soaring public revenue. On the contrary, the contradiction between the increasing demand for public goods represented by public facilities and the constrained public supply capacity is being intensified, as the processes of China's new urbanization, population aging and the equalization of basic public services make rapid progress, which is truly witnessed by the rigid demand in public careers fixed on education, medical and health, retirement, environment in recent years. This issue has been fully exposed by the imbalance of public revenue and expenditure, which is expected not only to cause the insufficient supply of public goods and services, but to hinder the sustainable development of China's economy and society. In this view, the public and private partnership (also called the Government and social capital cooperation), known as a kind of institutions which is utilized so widely in western developed countries for many years to promote public supplies effectively, has become a more realistic choice. In some sense, such kind of partnership would be given a hand to "make government work better and cost less" (Ronald C. Moe, 1994<sup>[1]</sup>).

The central Government has enacted a series of policies for expanding the cooperation between the official and the social capitals, since the 3rd session of the 18th congress of the Communist Party of China (CPC) made a political decision that the social capital could be permitted to participate in the investment and operation of urban infrastructure by franchise. Those policies related with the model of PPP are not only specific in content, but feasible for implementation, one of which is the Notice of the operation guidelines (trial) for the government and social capital Cooperation issued by the Ministry of Finance, illustrating in detail the project identification, preparation, procurement, execution, handover and other aspects. For the sake of realizing the Central policies, local governments at different levels have made relevant arrangements and have collected a number of projects for the application of PPP, which is being laid a solid foundation. It's no doubt that the public and private partnership is becoming the headline around the country. However, the recent data of PPP projects released by the Ministry of Finance shows that, there are only one hundred and five projects implemented in fact by June 30, 2016,



accounting for the rate of forty eight point four percent within two hundred and thirty two pilot projects. Furthermore, there're fifty five social partners joining the implemented projects, where there are seventeen real private sectors with a low rate of thirty two percent. As for the proportion of investment, it runs as less as twelve percent (PPP Center of Ministry of Finance of China, 2016<sup>[2]</sup>). This indicates that, the practice of public and private partnership is encountered by a siege dilemma, where the governments and the public sectors are rushing out to seek social cooperation for expanding public supplies but be snubbed, while the private sectors are ambitious to catch business opportunities but be hesitating.

The latest studies argue that this kind of siege dilemma is heavily rooted in the imperfection of the external systems and the unclear boundaries between the profit and the risk. It is crucial to design proper contracts and regulations for realizing high efficiency of public supplies by public and private partnership, where the profit and the risk should be allocated in right way among cooperative bodies (Lai Dan-xin and Fei Fang-yu, 2010<sup>[3]</sup>). As said, the reason that the social capitals are willing to be engaged in PPP project is prerequisite to acquire the reasonable returns (Wang Chun-cheng, 2014<sup>[4]</sup>). Recently, some key issues however exist, which are related to the institutional framework and legal system, the social credit, the current financial management and the return mechanism (Sun Xue-gong and Liu Guo-yan, 2015<sup>[5]</sup>). Specifically, such low contracting rate of PPP projects has close connections with the profitability, which indicates that there is lack of suitable projects for the social capital investment. In addition, the common instructions of PPP projects implementation have neither been drafted, nor has the mechanism of the risk-benefit distribution between the public and the private capitals been formed, These uncertainties weaken the motivation of the private side to take part in PPP projects (Zou Lei and Xu Ce, 2015<sup>[6]</sup>). The above mentioned viewpoints try to analyze the siege dilemma occurring in the public and private partnership from different angles, which are stressed as well as they be.

This paper argues that the profit-seeking is the first goal for the private investment. There will be three indispensable conditions combined with interests, if projects under public and private partnership are initialized to attract private capitals. First of all, projects themselves are compelling with the potential benefit. Secondly, all partners are treated in an equal and fair manner to devise and conclude the agreement, where the borders of different interests shall be defined in priority. Thirdly, the channels of emergency and relief need to be effectively programmed both for the public interest and the private interest. Accordingly, to clarify different benefits of stakeholders (mainly the government and the private roles) is becoming an essential condition for the implementation of PPP projects. From this point of view, the author tries to discuss the institutional mechanism of the public and the private cooperation in the view of win-wins when the siege dilemma is delicately illustrated.

## **2 Analysis on the differences of interests among partners**

### **2.1 Government and public departments**

The reason why the government and public departments exist and work is to be engaged in public administration and the supply of public goods and services, which is identified as one component of public administration (Wilson W, 1987<sup>[7]</sup>). It is obvious that the effective and full supply of public goods and services is bound to be the interests and duties of the government and the public branches. How to realize the interests of the public sectors in PPP projects? The first issue is determined by the strict enforcement of contracts from the public sides. As one of performing entities, the government and its affiliated branches are equal in law with the private counter partners. In practice there are more responsibilities burdened on the government and the public branches, which goes as the following: maintaining a stable cooperation circumstance in politics, legislation and institutions, shaping a coherent and fair market space and strengthening the supervision both underway and afterwards concentrated on the price, standards and quality. Consequently the roles of public sectors are actually destined to be stronger than the private ones with more powers. To be frank, the interests of the public side are guaranteed by so many systems and policies to meet the demand for public goods and services as much as possible.

## 2.2 Private partners

The private partners particularly referred to private enterprises, are typical rational economic men in the scope of choice theory (Kenneth J. Arrow, 1987<sup>[8]</sup>), who are targeting to maximize profits. It is however not easy for the private sectors to acquire their aims, but challenged with various risks in cooperation. From this partner's stand, some of governmental functions and powers are expected to transfer to the private sector (Chatham, 1987<sup>[9]</sup>). A lot of PPP projects fail to be implemented at present heavily caused by the government default. Generally speaking, the truth is that partners have to worry about the economic changes, the government revolving, the cost increase, and the requirement heightening for public service and so on, since most of PPP projects are quasi-public with long term and low profit. Those concerns likely take so much negative impact on cooperation that the expected benefits of the private partner would be whittled down. Doubtlessly, it is necessarily ensured to have benefits by fine-designed agreements, which might be helpful to reduce the government misconduct.

## 2.3 Citizens

The citizens are granted legally to consume the basic public goods and services matching with the economic and social development, which is otherwise the important cornerstone for the sustainable development of society. Their participation is supposed to increase the representativeness and responsiveness of our administrative and political institutions, heightens citizens' sense of political efficacy, and acts as an important check on the abuse of administrative discretion (D. Stephen Cupps, 1977<sup>[10]</sup>). In reality, people demanding for the public goods and public service become both one of the most important stakeholders, but the scale plate for evaluating the cooperation of PPP projects. It cannot be overlooked that citizens have less chance to go in for the project cooperation. Usually they are driven to attend some ceremonies, where they can neither join in the project design initially, nor monitor the implementation. Their own benefits are consequently difficult to be maintained or maximized well.

In summary, the public sectors try to balance the risk and the profit of PPP projects in avoiding of sudden losses and gains, and to reduce the cost of public supplies as much as possible, which is generally aimed at improving the quality and efficiency of public goods and services. On the contrast, the private sectors are seeking for the maximum profit, under the premise of the fundamental quality of projects' construction, operation and service. People are deemed to share the effectively furnished public goods and services. It is quite clear to understand that three partners ask for different interests what appear to be even contradictories each other. There has to be a bridge between the private and the public interests on the purpose of achieving win-win cooperation.

## 3 Counter measures against the siege dilemma

Upon the different interests of all partners being clarified, the complexity and diversity of PPP projects would be described as the functional image with various values directions. In this way, the siege dilemma could be resolved by finding out the coefficient of common interests and expanding them, where the decisive step goes possibly on building the mechanism of incentive and compatible cooperation to mobilize the initiative and enthusiasm of stakeholders.

### 3.1 Overall targets on the mechanism of win-win cooperation

The ideal mechanism of public and private partnership will be designed to ensure the undertaking and the gain of every entity. As for the PPP projects, there are three main goals combined with the governmental policy, the private interest and the public availability, in which the mechanism of providing public goods and services in efficiency based on the cooperation of sharing risks and profits jointly would be set up as expected. This is the guideline to fulfill the win-win cooperation in PPP mode.

### 3.2 Some principles of constructing the system of win-win cooperation in PPP model

The first issue is concerned with the profit distribution that should be arranged by contract. It is primary for private partners to have so active participations in public supplies under the guarantee of delicately-composed agreements to obtain their benefits. Secondly, it is the principle of unity between the private and the public interests, which stands for one joint cause by putting PPP projects into effect. When profits are yielded, how to allocate them will be taken full account of the prospective return by

stakeholders. All partner should keep in good touch with each other for distributing profits against their respective costs, so that both the private partner will acquire the appropriate income, and the public counterpart be ensured to fulfill their obligations of supplying public goods and services in time. The third principle is the equivalence related with cost, return and venture. As pointed, the private and public partnership is fundamentally characterized with gain-risk sharing and cooperation for multiple wins. At the moment of programming the profit distribution, not only the input costs by different entities need to be treated carefully, but also do risks assumed by them to be considered distinctively. Namely, those stakeholders bearing more ventures have rights to be compensated as much as possible to enforce the cooperation. But another case that could lead to the cooperation failure shall be refrained from happening due to the excessive shift of risks. The last one is the principle of openness and transparency. On one hand, every piece of information about PPP projects shall be so quite known to the public that people have chances to take part in and supervise for the promotion of public services. On the other hand, the way of cooperation shall be also open and fair as far as possible for ensuring each partner's interest and impeding the black case work.

### **3.3 Specific ideas of making up the win-win mechanism in public and private partnership**

(1) A firm system of market accesses. There are three required essentials in the construction of market accesses. The first one is the permission to the private partners' qualification before contacting; the second is the approval to the qualified products and services supplied by the private bodies; the third is the institution of eliminating and withdrawing. The latter mechanism is going to work, when those enterprises within PPP projects do neither provide certified public goods and services up to standard, nor have a good finance because of poor management, which could at last harm the public interest.

(2) The rational system of risk-sharing and investment-return. To be detailed, the deals for PPP projects shall be clarified with definite benefits and duties. Moreover, the institution of investment-return demands confirmation too, so that the private entities are greatly initiated to take part in PPP coordination and be ensured to embrace reasonable gains.

(3) The well-equipped monitoring mechanism. In the view of regulation and supervision, the government and its public facilities have to be responsible as the above mentioned. Usually some certain agencies will be established and authorized to bear such kind of obligation. It is quite distinct from the former, nevertheless, with regard to the independent and professional management that is set up to decrease risks on account of the governmental misconduct. As result, the quality of implementation, the conformity of policies and the standardization of techniques are accomplished by two dimensions of monitoring. It cannot be ignored of course that the people have every reason to inspect PPP projects, where institutions of hearing, consultation and complaint-handling are therefore improved.

(4) The effective mechanism of integrated coordination and dispute resolution. The most important of this system is to set up a special-purpose entity to deal with those disputes occurring in cooperation, since PPP projects run for a long term and be involved with a large number of industries, which would be significantly defined in compacts.

## **4 Conclusions**

At present, the model of public and private partnership is applied to increase the diversified public goods and services, which is not only the necessary step to realize the effective supply, but also the vital endeavor to enhance the structural reform of supply side, and to achieve the realization of the transformation of government functions and the modernization of governance capacity. It's however doubtlessly that there's following by a siege dilemma in public and private partnership, which seems to be rooted in the lack of public integrity and the imperfect of relevant legal systems interpreted as the above goes. Those projects sponsored by the public and private partnership are actually required with a huge investment, but the cost return and the profit winning take much longer. In that process there're many uncertain factors and risks against the governmental and public branches, such as legal and policy adjustment, personnel reallocation, which could be the negative conditions to implement the contract. In this regard, it's not surprising for the private sectors to be so worried that they would like rather to wait and see than to rush to take action. This paper argues that there're two major solutions to

crack down the siege dilemma. One way is to redefine the interest's boundaries between the public and the private for the reasonable return of capital investments, and the other is to improve the legislation and to regulate the mutual cooperation as much as possible, by which all stakeholders will gradually reduce mistrusts and cumulate trusts so as to bring out win-wins and sustainable development.

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## Analysis of the Role of Government in Webcast Regulation in China

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**Abstract** In recent years, there is rapid development of domestic webcast, and there is a substantial growth in the number of live platforms and network anchor, as well as that of the Internet users watching the live broadcast. The webcast in great development potential, on the one hand, drives the development of the network culture market. On the other hand, the mixture of positive and negative live contents is challenging the sustainable development of the industry. Facing the booming webcast, the central government departments in China have seen the problems that occur frequently, and promulgated a number of laws and regulations to standardize the webcast content. Moreover, the central government departments have also found the advantages of webcast in the process of information transmission, and tried to use webcast for cultural propaganda and other activities. This paper analyzes the role omission and role perfection for the regulation of the webcast market by the central government departments, attempting to conclude that the government should not only play the role of the regulator in webcast regulation, but also complete the role of the guide and the user.

**Key words** Webcast, The role of government, Broadcast regulation

The rising webcast means the release of real-time information in the form of video and the interaction with the audience during the release of information. As we all know, webcast began to develop rapidly around 2016. On the one hand, it benefits from the rapid growth of dozens of live platforms in different styles just like mushrooms after rain, such as Inke, Kuaishou, Douyu and Huajiao. On the other hand, it is closely related to the fact that the network anchors constantly enrich the live audio and video contents in order to obtain higher fan attention and higher amount of gratuity. Furthermore, the fiery webcast is also driving the overall development of China's network culture industry. According to the data statistics by Cultural Market Department of Ministry of Culture, it reveals that in the overall revenue of the network cultural market in China in the first half year of 2016, which is 101.72 billion yuan, the network performance (live) market generated the revenue of 8.26 billion yuan with a year-on-year growth at 209.3%.<sup>[1]</sup> However, webcast in rapid growth leads the development of emerging industries, but it is accompanied by the mixture of positive and negative webcast contents. Some operational units of webcast have a lack of responsibility and bad management, and some network anchors have illegal contents in pornography and violence in webcast in order to attract the audience and obtain more income, having an adverse impact on the construction of network environment. Based on such positive and negative webcast activities, whether to let it slide or to guide it in accordance with criteria is bound to become a topic of common people's concern. As far as the Chinese government is concerned, first of all, it needs to play a good role. Only when the government puts the position in place and defines the role, can the government supervise the webcast, in order to make the best use of the advantages and bypass the disadvantages.

Nowadays, as China is in the period of social and economic transformation, in the process of building a service-oriented government, the central and local governments are constantly exploring, optimizing and reforming the role in social and economic development. In the face of the webcast, which is just unfolding and contains positive and negative contents, China's central government is required to give play to its advantages in regulation and standardization on the macro levels of laws and regulations and guidance. Therefore, this paper analyzes the role of government in webcast regulation on the level of the central government.

### 1 Argument value

In recent years, the fiery webcast in China is not a new product in the networks, which first appeared in 2006 among the first batch of live show websites which were engaged in webcast services, such as 6 Rooms. However, it didn't form great influence due to the restrictions in low popularity of

the Internet, the lack of live contents and a small number of the audience. With the development of domestic information technology, the popularity of smart phones, the rich content of network audio-visual programs and the updating of the consumption concept of network culture products, the webcast has got rid of the past mediocre development, and become what the majority of Internet users, especially young Internet users, are keen on, as it has strong interaction and is fit for people to watch in fragmented time, integrating live game, live show and outdoor live and other types. Only the live show consists of a variety of contents, such as singing, dancing, cosplay and beauty.

However, in addition to the contents that have been loved by the majority of Internet users, the webcast also contains numerous vulgar contents, which have repeatedly been criticized by all walks of life. For example, in 2016, the domestic media have exposed that a number of illegal events by network anchors on webcast platforms, such as the network pornographic performances, the live broadcast of killing companion animals and the propaganda of feudal and superstition. In order to promote their own visibility, some network anchors overtly trample upon national laws and social ethics, which have been repeatedly exposed and condemned by various media.<sup>[2]</sup> The webcast in chaos is triggered by the bad management of webcast operating units, a lack of professional integrity of network anchors and other factors. In this regard, the departments, which have rights to supervise and manage the network culture market, have carried out regulation and management actions, such as Ministry of Culture, Ministry of Public Security, State Administration of Press, Publication, Radio, Film and Television of the People's Republic of China and the State Internet Information Office. Take the law enforcement, inspection and governance actions on webcast by Ministry of Culture as an example, by the end of May 2017, Ministry of Culture has shut down 10 webcast platforms, given administrative penalty to 48 webcast operating units, closed 30,235 live studios and handled 31,371 network anchors.<sup>[3]</sup> However, in terms of the webcast in obvious advantages and disadvantages, Ministry of Culture, State Administration of Press, Publication, Radio, Film and Television of the People's Republic of China and other central government departments only carry out prominent performance as regulators, which is far from enough. In terms of the webcast in rapid development momentum, the central government departments not only have the objective needs to bring the live chaos under permanent control and constantly punish the harmful contents which have been repeatedly present in the webcast market, but also have the needs to implement the policy of "deepening the cultural system reform, enhancing the vitality of cultural development and expanding the cultural consumption market", which was stressed by Chairman Xi Jin-ping on the grand gathering celebrating the 95th anniversary of the founding of the Communist Party of China (CPC). Therefore, Ministry of Culture, State Administration of Press, Publication, Radio, Film and Television of the People's Republic of China and other central government departments are required to give proper play to their roles as guides and users.

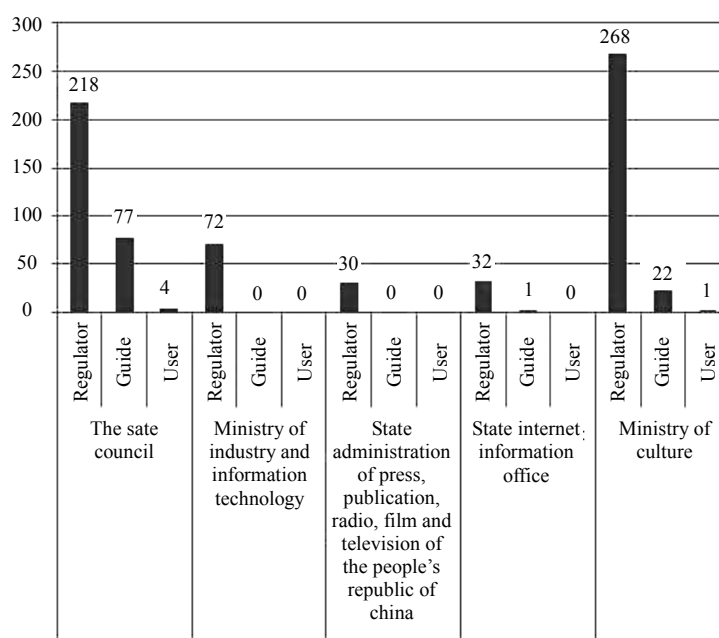
At present, in the light of webcasts, the focus of the academic studies is how to play and perfect the roles of the central government departments as regulators, such as the Ministry of culture and the Ministry of Public Security, and how to better regulate the webcast in disorderly development. Through the search for the key word "webcast" in CNKI and obtaining 198 articles, many scholars have analyzed the reasons for the rise of the webcast market, reasons for the chaos in webcasts, the webcast content, webcast characteristics, and how the government should strengthen the regulation of webcast. But as noted above, it is insufficient to confine the studies only to the aspect about how the central government departments manage the webcast. In addition to studying how the governments should manage the webcast, it should also focus on guiding and making use of webcasts to enable webcasts to become an important position to promote the advanced socialist culture and an important engine to drive the development of culture industry in China.

## **2 Omission in the role of government in the webcast market**

With the significant progress of mobile network technology and the popularization of smart phones in China, it is becoming more and more convenient to watch and make webcast. It is becoming fashionable network culture consumption to give gratuity to the anchor. In the first half of 2016, the webcast (performing) market with blowout development amounted to the revenue of 8.29 billion yuan.

However, while the webcast market is developing well, there are still some network anchors contending for the attention of the audience through a variety of unconventional and vulgar performances, in order to obtain higher attention and higher rewards. As an emerging thing, webcast contains dual characters. One is that it promotes the economic development of the network culture industry and the other is that some live contents are against the laws and morals, which is calling for the government to have a correct cognition and be kind to the advantages and disadvantages of emerging things, in order to give proper play to the regulatory role of the government to promote and encourage the advantages of webcasts and positively guide and regulate the disadvantages of webcasts.

Generally, when the abuse of new things frequently occurs, the central government departments often need to issue corresponding laws and regulations from the macro level for management and restraint. Therefore, through the text analysis of laws and regulations have been introduced, we can find the development direction that the central government departments would like regulated things to be in, as well as have a restricted view on the role of the central government departments in the development process. Therefore, in order to study the current role of the central government departments in the webcast market in China, the author selects 16 legal documents, which are recently published by the State Council, Ministry of Culture, Ministry of Industry and Information Technology, State Administration of Press, Publication, Radio, Film and Television of the People's Republic of China and the State Internet Information Office, to analyze the word frequency. The documents include Guiding opinions on strengthening the organizational construction of cultural industries, Measures for the administration of network performance and operation activities, Notice on strengthening the administration of network performance, Regulations on the administration of commercial performances, Measures for the administration of blacklist in cultural markets, Measures for self-examination and administration of network culture management units, Regulations on the administration of Internet information services, Provisions on the administration of Internet audiovisual programme services and Regulations on the administration of live services on the Internet. Then, according to the departments that introduce the regulations, the author classifies the documents, and analyzes the word frequency according to the occurrence numbers of the word meanings in three roles of regulators, guides and users. The statistical data is shown as Figure 1.



**Figure 1 Analysis of word frequency on the role of the central government departments in webcast (frequency)**

Source: the data is collected and arranged by the author

As shown in Figure 1, among the regulations and policies involving webcast regulation introduced by the State Council, Ministry of Culture, Ministry of Industry and Information Technology, State Administration of Press, Publication, Radio, Film and Television of the People's Republic of China and the State Internet Information Office, the role of the government as a regulator is the most frequent, but the role of the government as a user is the least frequent. Meanwhile, in terms of the guide, among the regulations promulgated by the State Council, its descriptions are most frequent, which indicates that the Central People's Government implements the policy of both regulation and guidance as for the development of network culture industry in China. Secondly, under the leadership of the State Council, the Ministry of Culture has the most prominent role in webcast regulation and involves the most contents about regulation. It is thus evident that the central government departments, such as Ministry of Culture, Ministry of Industry and Information Technology, State Administration of Press, Publication, Radio, Film and Television of the People's Republic of China and the State Internet Information Office, give more play to the role of regulators in the face of the webcasts in positive and negative functions, as well as explore how to correctly and fully tap the potential of this new thing webcast, so that webcasts can have insufficient formulations in playing its unique value during the process of upholding advanced social cultures and constructing a harmonious socialist society. Therefore, China's central government departments have the omission in the role in webcast regulation.

### **2.1 Omission in the role of regulators**

At present, China's society is in the period of transformational development, and economic development is undergoing a transformation process from the past market economy that plays a leading role to the market economy that plays a decisive role. The market plays a decisive role in promoting economic development, and it cannot abandon the spontaneity, blindness and hysteresis of the market economy itself. And there is an objective need for the government to fulfill its market regulation and management functions when regulating the problems in economic development. Furthermore, in view of problems in webcast development, the central government departments, such as Ministry of Culture, Ministry of Public Security, Ministry of Industry and Information Technology and the State Internet Information Office, have regulatory functions, and each has a different regulatory scope and content. For example, Ministry of Culture supervises the operation activities of culture and art. Ministry of Public Security maintains the order of public security and cracks down on the prostitution and gambling in webcasts. State Administration of Press, Publication, Radio, Film and Television of the People's Republic of China checks the contents and supervises the quality of network audio-visual programs. Ministry of Industry and Information Technology formulates and manages the technical norms of signal transmission in network audio-visual programs. The State Internet Information Office implements the policies of Internet information dissemination and promotes the legal construction of Internet information dissemination.

Indeed, the block-based management of webcasts by the ministries and commissions has distinct responsibilities and tasks. In the regulation department, there are differences in regulatory emphasis according to the different responsibilities, which cannot cover up the lack of the role of regulators. In webcast regulation, based on the exposed abuse in webcast, Ministry of Culture combined the existing laws and regulations and issued six regulations aimed for regulation around 2016, including Measures for the administration of network performance activities, Notice on strengthening the administration of network performance, Opinions of the Ministry of Culture on promoting the transformation and upgrading of cultural and recreational industries, Regulations on the administration of commercial performances, Measures for the administration of blacklist in cultural markets and Measures for self-examination and administration of network culture management units. With the support of more comprehensive laws and regulations, the Ministry of Culture has a clear and adequate basis for measuring webcast regulation. In contrast, when State Administration of Press, Publication, Radio, Film and Television of the People's Republic of China is regulating the webcasts, it may have the unclear measurement basis in the fact with regulatory penalties due to a lack of specific regulatory documents, which is the embodiment of the omission in the regulatory role of State Administration of Press, Publication, Radio, Film and Television of the People's Republic of China. In addition, there are



repeated circumstances that the live contents are involved in prostitution, violence, vulgarity and something against the morals, which also reflects that it is a long and arduous task for the relevant ministries to remedy the omission in the role of regulators.

### **2.2 Omission in the role of guides**

In October 2015, Xi Jin-ping put forward at the forum on literature and art, that literary and art workers should adhere to the people-centered creation, strive to create more excellent works worthy of the times, carry forward the Spirit of China, cohere the power of China and inspire people of all ethnic groups who are full of youthful spirit into the future.<sup>[4]</sup> In July 2016, Chairman Xi Jin-ping stressed the policy of “deepening the cultural system reform, enhancing the vitality of cultural development and expanding the cultural consumption market”, on the grand gathering celebrating the 95th anniversary of the founding of the Communist Party of China (CPC).<sup>[5]</sup> At present, China is in a critical period of completing the process of building a moderately well-off society in all aspects, and the all-round construction of a well-off society cannot be separated from the driving role brought by the development of the advanced socialist culture. The lead of the advanced socialist culture requires the Ministry of Culture, State Administration of Press, Publication, Radio, Film and Television of the People’s Republic of China, State Administration of Taxation and other departments to practically implement the role of guides in accordance with national principles and policies of cultural development. The guide, on the one hand, is guiding the webcast industry to actively promote the socialist core values and positive social energy. On the other hand, the guide is guiding webcast enterprises and network anchors to broadcast more contents that are healthy and loved by the masses. In the central government departments, the Ministry of Culture, State Administration of Press, Publication, Radio, Film and Television of the People’s Republic of China, and other departments have the function of guides. For example, Ministry of Culture promulgated Opinions of the Ministry of Culture on promoting the transformation and upgrading of cultural and recreational industries in September 2016, in which Ministry of Culture put forward to guide the network culture enterprises to take the socialist core values as the orientation and actively promote positive social energy.

It requires the central government departments to adopt an appropriate combination of rewards and punishments to correctly guide webcast business units and network anchors to maintain the industrial and professional ethics and comply with the relevant social, legal and ethical requirements. For example, for the business units that have deliberate dereliction of duty in webcast regulation and broadcast vulgar contents, the State Administration of taxation may formulate the relevant disciplinary tax policies for conducting enterprises. At the moment, the State Administration of Taxation has not issued a tax policy of rewards and punishments for the webcast business units. Moreover, according to the statistics in Figure 1, we can see that State Administration of Press, Publication, Radio, Film and Television of the People’s Republic of China and the State Internet Information Office ignored the role of their own cultural guides in the policy-making process, resulting in the omission in the guiding role.

### **2.3 Omission in the role of users**

The performance of the role of webcast users is mainly embodied in two aspects. On the one hand, it is to build the webcast business units as an important engine to drive the development of network culture industry, to promote economic and cultural development. On the other hand, it is to attempt to develop cultural diffusion, information diffusion and disaster relief and other activities through the strong authenticity and a wide range of audience in information dissemination of webcast platforms. The central government departments, such as Ministry of Culture, the State Flood Control and Drought Relief Headquarters, State Administration of Press, Publication, Radio, Film and Television of the People’s Republic of China, Ministry of Public Security and Ministry of Civil Affairs of the People’s Republic of China, can explore how to use webcast correctly, and play an active role in cultural development, disaster relief and other aspects based on their own needs. The advantages of webcast have been embodied in a rainstorm flood relief in Beijing in July 2016. While the rainstorm flood is expanding, the live team, which was composed of reports in the Beijing News conducted real-time reports on the flood scene. In addition to the real-time videos to enable the public to know the latest information about the event accurately, there was a background editing team in the anchor studio below the live studio to refute the rumors, which also led millions of Internet users to live broadcast

the flood around them. At that time, the rumors on the networks disappeared and the news of the government's disaster relief gradually stabilized public feelings.<sup>[6]</sup> However, according to the statistics of Figure 1, while Ministry of Culture, State Administration of Press, Publication, Radio, Film and Television of the People's Republic of China and other departments are formulating policies aimed at webcast regulation, they have found the chaos in webcasts and performed their roles of regulators. But they forget webcasts can "learn from each other and let it be used by us", and ignore their roles as users.

In addition, compared with the practices of the government to strive to develop the government website and "Weibo, WeChat and mobile clients" in order to enhance their administrative capacity-building, increase government information publicity, the use of webcast has not yet become the new requirements of the central government departments to enhance the government's influence. Thus, it is urgent for the central government departments to perform their roles of users to give play to the positive role of webcast and adopt webcasts to promote the government's capabilities.

### **3 Perfection in the role of government in webcast regulation**

At the moment, the development of domestic webcast is a mixed blessing. The disadvantages and advantages of webcasts have gradually emerged in the rapid development of the past two years. If webcast is to achieve sustainable development, the webcast business units should seriously carry out responsibilities in self-supervision, and network anchors should improve their moral and legal accomplishments. Besides, it should focus on playing the roles of the central government departments as regulators, guides and users.

#### **3.1 Perfect the role of regulators in webcast regulation**

The perfection of the role of regulators requires the development of sound laws and regulations. In April 2016, the State Council promulgated Opinions on further deepening the reform of comprehensive law enforcement in the cultural market (hereinafter referred to as the "Opinions"). The Opinions made it clear that culture, press and publication departments shall enhance the administrative capacity in the network culture market, combine theoretical research and experience accumulation and study and formulate the regulations to standardize the network culture market. In addition, Ministry of Public Security, Ministry of Industry and Information Technology, the State Administration of Taxation and other central government departments should adhere to the principle of classified guidance and regulation, as well as gradually eliminate the problems of webcast regulation in vague contents of administrative enforcement of law due to the imperfect laws and regulations. With the constraints of perfect laws and regulations, webcast industry can achieve healthy and orderly development.

Besides, promoting the development of social collegiality will also contribute to improving the role of central government departments as regulators. In 2014, Beijing Internet Culture Association was founded, which plays an active role in promoting the coordinated development of network culture and the integration of network culture and economy, politics and society. The implementation of social collegiality is to integrate the regulatory role of government departments, the self-discipline role of trade organizations and the supervisory role of the public, which may play a positive role in promoting the self-discipline and management of webcast business units. Similarly, the establishment of a nationwide industry association of webcast business bodies will be more conducive to playing the regulatory role of Ministry of Culture, State Administration of Press, Publication, Radio, Film and Television of the People's Republic of China and other departments.

#### **3.2 Perfect the role of guides in webcast regulation**

In the Guiding opinions on strengthening the organizational construction of cultural industries, which was issued by General Office of the State Council in May 2017, it pointed out that "the reform and development of China's culture has entered a new stage, and as an emerging field, the network culture should achieve orderly development under the guidance of the socialist core values." However, in the webcast environment, prostitution, violence, money worship, the idea of the uselessness of study and other thoughts either flow as undercurrents or display obviously. Such vulgar contents exert a number of adverse effects on the formation of honesty mood of society. In order to highlight the leading role of the socialist core values, clean up the atmosphere and gather the strong positive energy

to bring about a great rejuvenation of the Chinese nation, the relevant central government departments are required, on the one hand, to introduce appropriate regulatory documents, recognize their guiding role in promoting cultural dissemination, and promoting socialist core values and other aspects. On the other hand, the central government departments should promulgate the incentive policies to encourage wecast business units and network anchors to broadcast more cultural contents that are healthy and loved by the masses, thereby mobilizing the initiative of wecast business units and network anchors to promote socialist core values.

### 3.3 Give play to the role of user in wecast regulation

Weibo, WeChat and news clients have been widely accepted by the central government departments for their large audience and convenient delivery of information, becoming an efficient tool for policy dissemination and public opinion propaganda. In addition to the similar characteristics to “Weibo, WeChat and news clients” in the broad audience, low threshold and strong interaction, wecasts have unique characteristics of strong authenticity in dissemination of information and strong space-time adaptability.<sup>[7]</sup> At present, some local governments in China, there have been departments, institutions and staff attempting to set up promotional windows in some wecast platforms. For example, the policeman “Zhang Xiao-zhan” in Henan, who was first to enter Kuaishou, attempted to conduct propaganda of preventing fraud and taking pleasure in helping others, which has made a great amount of attention. Through the analysis of the 143 live contents by Henan policeman “Zhang Xiao-zhan” on Kuaishou before June 20<sup>th</sup>, 2017, there were seven posts of policy propaganda at a total of 2.585 million views. There were 35 posts of taking pleasure in helping others at a total of 10.473 million views. There were 90 posts of preventing fraud at a total of 36.108 million views. There were 11 posts of network security at a total of 15.986 million views. The 143 live contents of “Zhang Xiaozhan” obtained a total of 65.152 views, the heat of which on Kuaishou is comparable to a network drama. In addition, in May 2017, Momo Live cooperated with the Northern Kunqu Opera Theatre and Jingju Theatre Company of Beijing in order to promote the appreciation of traditional Chinese arts by Internet users, and live broadcast Beijing Opera Drunken Concubine and Kunqu Opera Peony Pavilion, which achieved gratifying results in the number of audience watching the live broadcast, the number of likes and the amount of gratuity.<sup>[8]</sup> Such type of live broadcast on fine traditional culture is becoming a popular form of entertainment. For this purpose, the central government departments may set up a special live team, and open pilot live studios on live platforms to improve the user role of wecasts, thereby actively playing the positive role of wecasts in cultural diffusion, policy propaganda and other aspects.

## 4 Conclusions

At the moment, our government is faced with the requirement of improving administrative ability and defining its role and responsibilities. The improvement in abilities is inseparable from the use of tools, and the clarity of the role requires the government to look upon things correctly and perform its rights and liabilities. Weicast is a tool with distinct positive and negative functions. Therefore, the government should not only find its mixture of positive and negative contents for perfect regulation and guidance, but also find its unique utilities in many aspects, such as cultural services and crisis management. Therefore, it is the wise choice of the Chinese government’s role in the weicast regulation to build the people’s government whose role is clear and the service ability is constantly improved.

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## Research on Application of PPP Pattern in Targeted Poverty Alleviation in Minority Areas in China<sup>\*</sup>

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**Abstract** With the approaching goal of building a well-off society in 2020, the poverty alleviation in China has entered a deep stage of tackling poverty. Poverty in minority areas is a short board for building a well-off profound in all round way. At present, government is the only subject of poverty alleviation in minority areas and its power is limited, so PPP pattern can be introduced. PPP pattern plays a decisive role in allocating public resources and maximizing public interests, which means it is an significant measure to adjust structures, stabilize increment and improve people's well-being under the New Normal. Based on the analysis of current poverty situation in minority areas, this research discusses the necessity and feasibility of PPP pattern in targeted poverty alleviation in minority areas. So as to push on the application of PPP pattern in targeted poverty alleviation, governments in minority areas need to build considerate service platforms, create a favorable operating environment for PPP pattern, strengthen the supervision of PPP pattern and promote the protection mechanism. And finally, achieving the goal of targeted poverty alleviation in minority areas.

**Key words** PPP pattern, Targeted poverty alleviation, Minority areas, Social capital, Public goods and service

### 1 Introduction

PPP, short for Public-Private partnership, is a cooperating-relationship between government and social capital, which need government to encourage and guide to participate in the construction of public services. Popularizing the PPP model have made great influence in modernizing national governance system and governance capability and establishing an creative country and modern fiscal system. The Ministry of Finance carried out the policy relevant to the promotion and utilization of government and social capital cooperation models in September 2014, which pointed out that PPP model is a long-term relationship between social capital and government departments. The major work of social capital is to design, construct, operate and preserve infrastructures. Its' returns on investment mainly realized by User Reimbursement and Governmental payment. And government department is mainly responsible for the supervising infrastructure and public service price and quality.

Targeted poverty alleviation is an innovation of the traditional poverty alleviation. Central Committee of China attaches great importance to the works of helping the poor in ethnic areas because poverty in minority areas is a short board for building a moderately prosperous society. When taking investigates and surveys in Yunnan Province, President Xi stressed that we must firmly fight against poverty and accelerate economic and social development in minority areas, leaving no one falls behind. In November 2015, the State Council of China issued an document, "The Decision on winning the poverty alleviation battle", and identified targeted poverty alleviation as a basic strategy. It emphasized that government need to increase financial investment in poverty alleviation, actively promote the PPP pattern and the government purchase service model, stimulate enterprises to set up industrial investment fund and adopt market-oriented mode to attract enterprises to engage in resource development and industrial park constructions in minority areas.

PPP pattern takes public infrastructure as a breakthrough point in boosting poverty alleviation in ethnic areas. At present, some provinces like Yunnan has been actively explored PPP pattern to carry out targeted poverty alleviation work. It will exert significant impacts on poverty alleviation in minority areas if giving full play to the advantages of the PPP pattern.

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## 2 Current poverty situation in minority areas

There is an obvious gap in the overall economic development between minority areas and non-ethnic areas. In the book “China’s rural poverty alleviation and development program (2011-2020 )”, 14 poverty-stricken regions including 679 poverty-stricken counties have been designated. National poverty counties distribute intensively in 8 minority population provinces (The 8 minority population provinces refer to Inner Mongolia, Guangxi, Tibet, Ningxia and Xinjiang, Guizhou, Yunnan and Qinghai). By the end of 2013, the poverty population in the 8 minority population provinces had reached 25.62 million people, which is higher than the rural poverty population by 8.6%, accounting for 31.1% of the rural poor in China(All the above data under this paragraph come from “China’s rural poverty alleviation and development program (2011-2020 )”). It indicates that poor minority areas are the main battlefields during the 13th Five-Year Plan Period of China.

The past three years has witnessed remarkable achievements of ethnic areas since the implementation of targeted poverty alleviation. In 2013-2016 , the number of poor people in China has decreased by more than 10 million a year, helping 55.64 million people out of poverty, which is equal to the total population of a middle country; The incidence of poverty fallen from 10.2% in 2012 to 4.5% in 2016<sup>[1]</sup>.

However, from the perspective of poverty reduction, there is still a gap between the minority areas and the whole country. In 2011-2015, the poverty reduction rate of 8 minority population provinces was 22.3%, 20.3%, 17.9%, 13.9%, 17.8%, while the national poverty reduction rate was 26.1%, 19.1%, 16.7%, 14.9%, 20.6% (All the above data under this paragraph come from “China Poverty Alleviation and Development Yearbook 2015” ). The rate of poverty reduction in ethnic areas is obviously lower than the national poverty reduction rate. Thus, although the targeted poverty alleviation in minority areas has achieved certain results, it is still difficult if only rely on the government. So it’s better to bring in social capital and encourage multiple subjects to participate in targeted poverty alleviation in minority areas. PPP pattern is a good choice for realizing the mutual benefits of government, society and enterprises.

## 3 The necessity of application of PPP pattern in targeted poverty alleviation in minority areas

Due to historical reasons, natural geographical environment and social development as well as other reasons, the poverty rate in ethnic areas is so high that carrying out poverty alleviation is difficult. So as to narrow the gap between ethnic areas and developed areas, realize the equalization of public services, and further the strategy of targeted poverty alleviation, it is necessary to apply the PPP pattern in targeted poverty alleviation in minority areas.

### 3.1 The necessity of furthering the implementation of targeted poverty alleviation

General Secretary Xi stressed the poverty alleviation works must be precised on different occasions, that is to say the government must target objects, project and official arrangements, bankroll, measures to households and poverty alleviation effectiveness. PPP pattern can be conformed to the “six precision”, further the implementation of accurate poverty alleviation, complete this short board and ensure the realization of building a well-off society in 2020. For example, Hangjinqi, a county in Erdos in Inner Mongolia, has built a partnership with Elion Group. Hangjinqi’s government gives Elion Group policy concessions and lands, while Elion Group brings advanced technologies and jobs. It takes shape of a special sand poverty alleviation, which drives 10 million people out of poverty. The average income of poor people from 400 yuan up to 14,000 yuan. It also create more than 46 billion yuan of ecological wealth (The data come from Elion Website, <http://www.elion.com.cn/en/index.php>). PPP pattern in Hangjinqi conserves the desert’s ecological environment as well as enhance the enthusiasm of local poor households. And it has achieved remarkable results in targeted poverty alleviation.

### 3.2 The necessity of narrowing the gap of public service supply between minority areas and developed areas

There is a big gap between ethnic minority areas and developed areas in terms of economic development level and public service supply. The minority areas are most located in frontier areas.

Poor natural conditions and traffic inconvenience results in its low self development ability and development level; the supply of public goods and services in lower quantity and quality because it is merely dominated by government without any other participants. To encourage social capital to participate in the construction of national public goods and services can not only effectively promote the efficiency and level of the supply of public products and service in minority areas but also can realize the equalization of public services, and gradually narrow the gap.

### **3.3 The necessity of making up for lacking financial aids in minority areas**

In the minority areas, the exact poverty alleviation funds are mainly based on government financial expenditure, while the financial expenditure is mainly used in the areas of agriculture, forestry, water conservancy and education. But the expenditure in helping the poor is not enough. For example, In 2015, the public finance budget expenditure in Inner Mongolia was 425,296 billion yuan and the special fund for poverty alleviation was 2.1 billion yuan that only accounted for 0.5% of the total expenditure (The data come from 2016 Inner Mongolia Statistical Yearbook). Because of the inadequate government funds of precise poverty alleviation, social capital need to be introduced and social multi-subject need to be encouraged to participate in minority areas. Applying PPP pattern to targeted poverty alleviation in minority areas can effectively compensate for the lack of government financial funds and inject new vitality into the economic development of ethnic areas.

## **4 The feasibility of application of PPP pattern in targeted poverty alleviation in minority areas and their effective convergence**

At present, PPP pattern is widely used in infrastructure construction and other fields in China's coastal developed areas, but few in minority areas. Therefore, the feasibility of application of PPP pattern in targeted poverty alleviation in ethnic areas and their effective convergence must be paid more attention to.

### **4.1 The feasibility of application of PPP pattern in targeted poverty alleviation in minority areas**

The characteristics of the minority areas and the advantages of the PPP model proved that PPP pattern can be applied to industrial poverty alleviation and public infrastructure construction.

#### **(1) the feasibility of introducing PPP model in the field of industrial poverty alleviation**

With low level of economic, social development and scarcity of talents, funds and materials, minority areas have been caught in a state of poverty for a long time. But ethnic areas are rich in natural resources and have a certain foundation in agriculture, forestry, fishery and animal husbandry. Therefore, relying on the advantages of natural resources and labor force, PPP model can be carried out in industrialization poverty alleviation in minority areas to develop characteristic industries. Using the leading role of government financial funds in social capital attract enterprises and banks to join in the construction of characteristic industry in minority areas. Besides, promoting unique production bases of primary products, agricultural products processing industry parks and agricultural and sideline products network sales platforms. At the same time, promote the integration of characteristic agricultural and sideline products in ethnic areas with the modern Internet and logistics industries.

#### **(2) the feasibility of introducing PPP pattern into the supply of public infrastructure**

PPP model can be used to provide public infrastructures. Theoretically, public infrastructures belong to the club goods, which is non competitive, inadequate and non exclusive, so it can be provided by enterprises or other social organizations. Practically, inadequate construction investments have made the infrastructure constructions in minority areas relatively weak, causing contradictions between supplies and demands. The needs of poverty alleviation in ethnic areas can not be satisfied by existing infrastructures. In addition, applications of PPP model in supplying infrastructure in minority regions can alleviate the shortage of funds, complete the constructions of infrastructure system and promote accurate poverty under the New Normal.

### **4.2 The feasibility of the effective convergence PPP pattern and targeted poverty alleviation in minority areas**

Effective cohesion of PPP pattern and targeted poverty alleviation in minority areas is the foundation of innovate the ways and contents of poverty alleviation and it plays an important role in changing poverty conditions. Only by mobilizing the initiative of minority areas, the smooth operation

of PPP projects can be ensured. Thus, in the process of implement PPP pattern, the actual conditions of minority areas' nature and society must accounted according to the actual conditions of the poor households to apply the scientific and reasonable investment. In addition, the partnership between government and social capital should be classified to achieve balance of social and private interests. For the sake of pushing on PPP poverty alleviation project in the minority areas, government needs to enhance the communication with social capital, explore scientific cooperation methods and strengthen its guidance and supervision on social capital.

## **5 Suggestions on advancing application of PPP pattern in targeted poverty alleviation in minority areas**

As minority areas have the backwardness of economic, social development and infrastructure and public service, the promotion of PPP model in minority areas is faced with all kinds of difficulties and risks. So as to push on the applications of PPP pattern in targeted poverty alleviation, governments in minority areas need to build considerate service platforms, create a favorable operating environment for PPP pattern, strengthen the supervision of PPP pattern and promote the protection mechanism.

### **5.1 Building considerate service platforms**

The introduction of PPP pattern in minority areas must be targeted, connecting the reality of the situation in minority areas of poor households with poverty alleviation tasks and strengthen the service platform construction of precise poverty alleviation. On the one hand, analyzing the status quo, developing advantages and troubles of the poor in ethnic regions and pay attention to PPP pattern's risk management and performance evaluation. Meanwhile, building demonstration areas of PPP pattern and using its exemplary and leading role to promote more PPP poverty alleviation projects in ethnic poverty-stricken areas. On the other hand, government in minority areas should reinforce the information collection, distribution, management functions and tracking guidance of PPP poverty alleviation projects, and share experiences with each other on the service platform to ensure that PPP poverty alleviation projects are better implemented in ethnic areas.

### **5.2 Creating a favorable operating environment**

To create a better operating environment for the PPP mode, government should increase publicity efforts and train professional and technical personnel. On the one hand, it's necessary to increase the propaganda of PPP mode in minority areas through newspapers, magazines and the Internet and other forms. Intensifying public opinions, enhancing social recognition of the PPP model precise poverty alleviation and sharing successful experience with the help of relevant information network channels and service platforms. Providing reference for other PPP precise poverty alleviation projects. On the other hand, government should train professional and technical talents with PPP mode and precise poverty alleviation. On account of lacking personnel, PPP training resources need to be integrated and targeted; accept for specialists, grass-roots employees need to learn about the palm operating characteristics, the operation specification and related policy points of PPP pattern in poverty alleviation as well.

### **5.3 Strengthen the supervision of government**

In PPP pattern, the goal of government is to maximize social benefits but the goal of social capital is profit. The two have some conflicts of interest so government needs to supervise firms strictly. Government must make clear of the responsibility of supervision and perfect the supervision mechanism. Firstly, choosing appropriate social capital via open and fair bidding; secondly, taking care of each link of it so guidance can be given timely; thirdly, carrying on the performance evaluation and promotion of successful experience and correcting its shortcomings.

### **5.4 Promoting the protection mechanism**

Protection mechanism in targeted poverty alleviation in minority areas contains the dynamic adjustment of the investment subsidy mechanism and the improvement of the exit mechanism. First, to reduce PPP poverty alleviation projects' operating costs and investment pressure of firms, government in minority areas should think over gains and losses of social capital investment, adjust investment subsidy mechanism dynamically, ensure that companies get a reasonable return. Second, improving the PPP poverty alleviation project exit mechanism. In signing the contracts, its exit conditions and



breaches of contract liability must be determined. When social capital can not fulfill the provisions of the contract due to various conditions, government should provide a feasible exit channel for social capital.

## 6 Conclusions

The party and government of China have attached great importance to poverty alleviation and the connotation of precise poverty alleviation has been continuously deepened in practice. Under the New Normal, PPP model is an significant measure to promote governmental efficiency and reduce its pressure, which can also be applied to precision poverty alleviation. This research analyzes current poverty situation in minority areas, then draws three conclusions. First, it is necessary to apply the PPP pattern in targeted poverty alleviation in minority areas so as to narrow the gap between ethnic areas and developed areas, realize the equalization of public services and further the strategy of targeted poverty alleviation. Second, this research confirm the feasibility of application of PPP pattern in targeted poverty alleviation in ethnic areas and its effective convergence. Third, the author gives some suggestions on advancing application of PPP pattern in targeted poverty alleviation in minority areas, that is to say, building considerate service platforms, creating a favorable operating environment for PPP pattern, strengthen the supervision of PPP pattern and promoting the protection mechanism. And finally, achieving the goal of targeted poverty alleviation in minority areas.

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## Research on the Service Value Co-creation of Government New Media in China

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**Abstract** In recent years, “two micros and one client” (the Microblog, WeChat and the client) as a typical representative of the government new media, has achieved rapid development. The government new media is not only a social application, but also the government service platform whose service value is generated in public use procedure. Based on the public as the center, the government new media needs to clear its mission of public service, make better use of its advantage of interaction to strengthen the healthy interaction with the public, and create service value depending on the wisdom of the public, all kinds of organizations and groups. This paper proposes a framework of public service value co-creation of government new media which aims at analyzing the role positioning of stakeholders and key point of implementation in the process of value co-creation, so as to provide a new perspective and path for the research and service innovation in the field of government new media.

**Key words** Government new media, Value co-creation, Framework, Key point of implementation

### 1 Introduction

The government new media is the new media platform where government agencies and government officials with real office identification can hold some relevant government activities, provide public services, communicate with the public and do online governance, including Micro-blog, WeChat, Twitter, Facebook, government client, and is also the important technology carrier for realization of E-government<sup>[1]</sup>. The new media as an important way to promote the construction of service-oriented government and improve government public management ability, has been highly recognized by the government. Moreover, the government and the institutions of other countries have settled in local and international new media platform to find, concern and meet the needs of the public.

To April 15, 2017, the government micro-blogs certified by Sina platform in China have reached 168,839, of which government agencies micro-blogs are 129,568 and micro-blogs of civil servants are 39,271, having achieved full coverage of the level, regions and the functions of subject. Data released by Tencent shows that reading of the government subscriptions has broken more than 100 thousand in 2015. The WeChat subscriptions of China have been over 100 thousand, and the owing rate of ministries WeChat subscription are more than 40%, even the county-level WeChat public subscription also account for more than 50%. In February 26, 2016, “the State Council client” was officially launched, having been another new media platform for issuing the government information of State Council and providing online services. More and more government agencies clear positioning combining with their work function and gradually open the government client<sup>[2]</sup>. The Government Headline and the Government Yidian both enjoy a relatively rapid development. In Today’s Headlines, the number of the Government Headline was more than 35 thousand at the end of 2016.

More and more scholars and organizations begin to study government new media. The domestic scholar Chen Qiang found in the analysis of international and domestic research on the new media that mainly based on the perspective of the government, researches on government new media include the behavior, strategy, effect evaluation of using, determinants and social governance of government new media. There are a few studies on public view, including the influence of public’s trust on government, decision factors of public adoption and use, public satisfaction with new government media, and the influence of public use on their political behavior.<sup>[3,4]</sup>

However, few studies can be conducted from the perspective of government services and the coordination and interaction between the government and the public. This paper, based on the perspective of value co-creation, analyzes the key elements of public service value co-creation of the

government new media to clear roles and responsibilities of the government and the public, in order to enhance the level of service, and to provide a new perspective and path for the research and service innovation of government new media.

## 2 Research foundation

### 2.1 Concept of value co-creation

The value co-creation is a new mode in the field of business which refers to the process that consumers participate in the sectors of design, production and consumption of a certain product or service and jointly create value with enterprises<sup>[5]</sup>. There are two concepts of value co-creation, currently having a wide influence in the academic circles. Although their research perspective and content are different, the essence is the joint co-creation of products and services through effective interaction between consumer and the enterprise.

In 2004, American scholar Vargo and Lusch, from the perspective of economics, put forward value co-creation theory based on “service dominant logic”. They deem that all the services are based on the exchange, and product is only a kind of tool transferring and using resources. Furthermore, service exchange is an interaction process in which customers create value through integrated efforts with the company, customers, employees and other stakeholders<sup>[6]</sup>. In the realization of the value, the value derived from the process of using intangible and dynamic resources, including human resources, organization resources, information resources and relation resource. All participants are the resource integrator. Relying on contributing their own resources, through interaction to transfer services and benefits, all participants work together to create their value<sup>[7]</sup>.

In 2004, American scholar Prahalad and Ramaswamy from the angle of management put forward the value co-creation theory based on the consumer experience. They hold that producers and consumers as the two main bodies of value co-creation clearly require and experience the personalized service and value co-creation. The consumer can obtain higher level utility and value under the support of service provider.<sup>[8,9]</sup>

### 2.2 The research results of related fields to value co-creation

At present, the research results of value co-creation mainly focus on service marketing, which is not so many in public service of E-government, especially in public service of government new media.

Foreign scholars Subbiah and Ibrahim analyze the importance of collaborative services in creating value, and discuss the key problems and the collaborative value co-creation of value in electronic government planning<sup>[10]</sup>. In addition, they even take Malaysia as an example to analyze the role the public acting in the process of creating value, and the challenge faced by the public and by the value co-creation of government<sup>[11]</sup>. Bridge takes Australia as an example to analyze the experience that will prompt the group to participate in collaborative design of government services, and develop new services based on the agenda for government public service reform<sup>[12]</sup>. Adeleke and Abdul Rahman propose a conceptual framework to explore the value of E-government when the service is used between the service provider and the customer, emphasizing the equal importance to the service provider and the customer as the co-creator of value<sup>[13]</sup>. António A and Nunes proposes a framework of value co-creation in the city’s public transport services where the public traffic information can be unified through Crowd-sourcing, the use of mobile computing devices and special web service, and the improvement of travel experience of passengers and reduction of traffic cost of service can be achieved by using passengers’ knowledge<sup>[14]</sup>.

The domestic scholar Yang Kun presents the six key elements of value co-creation in public services<sup>[15]</sup>. Liu Liu and Hu Guang-wei depending on the PARTS model analyze the system and realization path of value co-creation in E-government services<sup>[16]</sup>. Pang Qing-hua depicts the blueprint of value co-creation in E-government service, and gives relevant countermeasures and suggestions<sup>[17]</sup>. Ren Rui-rong and Shi Yan-xia construct the system of value co-creation in library knowledge service<sup>[18,19]</sup>. Wu Qing-jin based on the theory of value co-creation, studies the perceived value and participation barrier of public in the garbage disposal service<sup>[20]</sup>.

We can see that with the deepening of research, the theory and thought of value co-creation are gradually introduced to the public service including E-government public services, but it is still a

relatively new research perspective since the relevant literature is not too much, especially there is little correlative research on the value co-creation based on public service of government new media.

### **3 Services value co-creation of government new media**

#### **3.1 The connotation of service value co-creation of government new media**

Government new media can provide the public with a series of services including information, public affairs and electronic participation. Thanks to its convenient communication characteristics, the public is more likely and more willing to pass on their views, opinions and suggestions to the government in a timely manner, so that the government can improve its services. The government new media is not only the social application receiving information and service of government, but also a public service platform where the public through the debris spread can participate and accomplish their government and social governance, public affairs and public service review in anytime anywhere<sup>[21]</sup>.

In this platform, the information and services provided by the government can be regarded as a “product” whose value is not the government provides the “product”, but the public access and experience, and even reproduce the “product”. The service value of government new media is created by the public in the process of achievement and experience of service, and is also produced in the procedure of the interaction between the government and the public. Therefore, value co-creation is also suitable for the public services of government new media.

The value co-creation of government new media is the effective interaction between social users (public, enterprises, non-governmental organizations, etc.) and government departments through the new media of government affairs: social users use the knowledge and skills provided by the master or the media to participate in the value co-creation of a list of services such as government service design, provision and improvement.

Government departments provide services to promote the value delivery of services and facilitate communication with social users. While the social users obtain and use these services, they combine their own demand to experience these services, and conduct dialogue and interaction with the government, according to the relevant knowledge and skills, to fully express their expectations, requirements and suggestions of the design, provision and improvement of the government services. Government departments fully understand the public’s true aspirations and needs, striving to provide the government service experience that can meet their individual needs.

#### **3.2 Elements of services value co-creation of government new media**

In 2004, American scholars Prahalad and Ramaswamy proposed the basic elements of joint co-creation, including dialogue, access, risk assessment and transparency. Dialogue means a tendency of equal interaction, deep commitment and action. Access shows that in order to effectively reduce the cost of participation in cooperation which fast information and convenient channels and tools can promote the proximity of both sides. Risk refers to the potential risks and responsibilities for consumers when they participate in creating value? Transparency means that firms are no longer able to keep prices, costs, and profits opaque.<sup>[22]</sup>

Correspondingly, according to the service characteristics of government new media, there are also key elements in the value co-creation of government new media.

Dialogue on the basis of equality and mutual benefit. This means that the government is willing to cooperate with the social users firstly. Of course, the social users are willing and active to participate in the service value co-creation, and there should be no mandatory. In some areas, the government is the only provider of services so that it owns the power to decide the content, procedure, and level of service. If the government would transfer more and more power to social users and the social users can get the equal role conversion to the government, the dialogue between the government and social users is equal.

The mutual approach of the partners requires the government to provide interactive communication channels, and take the initiative to provide information and services and take interaction and communication in the new media platform while the enterprise of new media should ensure convenient access and tools to help and support both approaches. In particular, the government new media enjoys the characteristics of real-time interaction, which makes it easier for partners to

approach each other than other public service channels.

Reasonable policies and institutions. For social users, although the information and services they accept belong to the public affairs, they still have the risk and responsibility of active participation. The government should reduce risks through reasonable policies and systems, and make clear the responsibilities of social users. It also should ensure collaboration between the two parties to improve service quality rather than the reduction of service quality.

Information transparency. Effective cooperation in government services requires the establishment of trust and the provision of the necessary information. The government has the responsibility and obligation to disclose more public information.

Knowledge, skills and all kinds of resources. Value co-creation is the result of the interaction of experienced and skilled service providers and service recipients. If the service recipient wants to take the initiative to participate in cooperation what knowledge and skills they should grasp, what resources can the government provide and what knowledge and technical support and cooperation will be provided?

#### 4 The framework of services value co-creation of government new media

Based on the above analysis of the concept and elements of the value co-creation of government new media, we build a framework of services value co-creation of government new media, as shown in Figure 1.

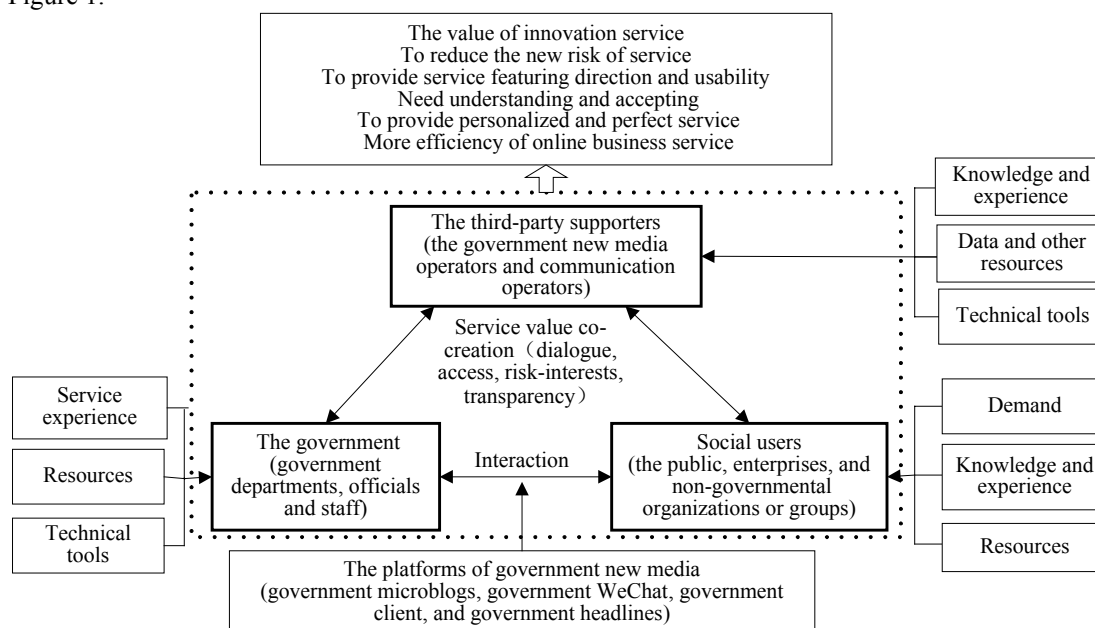


Figure 1 The framework of services value co-creation of government new media

##### 4.1 Stakeholders and their roles in services value co-creation of government new media

In Figure 1, stakeholders including the government (government departments, officials and other staff), social users (the public, enterprises and other non-governmental organizations and groups), the third party support agencies (government new media operators, communication operators, etc.) in the service value co-creation of government new media, all of which influence the process and results of the value co-creation, and also are affected by the output of value co-creation. Their role positioning in the process of value co-creation is shown in Table 1.

In the service value co-creation, the government as the organizer in the process of value co-creation, owns a large number of resources and provides the value proposition to provide channels for information and dialogue of the establishment of value co-creation, and formulate policy and system to encourage social users' participation and all kinds of innovations. The government also

needs a diagnosis and improvement on the problems existing in the procedure of value co-creation so as to provide better service, enlarge the service value to satisfy users, and to encourage them offer their use demand and feedback after using the new media platform.

**Table 1 Role positioning of stakeholders in the value co-creation of new government media**

Stakeholder	Role positioning
Social user	The demander, the service experiencer, the service diagnosis, the cooperation designer, the co-producer and the decision maker
Government	Option-choose advisor, service organizer, cooperation supporter, value amplifier, innovation catalyst
The third-party supporter	Service supporters, collaborative designers, service evaluators

As the main participants of value co-creation, according to their knowledge, experience and resources, social users perceive service quality and make service diagnosis putting forward requirements and recommendations to participate in the process of design, production and provision of public service, process, and in the formulation of government policy to express their suggestions on the satisfaction of using new media platform.

The third party supporting department has the equipment, technology and network of operation of government new media. Thus, it can provide service support for the government and social users, and make corresponding improvements according to the feedback. On the other hand, the government can make the big data analysis according to the data it has, and make the service design and evaluation together with the social users in order to realize the service value better.

#### **4.2 The key point of service value co-creation of government new media**

In order to achieve the ultimate goal of the realization of role of stakeholders and of service value co-creation, the service value co-creation of government new media should follow the 4 elements mentioned above: dialogue, access, risk-benefit, transparency. Concretely, the key points of the 4 elements can be subdivided.

1) The key to cooperative co-creation is dialogue and interaction, and interaction needs institutional guarantee and incentive mechanism

Value co-creation firstly requires the dialogue and interaction of stakeholders, showing that they are willing and able to interact and cooperate with each other.

First of all, we should ask government officials or public officials to set up an awareness of service-oriented and define the service characteristics of government new media, which requires the transformation of organizational culture in government departments. The use of new media in government departments needs to be improved, and the government work process needs corresponding adjustment as well.

What's more, it must have the corresponding incentive mechanism to encourage social users to actively participate in interaction, which not only safeguard the low participation risk but also bring a better service experience, such as through the registration activities, reward gifts, polls, fun games, offline activities to encourage public participation. Hence, the value co-creation of mutual benefit can produce a better service. For example: António A and Nunes propose the framework of joint co-creation of city public transport services in which passengers can exchange their participation information so that we can get numerous real-time data to facilitate their travel and improve the travel experience, and operators can reward those who become the traveler of joint co-creation<sup>[14]</sup>.

In order to ensure public participation and service value co-creation, appropriate supervision should be in place so that the effectiveness of the co-creation and impact of output can be guaranteed. In particular, public participation in political decision-making requires a corresponding system and legal protection.

2) The achievement of dialogue and interaction needs the full use of their own advantage of the resources

Stakeholder's new media literacy, ICT technology capabilities and related knowledge, experience and resources play a very important role in giving full play to value co-creation. The implementation of dialogue and interaction requires support from their respective resources, and their resources are shown

in Table 2.

**Table 2 Resources owned by stakeholders**

Stakeholder	Owned resources
Social user	Service demands, knowledge, experience, relevant skills, time, effort, manpower, financial resources, etc.
Government	Service experience, government information, government policy, executive ability, big data, technical tools, manpower, financial resources, etc.
The third-party supporter	Media platforms, networks, information technology and tools, big data, knowledge, skills, manpower, financial resources, etc.

Based on the principle of transparency, the government should not only open a large number of government information, big data, government decision-making, but also openly accept the knowledge and skills of services to help social users learn and participate in value co-creation. For example, in Nairobi, Kenya, people can participate in surveying and mapping through the media and communities. The map is made up of all map makers who are the young volunteer living and working in the slums of Nairobi. Through community surveys, they create new public information, demonstrating paths, clinics, water supplies and markets, with the aim of providing as much information as possible to the community and creating basic social and economic resources. In addition to providing useful information to the local government, the volunteers also learn new professional skills in the fields of cartography and geographic information system (GIS)<sup>[22]</sup>.

Government officials and staff should strengthen training in skills such as the sense of responsibility, agenda setting, content design, communication skills and media literacy as well as skills in big data analysis. The public in the new media from are changed from the passive receiver of information to producers and disseminators so that the public participation in the co-creation of value has a certain uncontrollability. Under the big data environment, government departments should update the concept, and set up the professional team for the production, analysis, judgment of data. Through big data analysis of new media, it can figure out and meet the public demand so as to realize dynamic, accurate, and personalized service. For example, “@ Chengdu Release” from its beginning, it filters senior editor of management personnel from the municipal media to set up a professional team from the system and personnel in order to comprehensive guarantee the professionalization and standardization of management and construction<sup>[1]</sup>. In addition, government departments should increase the intensity of information publicity, and guide the public to actively participate in the excavation and use of public information, so as to improve the effectiveness of the government’s public fine service.

Access to public information is the first key step to encourage the public to participate value co-creation. However, if the government open the public data, and the public can’t use these data, or is not aware of its availability, value co-creation has no effect. In fact, the public’s reuse of the innovation of data has added value to it. Therefore, on the one hand, the public should improve data literacy, and on the other hand, the government should also provide training to improve data literacy, especially for vulnerable groups. In 2016, Malawi became one of the first countries setting up data literacy training camps to strengthen the capacity of media and civil society organizations to acquire and efficiently utilize open data<sup>[22]</sup>.

On the other hand, the skills and technical tools owned by social users are very important, especially in the company and associations of data mining and data analysis. The government should enhance the cooperation with them, through a number of charitable activities or bidding projects to encourage enterprises to participate in co-creation of public information and provide more understandable data for ordinary people again.

In addition to using its technical resources to provide services, government new media operators need to make effective use of their large data to conduct public behavior analysis, and actively provide public demand and participation in service design. It can also be according to the number of tweeters, reading, forwarding, thumbs-up, and replies, as the third-party evaluation organization make an objective evaluation of service quality of government new media and feedback to guide the

improvement of government service. For instance, the government “the micro space” launched by Tencent micro-blog can not only provide its user with a few functions such as customized and hot keywords subscription, data analysis report and public opinion monitoring in its background, but also carry out classification management of account and complete data analysis providing a solid technical basis for value co-creation<sup>[24]</sup>.

### 3) The access of Stakeholder requires channels and environment

Not only do the government departments should provide more services in the government new media helping the social user can get channel involving in cooperation from a plurality of entrances, especially the analysis of new media channels that all kinds of social groups including the vulnerable groups to be able to use, and using different service mode according to the type of service. Some information service can take the “package” mode, that is, the user enters a media account, and he can get a number of services. He can also through the new media matrix way integrate services in a number of related media, which can effectively integrate government resources. Some services can use the method of “special customization”, that is, only in a professional new media platform which can provide more complete and convenient services, and pay attention to user needs so as to increase interaction and realize value co-creation. For example, after the online of @ the micro publishing of Ministry of public security traffic, the traffic micro-blog will be moved to the WeChat platform, bringing together national traffic management system of micro-blog, and achieving the formation of sound collaboration and interaction. It has both the traffic management information and safety publicity in micro-blog and the traffic management service of WeChat menu, including illegal query and notification<sup>[23]</sup>.

Government new media should provide information or services that are acceptable to the public. For example, in language expression, it should reflect the characteristics of the department, and also the characteristics of the corresponding public groups, which has not only “Individualization”, but also focuses on “popularization” and “localization.” For example, the new media accounts of public security often call themselves the police “Shuli (also called the uncle)” to attract the public reading and spreading, and shorten the distance with the public. When providing information and services, it also can use multimedia information format forms with a lively style, and in the way of graphics, video, animation, audio and video broadcast etc., to increase willingness of the public to get close to the government and enhance their trust of the government boosting the willingness to participate. For example, the Weifang traffic police detachment through the official micro-blog @ Weifang traffic police plays a live video broadcast of surveillance of drunk driving, which attracts more than 30 thousand people to do online watch having become the first government micro-blog revealing publicly the live broadcast of law enforcement in China. “@ UN” also takes a live broadcast of the interview on 12 Secretary General candidates attracting more than 4.5 million people to watch, and the number of thumb-ups are more than 36 million<sup>[24]</sup>.

### 4) Value co-creation requires innovative and multi-party partnership

The third-party supporters, enterprises and non-governmental organizations also have a lot of social resources. The government new media can not only provide the opportunity of perfect service delivery and public participation, but also help all kinds of organization departments to mobilize more resources, thereby enhancing cooperation and innovation of stakeholder to form an innovative and multi-party partnership. This interactive cooperation can also have more action, through various forms of activities including the offline activities, community construction, cooperation, raising public cooperation to enhance the depth of value co-creation, reduce the distance between the government and stakeholder, and accomplish the value co-creation from both online and offline.

For example, Henan province, city of Chongqing and the Shanghai municipal government cooperate with Tencent to build a “smart city”, and one of the important content is to add a series of government services such as transportation, medical care and social security to WeChat. Alibaba and the newly established Ant Gold service have also started to contact with the local government planning to access the above government services into Alipay and Sina micro-blog mobile client<sup>[1]</sup>.

Multi-party partnerships can make use of the resources, knowledge and wisdom of businesses, civil society, science, academia, charities and foundations, volunteers, and other stakeholders. This



collective power is extremely vital for generating ideas, mobilizing and sharing knowledge, expertise, technology, and financial resources. Especially in some fields such as education, health and environmental sustainability, the latest advances in technology, contact and collaboration tools as well as the improvement of all kinds of organization and management practice could significantly promote the development of partnership, and these valuable partners can turn to provide transparent and impartial supervision system.

#### **4.3 Results of services value co-creation of government new media**

The service value of government new media can produce new service value, reduce the risk of new services, and understand and accept the public needs. Moreover, it provides services featuring direction and availability, especially for vulnerable groups to promote the effectiveness of public policy and service delivery, and supply personalized and fine services to social users so that they can contribute their specific resources to society including the time, skills, ideas, and knowledge, depending on cooperation for creating public value, having become a typical innovation with sustainable and inclusive characteristics in social development.

This value co-creation process changes the traditional service model from “meet demand” to “on-demand”, and the public make their own choices and contribution according to their own needs. This will meet the growing demands of the public on participating in public affairs, jointly making policy, and providing services. Therefore, the previous “government-to-you” is transformed into “government-with-you” in a form of external and internal government cooperation so as to prompt the government new media become an innovation platform to link different stakeholders and partners.

## **5 Conclusions**

Since the new media of government has a rapid but unbalanced development, some service effects are not satisfied, which requires the government to initiate an improvement from the aspects of the concept, operation and cooperation with the social users. The new government media should be operated with the idea of “service first” and “user first”, and not simply as a platform for media or information release. When serving the people, it should encourage the public to actively participate in the service process proposing their requirements and suggestions, and to participate in the design, provision and improvement of services so as to enhance public experience and satisfaction, and jointly create the service value with the government.

In the value co-creation of government new media, it is the key and guarantee for value co-creation to establish an incentive mechanism system of political interaction, clarify the role and position of various stakeholders, make full use of stakeholders’ resources and skills, provide a wide range of convenient channels and context, and innovate the cooperation relations among multi-parties.

The value co-creation of government new media is able to produce government services featured personalization, refinement, availability, effectiveness, but the social users participate in public service and public policy in different ways. There is not a universal pattern, so this study is to investigate the key point based on the value co-creation to provide better services. Nevertheless, there are still many challenges and further researches on the specific implementation of value co-creation.

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## Dilemma and Countermeasures of Environmental Cooperation Governance in China \*

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**Abstract** According to serious environmental pollution and ecosystem degradation, it has become an important task to strengthen the cooperation of multiple subjects in the process of environmental governance. At present, there are some difficulties in the cooperation of environmental governance, which affect the effectiveness of environmental governance and the progress of ecological civilization construction. In order to break the realistic predicament and promote the effective cooperation of environmental governance, the social consensus of environmental protection priority should be formed in order to lay a broad social foundation. The principles of justice and benefit sharing should be implemented in order to consolidate the solid interests foundation. The government should play a leading role and reengineer organization of environmental cooperation governance.

**Key words** Environmental cooperation governance, Environmental protection priority, Leading role of government, Reengineering organization

### 1 Introduction

According to serious environmental pollution and ecosystem degradation, it is necessary to strengthen the cooperation of government, enterprises, social organizations and citizens in the process of environmental governance in order to reverse the trend of ecological environment deterioration, build a “resource-conserving, environment-friendly society” and realize the development goal of socialist ecological civilization.

### 2 Environmental cooperation governance: The necessity of reality

Environmental cooperation governance is a process that the government integrates the resources and forces of the multiple subjects and forms the synergy of environmental governance through consultation and cooperation. Its main objectives are to provide the basic social and public services of environmental security, to meet the increasing environmental security needs of the masses, to resolve the contradictions and conflicts of environmental interests among members of society, to advance social justice through environmental justice in order to safeguard the fundamental interests of the people, to promote the construction of ecological civilization, to improve the sustainable development between mankind and nature and realize the good governance of environment.

#### 2.1 Environmental cooperation governance is a positive response of citizens' environmental security needs

The current situation of the overall deterioration of environment in China has not been fundamentally curbed. Environmental contradictions are highlighted and the people's environmental demands are constantly raised. The number of unexpected environmental events is high and citizens' demands for environmental security are stronger. Environmental security is to avoid threats to human survival owe to environmental degradation, and avoid threats to relationships between human groups owe to environmental disputes or conflicts (Kuang Yang, 1997<sup>[1]</sup>). As a public product, environmental security should be provided to the whole society by the government. However, it is difficult for the government itself to provide the environmental security needs of citizens because of the complexity, integrity and long-term nature of environmental governance. The environmental cooperation governance becomes the inevitable choice.

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## **2.2 Environmental cooperation governance is the practical requirement of ecological civilization construction**

Facing serious environmental pollution and ecosystem degradation, the Chinese government stresses the concept of ecological civilization such as respecting nature, conforming to nature, protecting nature, and the ecological civilization construction. Environmental cooperation governance can reverse the deterioration trend of ecological environment from headstream and realize the development goal of socialist ecological civilization through green development, cycle development and low-carbon development enforced by government, enterprises, social organizations and citizens.

## **3 The main dilemmas of environmental cooperation governance in China**

### **3.1 Local governments are less transparent about the ecological environment and less responsive to the needs of citizens' environmental security, which affect the trust and cooperation between the government and citizens**

The lack of transparency in the decision-making process of local government' eco-environmental policies restricts the scope and depth of citizens' participation. Even if there is some kind of participation in the environmental decision-making stage, it is only symbolic. In recent years, more and more NIMBY(Not in my backyard) environmental disputes have been taken because of the unequal participators' status, lack of expression of interests and participation of policy-making . What's worse, local authorities are not timely and not rapid in response to environmental emergencies. The content is not comprehensive and Lack of diversity in response to environmental emergencies. They have affected citizens' trust in government and led to the current serious NIMBY environmental disputes. According to the data, the collective incidents caused by environmental problems have been increasing at a rate of 29% every year. There were about 871 environmental collective incidents the scale of more than 100 people from 2005 to 2016.

### **3.2 Social organizations' abilities in environmental governance are poor, which have affected their active role**

The current social organizations' social foundation is weak, and their living space is narrow. There is legitimacy defect for them. Their poor abilities in environmental governance have affected their active role. For example, Friends of Nature (FON) is the oldest environmental NGO in China. Government purchase of services accounted for only 2.06 of its income sources, according to the 2016 annual report, indicating that it has a lower level of cooperation with the government. About 230 environmental collective incidents occurred in the past 10 years in China, and only 10 cases were intervened by environmental NGOs. Social influence and action of environmental NGOs are limited.

### **3.3 The environmental illegality and environmental pollution of enterprises are more serious**

Environmental responsibility is the development of corporate social responsibility and an important indicator of the development of enterprises. However the environmental illegality and environmental pollution of enterprises are more serious in China. Data from National Environmental Protection Department showed that 471 enterprises (units) in the Beijing-Tianjin-Hebei region and surrounding areas had been inspected, and 334 enterprises had environmental problems<sup>[2]</sup>.

### **3.4 Cross-agency Collaboration failure phenomena in environmental governance practice**

Mainly as follows: (1) The responsibility of ecological environmental protection in the same region is divided into different government departments, which leads to the unclear responsibility, mutual prevarication and not coordination for cross-border pollution, and the ecological environment protection policy is difficult to play expected effect. In the process of water environment management in Shanghai, for example, the relevant departments involved in the Suzhou River governance are "Pollution Control Department of Shanghai Environmental Protection Bureau", "Pollution Control Division of Shanghai Water Affairs Bureau", "Shanghai Water Conservancy Bureau" and "Water Affairs Department" of various district government(Yang Hong-gang, 2014<sup>[3]</sup>). The governance effect is not high. (2) The ecological environment protection of different administrative regions is divided by administrative divisions. Although the cross-regional environmental cooperation governance has been formed between governments, the cooperation lacks stability and institutionalization, and the system efficiency is low.

#### **4 Countermeasures of environmental cooperation governance**

The Environmental cooperation governance has put forward the new request to the government governance ability, namely the ability to reach consensus, build trust, coordinate interests, control risk, provide systems and policies, and use management tools. If the government had strong governance capability, the government could ensure the ultimate goal of environmental cooperation governance. At present the main tasks are as follows:

##### **4.1 Environmental protection priority should become a social consensus, then environmental cooperation governance has a broad social basis**

The Chinese government has always emphasized the harmonious development of economy and environment. If there is an increasingly difficult situation in the coordinated development between the economy and the environment, environmental security and environmental protection should be given priority. Some scholars worry that this choice could affect the growth rate of Chinese economy and its development opportunities(Liu Zhi-xiong, 2013<sup>[4]</sup>). What I want to stress is that the government cannot achieve rapid economy growth at the expense of the environment. Both the government and the society should establish the concept that protecting the environment is to protect productivity and improving the environment is to develop productivity in order to realize the unity of short-term benefit and long-term benefit in the process of social development(Wang Cai-yun, 2013<sup>[5]</sup>). With environmental protection priority becoming a social consensus, environmental cooperation governance has a broad social basis. The common action of environmental governance should be carried out on the basis of such social consensus in order to promote the realization of environmental public interests.

##### **4.2 The principles of justice and benefit sharing should be implemented in order to consolidate the solid interests foundation of environmental cooperation governance**

Environmental conflict generally refers to the conflict which reflects the imbalance, tension or confrontation between people because of environmental problems. Environmental conflict is an issue of interpersonal relations caused by environmental problems(especially the question of justice). Although people are equal in life, not everyone is equally burdened with environmental degradation (Mark Dowie, 1995<sup>[6]</sup>). Social groups lack of ability to pay to protect themselves, their environmental risks perception and tolerance tend to be low, because of inequality in terms of resource possession, discourse expression, decision-making power, etc. leading to unjust distribution of environmental rights, responsibilities and obligations. Such injustice to a certain extent may lead to environmental conflicts. Environmental conflict is essentially a social contradiction in the process of social transition. If there is no suitable way to resolve the conflict, the environmental conflict would become an important factor affecting the social stability of our country. According to the data, Chinese environmental group incidents have maintained an annual growth rate of 29% since 1996, increased by 120% in 2011(Guo Shang-hua, 2013<sup>[7]</sup>). The principles of justice and benefit sharing should be implemented in order to resolve the environmental conflict. We should resolve the differences between stakeholders properly and reasonably in the environmental conflicts, so as to ensure mutual recognition, mutual respect, mutual benefit and win-win cooperation. Therefore, it is necessary to construct a mechanism of interest expression, interest cohesion and interest coordination. First of all, we should improve actively the hearing system, public affairs open system and public forum system to ensure different stakeholders' equality, autonomy and full benefit expression. Secondly, the role of community and virtual community to forge interests consensus should be paid attention to. Thirdly, attaching importance to the role of interests coordination of the legal systems and third-party arbitration.

##### **4.3 The government should play the leading role and use effective environmental control tools to promote consultation and cooperation of all governance bodies and improve their environmental participation ability**

In the process of environmental governance, first of all, the government should study which control tools are more effective in guiding the cleaner production of enterprises, and the government should set minimum standards for environmental protection and environmental governance. Secondly, the government should convene and promote the consultation and cooperation of the various governance bodies (including the cooperation between government and the market, between

government and social organizations, various functional departments of government). Environmental policy and environmental standards should be consensus after consultation and discussion among the multi-governance bodies, so that the implementation of the policy has a broad public opinion base. Thirdly, governance bodies must have a certain ability to participate, and the government should cultivate participation abilities of governance bodies in order to promote the cooperation and become a partnership. The government can improve the environmental participation abilities of environmental protection social organizations and enterprises through the training of professional knowledge, the provision of technology and funds. The core of the participation of social organizations and enterprises is the interaction with the government, which has a substantial impact on the environmental governance plan and the final result. Therefore, it is particularly important for the government to improve the participation system in the ecological environment governance.(1)To improve the participation in the process of environmental policy- making, including promoting institutionalized participation (such as decision-making hearing system, government affairs openness system, etc.) and effective and orderly participation(such as the quality, depth and breadth of participation).(2)To standardize the supervision and participation in environmental governance. The ecological environment has the characteristics of timeliness, universality and concealment, which make ecological environment governance difficult, so the combination of citizens, social organizations supervision and government public power will be able to promote the governance of eco-environment. This kind of supervision includes both citizens and social organizations' supervision of the destruction of ecological environment, and the implementation of government environmental governance policies. This requires the government to regulate the system of participation(such as the way to expand supervision and participation, to create incentive mechanisms to participate in supervision and to strengthen the control of supervision)in order to ensure the order of supervision.

#### **4.4 To reengineer organization of environmental cooperation governance**

The government, market and society can function independently in the field of environmental governance, but the cooperation governance among them may be more effective in the face of special situations or specific problems. The coordination of benefits and the integration of action in cooperative governance are inseparable from an effective organization. In solving certain environmental problems (such as river water pollution control, air pollution control, soil pollution control, etc.), the organization of environmental cooperation governance needs to be reengineered, that is, to construct a composite organization that crosses government, market and social boundaries—"governance community". Such as Hangzhou city under the leadership of the government to construct a composite organization, including three circles, the inner layer is "core decision-making layer", composed of government and market .The middle layer is "operational implementation layer", which is specifically responsible for comprehensive renovation and protective development function. The outer layer is "opinions think tank layer", which act as a role of "think tank" and "supervision", mainly composed of citizens, civil society, news media, experts and scholars, as well as private research institutions(Zhang Zhao-shu, 2014<sup>[8]</sup>).The construction of governance community and the use of community power to implement joint governance have achieved more successful practical experience in the comprehensive renovation and protection of Hangzhou canal, which can provide some inspiration and reference for the organization reconstruction of environmental cooperation governance.

## **5 Conclusions**

Constructing the long-term mechanism of environmental cooperation governance is a long and gradual process. In the period of social transformation, China is experiencing the process of decentralization of state to society and market, while the mechanism of environmental cooperation governance requires the effective integration of the power and resources of government, market and society. Its complexity is too difficult to imagine. But we firmly believe that the formation of environmental protection priority social consensus is to achieve the identity of the values, which can effectively integrate funds, personnel, technology, information, authority, public opinion and other resources, and the effective integration can eliminate differences and obstacles. In the process of resolving environmental conflicts, we should implement the principles of justice and benefit sharing,

which will help to consolidate the solid interests foundation of environmental cooperation governance. To exert the government's leading role and reconstruct the organization structure can make the environmental cooperation governance more effective. Therefore, arousing the enthusiasm, initiative and creativity of government, enterprises and social organizations and promoting the effective cooperation of multiple subjects in China's environmental governance, we can form a forceful resultant force of environmental governance so as to realize the goal of environmental good governance and ecological civilization construction.

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## Cooperation Mechanism of Horizontal Intergovernmental Relations in Urban Agglomerations: An Exploration on Interlocal Joint Meetings from 2006 to 2015 in China

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**Abstract** In China, interlocal joint meetings have been widespread in the development of urban agglomerations. Joint meetings have created a new mechanism of coordination and cooperation in horizontal intergovernmental relations, which can effectively solve the dilemma of regional cooperation and governance. But at present, no reasonable positioning on the joint meeting has been formed in the academic circles, nor the exact understanding about the development situation and characteristics of interlocal joint meetings in urban agglomerations in China. Therefore, the information text and data of 584 joint meetings of Yangtze River Delta, Pearl River Delta, Beijing-Tianjin-Hebei Region and Chengdu Economic Zone from 2006 to 2015 were chosen in this paper and the social network analysis tools and qualitative research methods were adopted to carry out qualitative description and quantitative analysis on interlocal joint meeting. Besides, this paper described the development and structure characteristics of interlocal joint meetings in four urban agglomerations in China, in order to reveal the existence value, development trends and characteristics of the joint meeting which is regarded as the coordination and cooperation mechanism of horizontal intergovernmental relations in the development of the urban agglomerations.

**Key words** Urban agglomerations, Interlocal joint meetings, Horizontal intergovernmental relations, Cooperation mechanism

### 1 Introduction

The development of urban agglomerations is an important part of urbanization in China and also the important carrier of regional economic and social development. In practice, Beijing-Tianjin-Hebei Region, Yangtze River Delta and Pearl River Delta and other urban agglomerations have become the most developed regions in China after nearly 20 years of cultivation and development. In the development of urban agglomeration, superior governments and the local governments in the urban agglomerations tried to explore the formal and informal management and coordination mechanism including the policy planning, administrative incentives, communication and interaction. But urban agglomerations still have many problems, such as redundant construction caused by excessive competition, unbalanced spatial development, imperfect coordination mechanism, conflict of interest sharing, regional policy failure and so on. As clearly put forward in China's New-type Urbanization Plan (2014-2020), we should further "optimize and upgrade the eastern urban agglomerations, nurture and develop the central and western urban agglomerations, and establish coordinated development mechanism of urban agglomerations." Therefore, it is urgent to innovate the management and coordination mechanism of urban agglomerations in practice. In this context, the premise for the establishment of the coordinated development mechanism of urban agglomerations is to recognize and diagnose the current situation and possible trends of the relations among the local governments in urban agglomerations in China, so as to put forward the targeted innovation direction and implementation path for the management and coordination mechanism.

In the development of urban agglomerations in China, the local governments have held interlocal joint meetings to promote the coordination and cooperation within the urban agglomerations. Various types of interlocal joint meetings have been operated liberally in the practice of cooperative governance of urban agglomerations in China, and some have formed the corresponding systems, rules or regulations to ensure their long-term operation. For example, the mayor joint meetings of urban economic coordination in Yangtze River Delta were formed freely in 1997, with a permanent office and regular joint meetings. It had held 15 joint meetings consecutively by March 27, 2015.



In recent years, Chinese scholars have carried out effective researches on the coordination and cooperation mechanism of urban agglomerations. Wang Yu-zhen, Li Jin-long, Tang Yong, Xiong Xue-ru and others relied on the sciences such as the urban planning, administration and management to carry out the problem diagnosis and put forward management suggestions to the coordinated development of specific urban agglomerations in China (Wang, 2009<sup>[1]</sup>; Li and Wang, 2010<sup>[2]</sup>; Tang and Wang, 2011<sup>[3]</sup>; Cheng and Luo, 2013<sup>[4]</sup>; Xiong and Tan, 2013<sup>[5]</sup>; Cheng, 2013<sup>[6]</sup>; Chen, 2014<sup>[7]</sup>; Luo, Zhang and Men, 2015<sup>[8]</sup>; Cao and Liu, 2015<sup>[9]</sup>). These have provided a solid foundation and the case materials for the study of this paper, on which we can explore the further regularity. Some scholars acknowledged that the “joint meetings” had become an important way for the local governments’ policy communications, for example, Zhu Xu-feng and Zhao Hui in the study of policy studies believed that interlocal joint meetings of government officials provided a channel for the local governments’ cross regional learning (Zhu and Zhao, 2015<sup>[10]</sup>; Kim, 2013<sup>[11]</sup>). According to the empirical study, Füglistner showed that the membership of the Conference of the Cantonal Directors of Public Health (CDS) contributed to the promotion of successful policy diffusion (Füglistner, 2012<sup>[12]</sup>). However, few scholars have made a special study on interlocal joint meetings’ role and choice of the coordination and cooperation among the local governments in the administrative areas.

Therefore, the research questions are: what is the kind of regional cooperation mechanism for the interlocal joint meeting? What is the nature of the intergovernmental relations in the urban agglomerations that the interlocal joint meeting reflects? Is there any difference in the mechanism selection of interlocal joint meetings among different urban agglomerations? Answers to these questions should be pursued in the further theoretical and empirical studies.

## **2 Intergovernmental relations and cooperation**

### **2.1 Institutional collective action**

According to a large number of studies, the regionalization has realized the scale benefit of economy. The more important point is that the regional cooperation system shows the absolute superiority in solving the governance dilemmas of common pool resources, and cooperative profit can overcome transaction costs and form a new system (Ostrom, 1990<sup>[13]</sup>; Lubell, Scholz, Schneider and Mete, 2002<sup>[14]</sup>). For the local governments’ autonomous rights are constantly strengthened, the motivation of local governments joining in the regional cooperation has transited from a single reciprocity to multiple motives including reciprocity, coordination and reputation accumulation and so on (Thurmaier and Wood, 2002<sup>[15]</sup>). Thus, the regional cooperation relationship has been evolved into the regional cooperation network. Scholars represented by professor Feiock at Florida State University have integrated the paradigm about collective action problems and institutional analysis, and have put forward the institutional collective action (ICA) framework (Feiock and Carr, 2001<sup>[16]</sup>). The social network and other empirical analysis methods have been gradually introduced to enrich the ICA theory (Feiock and Quasi, 2002<sup>[17]</sup>; Feiock, 2004<sup>[18]</sup>; Feiock, 2007<sup>[19]</sup>).

Institutional collective action takes place in the dynamic process that local governments make political contracts and when they face collective action problems separately. According to the institutional collective action theory, the local governments have to face the ICA dilemmas, when they govern the inter-district and external public affairs, or provide these kinds of public services. ICA theory pays attention to the governance dilemmas caused by the decentralized decision among local governments, and puts forward the collective action from individuals to organizations (Park and Feiock, 2012<sup>[20]</sup>). The ICA framework also defines the system foundation and the tool path of the formation of intergovernmental cooperation network, and emphasizes that the local governments, at the same level or at different ones within the same range, can reach a voluntary cooperation mechanism through the system design. In view of the collective action dilemmas, Feiock put forward a variety of institutional arrangements to ease the plight of collective action, such as multiplex self-organizing systems, councils of governments, externally impose authority and so on (Feiock, 2013<sup>[21]</sup>).

Encompassing Complex/ Collective	Multiplex Self-organizing Systems 7	Councils of Governments/ MPOs 8	Regional Authorities 9	Externally Impose Authority/ Annexation 12
	Working Groups 4	Partnerships/ Multilateral ILAs 5	Multi-Purpose Districts 6	Imposed or Managed Network 11
	Informal Networks 1	Service Contracts 2	Single Purpose Special Districts 3	Imposed District / Mandated Agreements 10
Intermediate/ Multilateral				
Narrow Single Issue/ Bilateral				
	Embeddedness	Contracts	Delegated Authority	Imposed Authority

**Figure 1 Mechanisms for integrating institutional collective action problems**

Source: Richard C. Feiock. The Institutional Collective Action Framework[J]. The Policy Studies Journal, 2013, 41(03)

## 2.2 Intergovernmental Relations: Competition and cooperation

Most of the literature on regional governance or regional public administration put the competition and cooperation as a set of opposite concepts, and treat the cooperation as the negation of competition. The competition among local governments has resulted in the “fragmentation” of the regional public affairs, such as the broken road of infrastructure, the deterioration of the environment and so on. However, Feiock pointed out that competition and cooperation are both the necessary and complementary strategy patterns to the local governments. In its micro model, the cooperation relation between local governments and competitors is particularly important (Feiock, 2004<sup>[22]</sup>). In the face of scarce resources, local governments among regions or organizations are in the type of competition, but this does not interfere with their exchange of information and cooperation. That is, the relationship of competition is not the “relationship” in the sense of organizational sociology. But the essence of the ICA tends to explore the “relationship” in organizational sociology, rather than the individual behavior caused by the structure of the traditional political science. To be exact, the “competitive relationship” is not a “relationship”, but it is a kind of strategic behavior. In contrast, though the “cooperative relationship” is a kind of strategic behavior, it can accumulate social capital and trust, enhance the understanding, thus form the “relationship”, reduce the cost of cooperation, expand cooperation fields and so on.

## 2.3 Cooperative relationship: Cooperation and coordination

ICA distinguishes two kinds of interactive behavior of intergovernmental relations, one is mutually beneficial cooperation, and the other is coordinated cooperation. From the English word, “Hezuo” is called “Collaboration”, but mutual benefit collaboration is often named “Cooperation”, which is the more specific collaboration behavior. In the domestic literature, the two are often confusingly or collectively referred to “Hezuo”. Cooperation emphasizes a kind of behavior that happens among partner actors and is mutually beneficial to all parties. But it requires all parties to make appropriate investments for their cooperation. From the perspective of contract, the rights and obligations of the two parties are equal. This kind of cooperation corresponds to the proceeds from the cooperative projects, and bears higher risks accordingly. And for the coordination, the benefits are not obtained from the cooperative projects, but from the trust, security and other social capital gains by establishing a certain kind of relationship. The risks of this approach are relatively low. Therefore, in the face of regional relations, the use of institutional collective action concept can better reflect the situation of the reality than the general use of cooperation.

## 3 Interlocal joint meeting of intergovernmental relations

Establishing effective cooperation mechanism in intergovernmental relations is an important guarantee to overcome the logical dilemma of collective action. Interlocal Joint meeting is a common

mechanism to effectively solve the dilemma of collective action and achieve regional cooperation governance. Therefore, the interlocal joint meeting plays a very important role in the practice of formation of Intergovernmental Relations.

### 3.1 The positioning of interlocal joint meeting

For the “interlocal joint meeting”, there is no normative definition at present. However, we have analyzed a large number of interlocal joint meetings’ texts and summarized it that: interlocal joint meeting is a self-organizing coordination mechanism produced and developed by horizontal local governments’ voluntary negotiations and talks, in order to solve the problems of public administration in the administrative areas, or to promote the further development of intergovernmental regional cooperation. Through interlocal joint meetings, local governments exchange information and views, negotiate problem solutions, summarize experiences of cooperation, study cooperative ideas and methods, formulate development plans of cooperation, and reach a consensus on the thought and practice at last.

In the course of study on interlocal joint meetings’ texts, various types of interlocal joint meetings have been found. The forms and contents of the meetings can be flexibly determined according to the needs of the present communication and cooperation and would not be carried out in a fixed form. Joint meetings can be divided into different types according to different standards. And according to the research needs, we mainly chose the following five ways of division (Table 1). According to the forms of interlocal joint meetings, it can be divided into one-thing one-discussion meeting and long term exchange meeting (Chen, 2011<sup>[23]</sup>); according to the scale of actors, it can be divided into the bilateral meeting, multilateral meeting and plenary meeting; according to the cooperation mechanisms, it can be divided into the formal meeting, informal meeting and the upper authority involvement meeting; according to the issue areas, it can be divided into the political meeting, economic meeting, public service meeting and comprehensive meeting; and according to the administrative levels, it can be divided into the administrative summit meeting and functional departments meeting.

**Table 1 Types of interlocal joint meeting**

Criteria of division	Types	Characteristics
Forms	One-thing one-discussion meeting, Long term exchange meeting	One-thing one-discussion meeting: be held at any time according to the specific needs, temporality Long term exchange meeting: prior agreement for long-term development, continuity
Scale of actors	Bilateral meeting, Multilateral meeting, Whole meeting	Bilateral meeting: only two cities to participate in. Multilateral meeting: the number of participating cities is more than two, less than total number of cities in urban agglomeration Plenary meeting: All cities in urban agglomeration are involved
Cooperation mechanisms	Formal meeting, Informal meeting, Authoritative meeting	Formal meeting: signed agreements Informal meeting: did not sign agreements Upper authority involvement meeting: superior governments participated
Issue areas	Political meeting, Economic meeting, Public Service meeting, Comprehensive meeting	Political meeting: politics, party politics, etc. Economic meeting: economy, production, finance, etc. Public Service meeting: public goods, public service, etc. Comprehensive meeting: contained a variety of areas
Administrative levels	Administrative summit meeting, Functional departments meeting	Administrative summit meeting: executive head (mayor) participate Functional departments meeting: the relevant departments send representatives to participate

### 3.2 The operation mechanism of interlocal joint meeting

Interlocal Joint meetings’ operation mechanism mainly refers to operations of the entire meeting, including the composition and convening of the meeting and meeting procedures. Because of the rich and flexible types of interlocal joint meeting, it is inevitable that there will be differences in the

operation of the program. But to sum up, joint meetings are mainly carried out around the following aspects. (1) Participants. The local government agencies and their staff representatives have been involved in joint meeting. And the key factor is that participants and issues should have been connected on the authority. (2) Time and duration. According to different types of joint meetings, their time and duration are different. Long term exchange meetings are generally held 1 to 2 times every year, and the duration of meetings is relatively long, lasting 1 to 3 days. And the time of one-time one-discussion meetings is not sure, and it is temporary. The meetings have been held in a shorter period of time, generally within one day. (3) Meeting places. Interlocal joint meetings have been held among the member cities of the urban agglomeration, by the form of “co-sponsored, and undertaken in turn”. (4) Issues and content. Interlocal Joint meetings’ issues and content are generally flexible, according to the current needs of exchanges and cooperation. They cover a wide range of areas, including politics, economy, public services and comprehensive cooperation. And conference organizers submit issues to the relevant participants in advance. (5) Meetings’ functions. Joint meeting study and solve the major problems of social governance among the local governments, sum up the cooperation of the last year, plan for next year’s cooperation, consider and decide the important documents of cooperation, and determine the next term’s host. (6) Information delivery. Release the meeting information to the public through the media, network and other ways. (7) Sources of funds: interlocal Joint meetings’ funds have come from member cities’ annual membership dues or raised funds, not the financial funding. For example, the funds of the City Mayor Joint Meetings of Urban Economic Coordination in Yangtze River Delta come from the member cities’ membership dues about 10000 yuan per year. But the membership dues also caused some controversy.

### **3.3 The characteristics of interlocal joint meeting**

Through the analysis on a large number of interlocal joint meetings’ texts, we can conclude that the interlocal joint meeting has the following basic characteristics, which are also the differences of interlocal joint meetings from other regional cooperation ways. The first is the joint foundation. The joint meeting is established on the basis of local governments’ horizontal cooperation, and interlocal joint meeting is held voluntarily by the member cities of the urban agglomeration. Members decide whether to attend the meeting in accordance with their responsibilities, resources, vocational work related to issues and other elements. The second is interlocal joint meeting’s attributes. Interlocal joint meeting has the nature of the official horizontal cooperation, which serves the public interest, does not change the current government management system and has no subordinate relations with local governments. The third is the form of cooperation. Local governments communicate and consult to each other face-to-face by holding an interlocal joint meeting. All administrative subjects can negotiate and cooperate to each other in accordance with their own wishes. The fourth is the function of interlocal joint meeting. All administrative subjects can exchange information with each other, coordinate the interests of all parties, reach a consensus on cooperation, and regulate the behavior of all parties through the platform of Joint Meeting. The last is the power effect of interlocal joint meeting. The cooperative agreements simply reached by the interlocal joint meeting do not have mandatory effects. And the implementations of the cooperative projects reached by interlocal joint meetings are mainly restrained by the reputation or credibility of all parties.

### **3.4 The function of interlocal joint meeting**

One of the challenges that China’s regional cooperation is facing is the weak regional coordination mechanism. Interlocal Joint Meeting held by the local governments within the urban agglomeration, which points to the participation and cooperation of the common behavior of local governments, is a mechanism for the coordination of the body. As an effective coordinating mechanism, the interlocal joint meeting has played a very important role in the regional cooperation process through face to face dialogues.

First, the interlocal joint meeting provides a platform for the exchange among local governments to promote cooperation measures in place. Interlocal joint meeting provides the chance of consultation and platform for local government to express their willingness and adjust their position, so as to make it possible to eliminate the difference between the parties, coordinate action and reach the final consensus. Interlocal joint meeting has been carried out in an equitable manner and mainly focused on

the content of cooperation and the allocation of the benefits to seek the acceptable solution for all parties. Therefore, this program of cooperation based on negotiation is not only in favor of the parties to abide by, but also conducive to mutual supervision among local governments, mutual trust, so as to promote the regional cooperation in place more effectively.

Second, interlocal joint meeting can effectively contribute to the settlement of local governments' management practices in cross-border issues. The real problems are often due to conflicts in different regions of the administrative jurisdiction, or the lack of clearly defined laws and regulations, or unexpected public issues and other reasons, which lead to cross-border problems cannot be effectively resolved. Because of the strong adaptability and guidance, the joint meeting can quickly and effectively solve the cross-border problem as required. Finally, it will be conducive to achieving the overall co-optimization of regional executive power.

Finally, the interlocal joint meeting is conducive to the overall optimization of regional executive power. The convening of Joint Meeting is good for the information sharing and joint risk assessment between the main participants, find common problems of all parties and the problems to be solved systematically (Liu, 2012<sup>[24]</sup>). Thus, it is possible to achieve the administrative power and the overall optimal use of administrative resources in the urban agglomeration, exert the advantages of integration, enhance the regional competitiveness and achieve the common benefits of the region.

#### 4 Research methods and data collection

The paper, based on the related text information of 584 interlocal joint meetings of Yangtze River Delta, Pearl River, Beijing-Tianjin-Hebei Region and Chengdu plain during "Eleventh Five Year Plan" and "Twelfth Five Year Plan" period (2006-2015), combined the social network analysis (SNA) with qualitative research, as well as the methods of text analysis, data induction, historical research and other technical methods, and then made a qualitative description and quantitative analysis on joint meetings in order to have the more in-depth and comprehensive cognition of the joint meetings, which thus provided a new perspective for regional cooperation research. The use of social network analysis in this paper is conducive to the in-depth exploration of the texts to explain the quantitative data and understanding of the relationship between network members and the nature of the network connection. The links between different levels can be identified and the network changes or new development for a period of time can be studied, because the participants may refuse to continue and exit, or a new member may join in after a certain period (Williams and Shepherd, 2015<sup>[25]</sup>).

Texts of interlocal joint meeting were selected from the public information. The research group searched the official website and daily newspapers of the city using the keyword of "joint meeting" and taking each urban agglomeration as the unit. Samples were selected from the retrieved items. In the process of data collection, we adhered to three principles, namely "time attribute", "regional attribute" and "political attribute". Time attribute refers to the time of interlocal joint meeting from 2006 to 2015. Regional attribute refers to the different cities in the same urban agglomeration (covering the cities, counties, districts, streets, towns, etc.) and other cities beyond the urban agglomeration were not selected for the convenience of the study. China's four major representative urban agglomeration were selected in this study, including the Yangtze River Delta, Pearl River Delta, Beijing-Tianjin-Hebei Region, and Chengdu Economic Zone are studied (Table 2). Political attribute refers to the main body of the participants and their representatives from two or more than two cities. The government in this study refers to the broad sense of the "big government", including the executive, legislative, judicial and other political institutions. Accordingly, 584 effective informative texts about interlocal joint meetings had been sorted out.

Then the text information was extracted from the collected 584 joint meetings and the variables and codes were designed. The coding validity and reliability were tested. The complex information text was divided into 6 analysis dimensions to design variables and carry on the quantitative statistics, including the meeting time, meeting place, issue area (politics, economics, public services and comprehensiveness), scale of actors (bilateral, multilateral and plenary), agreements signature (yes or no), participants' level (national, provincial, municipal and county level).

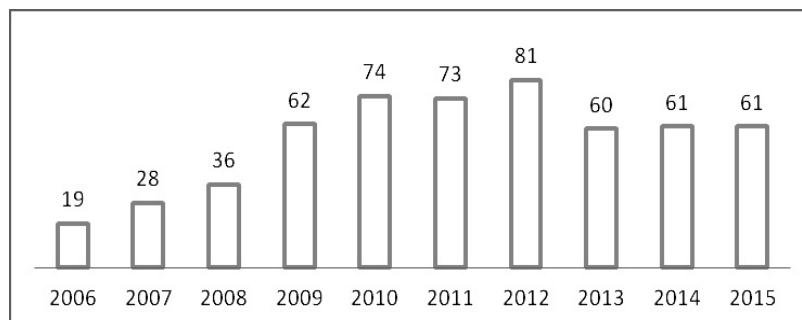
**Table 2 Urban agglomerations and cities**

Urban agglomerations	Name of cities	Number of cities
Yangtze River Delta	Yancheng, Suqian, Xuzhou, Lianyungang, Wuxi, Nanjing, Changzhou, Suzhou, Nantong, Yangzhou, Zhenjiang, Taizhou, Hangzhou, Lishui, Taizhou, Jinhua, Quzhou, Wenzhou, Ningbo, Huzhou, Jiaxing, Shaoxing, Zhoushan, Shanghai	25
Pearl River Delta	Guangzhou, Shenzhen, Zhuhai, Foshan, Jiangmen, Zhaoqing, Huizhou, Dongguan, Zhongshan	9
Beijing-Tianjin-Hebei Region	Qinhuangdao, Zhangjiakou, Cangzhou, Chengde, Tianjin, Tangshan, Langfang, Shijiazhuang, Beijing, Xingtai, Baoding, Handan, Hengshui	13
Chengdu Economic Zone	Chengdu, Deyang, Mianyang, Suining, Leshan, Yaan, Meishan, Ziyang	8

## 5 Horizontal intergovernmental cooperation in urban agglomerations

### 5.1 The development process of interlocal joint meeting

Sorting the 584 interlocal joint meetings by year, the distribution of time for interlocal joint meetings held in the four typical urban agglomerations in China from 2006 to 2015 could be obtained (Figure 2). On this basis, we could further infer the entire development process of Chinese regional joint meeting in recent years and predict its future development direction.



**Figure 2 The development process of interlocal joint meeting**

The year 2006 was chosen as the starting of interlocal joint meeting research, in order to study the regional cooperation between local governments during the “11th Five-Year” and the “12th Five-Year” periods. There was sporadic text information of interlocal joint meetings, however, it had not been scaled or typical. Besides, through extensive inquiry, we could find that three urban agglomerations had not adopted interlocal joint meeting as the way of cooperation except for Yangtze River Delta, which had convened the joint meeting before 2005. In consequence, it is scientific to choose 2006 as the starting.

According to Figure 2, it’s clear to divide the development process of interlocal joint meeting into three stages. The first stage is 2006-2008, during which joint meeting appeared in the urban agglomerations gradually, and increased steadily year by year. One of the reasons was the learning process of the beneficial experience from the regional cooperation of Yangtze River Delta. The second stage is 2009-2012. There had been a substantial increase of interlocal joint meetings in 2009, and it maintained a steady growth in the development trend till 2012, when interlocal joint meeting came to its summit, making the second stage the heyday in the history of joint meetings. In 2012, the four urban agglomerations had convened interlocal joint meetings up to 81 times altogether, and 20 times for each. In this stage, the joint meeting had been highly sought after by local governments, and became a common way of regional cooperation. The third stage is 2013-2015. After the previous upsurge, the times of convening joint meetings had entered in a downtrend, and kept about 60 times a year, showing an extremely steady development trend.

Based on this development trend, we believe that the whole process of interlocal joint meeting has

reflected the characteristic of enthusiasm. And the enthusiasm reflects that it's the rationalization and practical function of Joint Meeting, a method of regional cooperation, which leads to its widely popularized, sustainable and stable development. What's more, we also believe that, as a self-organization's coordination mechanism among local governments, the joint meeting will exist in the regional cooperation among local governments as long as we can see, and it will play a more and more important role in the regional cooperation and development.

### 5.2 The regional distribution of interlocal joint meeting

The collection of texts and data of interlocal joint meetings when taking an urban agglomeration as the unit contributes to grasping the distribution of interlocal joint meetings in each region. Thus, we can understand the difference of region cooperation based on different economic and social conditions among different urban agglomerations. It's beneficial for exploring the current status of region cooperation among different urban agglomerations' local governments and exchanging and learning experience to compare the difference in the distribution of joint meetings. According to statistics, the regional distribution of joint meetings is shown in Figure 3.

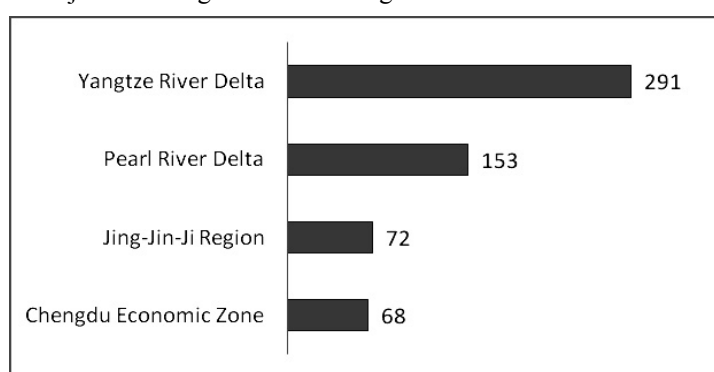


Figure 3 The regional distribution of interlocal joint meeting

We cannot simply carry out the regional comparison using “the total number of joint meetings in each urban agglomeration”, because the number of cities is different in different urban agglomerations. Then we further calculated the “average number of interlocal joint meetings for each city” (Table 3).

Table 3 Average number of interlocal joint meeting in urban agglomerations

Urban agglomerations	Average number of ILJM for each city
Yangtze River Delta	73.52
Pearl River Delta	70.78
Beijing-Tianjin-Hebei Region	13.62
Chengdu Economic Zone	38.25

According to Figure 3, Table 1 and Table 3, we can see that Yangtze River Delta held most interlocal joint meetings based on numerous cities, and its “Average Number of ILJM for Each City” (about 73.52) was also the largest. Pearl River Delta has fewer cities but it held enough interlocal joint meetings as well. Although the total number of meetings in Pearl River Delta was much smaller than that of Yangtze River Delta, its “Average Number of ILJM for Each City” (about 70.78) was almost the same as that of Yangtze River Delta. Beijing-Tianjin-Hebei Region has more cities, but the number of the meetings was not ideal, and its “Average Number of ILJM for Each City” (about 13.62) was the least too. The statistics showed that the meeting process of Beijing-Tianjin-Hebei Region was slower and only in the past two years there was a large increase, so the total number was less. In Beijing-Tianjin-Hebei Region, participating cities mainly are Beijing, Tianjin, Langfang, Zhangjiakou and so on, and the rest cities participated in less meetings. Chengdu Economic Zone held the least interlocal joint meetings with the least number of cities. But its “Average Number of ILJM for Each City” (about 38.25) was not low, and it was much higher than that of Beijing-Tianjin-Hebei Region.

According to the data comparison, there was the regional difference in the development of

Interlocal Joint Meeting. On one hand, it was held more actively in Yangtze River Delta and Pearl River Delta. On the other hand, Beijing Tianjin Hebei and Chengdu economic zone held a few times, and much less than the former. It's currently in two different levels or stages of development. This imbalanced regional distribution has a close relationship with the economic and social conditions, regional cooperation and the status and atmosphere of the urban agglomeration. The specific internal connection and the reason of the difference are worthy to be studied in our further research and exploration.

### 5.3 Characteristics of horizontal intergovernmental cooperation mechanism in urban agglomerations

Based on the characteristics of the diversity of its own types and the explanation framework of institutional collective action theory, we can further explore the structure characteristics, mechanism selection and other issues of interlocal joint meeting through quantitative data in order to realize the combination of theory and practice and mutual verification. It can also provide a useful reference for the sustainable development of interlocal joint meeting.

#### (1) Complexity selection of horizontal intergovernmental cooperation

The scale of actors is an important feature of intergovernmental cooperation. Intergovernmental cooperation is constrained by transaction costs, including the cost of negotiation, an important indicator of measuring the complexity of the activity of Intergovernmental Cooperation. At the same time, the size of actor scale determines the approach and feature of its connecting of internal networks. Feiock further distinguished the complexity of cooperation, namely the cooperation of bilateral, multilateral and all directions (Shrestha and Feiock, 2006<sup>[26]</sup>). The bilateral cooperation is the simplest approach of regional cooperation, which has the lowest transaction cost. All actions contain all actors in the region. The request of all actions is based on their established common rules. Because of extensive supervision to determine the early common rules, the transaction costs of cooperation are also low. In the middle of the status of multilateral cooperation, it costs more for the choice of partners, establishment and maintenance of the rules. Therefore, in three scales, the multilateral cooperation is the most complex form.

According to the extraction and encoding of data from 584 interlocal joint meetings, the “structural diagram for the network of interlocal joint meetings” was drawn out, as shown in Figure 4.

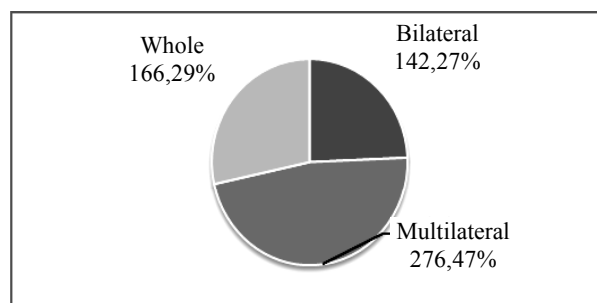


Figure 4 The actors' scale characteristics of interlocal joint meeting

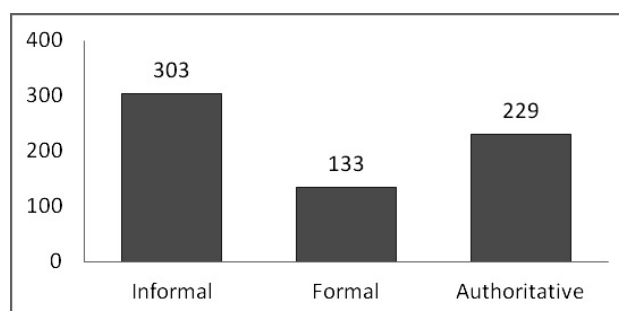
The salient feature of the current network structure at the meeting could be seen from Figure 4: the network structure of interlocal joint meeting was mostly multilateral, and it had been held 276 times, nearly half of the total. Bilateral meeting was approximately equal to the whole meeting, each accounted for about 1/4 of the total, and the whole one was slightly more than the bilateral meeting. These data indicated that the choice of interlocal joint meeting's network structure was flexible, but local governments tended to choose a highly complex form of meeting—the multilateral one, and did not ignore the effect of the other two forms at the same time. The proportion of the three distributions was relatively balanced. Such a benign network structure selection, on the one hand, showed that the local government was willing to pay more transaction costs in exchange for a better cooperation effect, embodying the local government's pursuit of the effectiveness of regional cooperation. On the other hand, it indicated that the interlocal joint meeting based on good network structure had the actual effect on regional cooperation of local governments.



### (2) Flexibility selection of horizontal intergovernmental cooperation

The cooperation mechanisms among local governments were divided into formal cooperation, informal cooperation and authoritative cooperation in ICA framework (Feiock and Scholz, 2009<sup>[27]</sup>). The difference between formal and informal cooperation is whether it has signed a binding contract. Informal cooperation can reduce transaction costs, such as information cost, supervision cost and so on, by enhancing information exchange and mutual trust, and it is a more flexible choice than the formal one (Ma, Suo and Chen, 2014<sup>[28]</sup>). The reason for superior governments to participate in local actors' cooperation is to actively or passively reduce the transaction costs and risk of cooperation considering the construction of policies, rules and platforms.

Based on this theory, it was applied in the study of interlocal joint meeting. The information was extracted from the meeting texts and the meetings' characteristics of mechanism selection were obtained (Figure 5).



**Figure 5 The mechanism choice characteristics of interlocal joint meeting**

Figure 5 showed that the informal cooperation mechanism was the most among the cooperation mechanism choices of interlocal joint meeting, and it was about 303 times, up to 50% of the total. Formal cooperation mechanism was less, only 133 times. The mechanism of authoritative cooperation was also in the majority, and there were 229 interlocal joint meetings with representatives from the superior governments, including the provincial governments and even the national government.

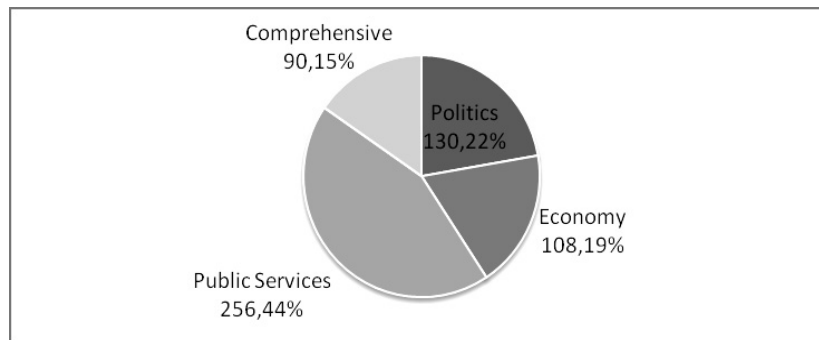
The characteristics of cooperation mechanism showed that local governments tended to hold interlocal joint meetings in a more flexible way in order to promote the implementation of regional cooperation. Compared with the traditional cooperative ways-interlocal agreements, interlocal joint meeting such cooperation is more flexible and diversified. In interlocal joint meetings, local governments can choose to sign agreements according to their needs in order to achieve and regulate the cooperation. They also do not need to sign agreements, but to achieve cooperation through regular meetings and consultation, and to promote the implementation of cooperation through fostering trust and mutual supervision, because the next meeting will usually be a review and summary of previous one. In addition, the cooperation agreements signed among local governments do not have forcible execution and have a lot of disadvantages. Interlocal joint meeting can just make up for the lack of cooperation agreements, realize the constraints of local governments by credibility, and thus promote the implementation and development of regional cooperation. The authoritative characteristics showed that the regional cooperation mechanism with Chinese characteristics still applied to the cooperation way of interlocal joint meeting. It is worthy noting that, the intervention of superior authority did not indicate that interlocal joint meetings were held by the superior governments' organizations or requirements, but local governments invited superior governments to attend for the attention of meetings, or in order to enhance the reliability and validity of meetings and reduce the transaction costs and risks of cooperation. And it also showed the effectiveness of interlocal joint meeting that the local governments pursued.

### (3) Content Selection of Horizontal Intergovernmental Cooperation

At present, the topic of regional cooperation nearly covered all the contents of the public administration of the local government area. Because of the different characteristics of goods and services, different contents of cooperation lead to the specificity of asset. We must adopt different

cooperation organizations, cooperation objects and cooperation forms to gain in the cooperation (Carr and Feiock, 2004<sup>[29]</sup>). This influence of domain feature and its multiple extension make it difficult to distinguish the effects of different subject characteristics and different field characteristics on the cooperation, and hard to reveal the true cooperation in the real situation.

Therefore, based on the broad issues in the field of interlocal joint meeting, it was divided into four categories in this study: politics, economy, public service and comprehensive to simplify the classification. Thus, its structural characteristics could be studied by the quantitative way.



**Figure 6 The issue area characteristics of interlocal joint meeting**

We could make out that the main issue of interlocal joint meeting was public service from Figure 6. 256 times of interlocal joint meetings regarding the public service had been convened, accounted for 44% of the total. The other three accounted a basically equivalent percent, about 15% - 20%, more for the politics, but less for the comprehensive. Regional cooperation was based on the economy or industry as a link at the early stage. With economic integration, the flow of resource elements, and the migration of population, the field of regional cooperation has been transferred gradually. The features for the issues of interlocal joint meeting indicate that the current regional cooperation lies in the public service field. The local government held an interlocal joint meeting in order to better solve the public products, public services and other aspects of the problem. For example, the Interlocal Joint Meeting of Guanting Reservoir Management, the Interlocal Joint Meeting of North Jiangsu Earthquake Emergency Response Cooperation Zone, the Interlocal Joint Meeting of the railway project of Ya'an-Meishan-Leshan and the Interlocal Joint Meeting of Shenhui Environmental Protection Liaison Group, showed the characteristics of interlocal joint meeting for public interests.

## 6 Conclusion and discussion

In recent years, interlocal joint meetings have been emerging in the cooperation of urban agglomerations gradually in China, and have become the important practice form of horizontal intergovernmental coordination and cooperation for local governments. Qualitative description and quantitative analysis have been carried out in this paper by text information collection and data extraction code. The paper has described the overall development of interlocal joint meetings in four urban agglomerations in China, Yangtze River Delta, Pearl River Delta, Beijing-Tianjin-Hebei Region and Chengdu Economic Zone. Some important conclusions have been obtained.

First, the interlocal joint meeting is a self-organizing coordination mechanism which has been produced and developed with voluntary conversations and negotiations among the horizontal local governments. Interlocal joint meetings have been widely used in the practice of cooperative governance in urban agglomerations, because of its cooperation ideas which is called “communication and coordination, co-consulting and task-sharing, and win-win” and its actual coordination effects of the horizontal intergovernmental relations. The mission of interlocal joint meeting is to enhance the coordination and cooperation among the horizontal local governments, and it plays a role of mainstay in the process of China’s urban agglomerations.

Second, based on 584 interlocal joint meetings’ statistics and quantitative analysis on four big urban agglomerations, we can evaluate the structure characteristics of China’s interlocal joint meetings

from five aspects including activity, regional, flexibility, complexity and public services offering (Table 4). (1) Interlocal joint meetings have been held in an active way, showing a rapid development trend, and have increased steadily year by year. (2) Interlocal joint meeting shows the regional features, as there is a big difference in its active degrees among urban agglomerations. (3) Interlocal joint meeting has been held with complexity, because of the higher proportion of multilateral cooperation in the scale of the actors. And it shows that local governments are willing to assume higher costs of cooperation in order to achieve better effects. (4) Interlocal joint meeting is flexible, because of a higher proportion of informal meetings. It adopts a social mechanism, not a political mechanism. (5) Interlocal joint meeting has been committed to providing public services. The meeting issues are mainly dominated by public services focusing on social services and governance and serving public interest.

**Table 4 The structure characteristics of interlocal joint meeting**

	Activity	Regional	Complexity	Flexibility	Public Services Offering
Index	Number of meetings per year	Number of meetings per urban agglomeration	Proportion of multilateral meetings (47%)	Proportion of informal meetings (52%)	Proportion of public services meetings (44%)
Characteristic	Active	Regional differences	High transaction costs	Social mechanism	Social services and governance

Finally, this study is still at the initial stage, and there are some shortcomings to be overcome in the further research. Firstly, the current texts and data of interlocal joint meetings are mainly collected from local governments' official websites and the city dailies, and there is a space in the database which needs to be further complemented. The second is that this paper just stays at the stage of descriptive analysis, and a more accurate analysis on the influencing factors of structural, network and regional distribution characteristics of the meeting needs to be done in the next step. Thirdly, because of the different economic and social conditions faced by local governments in different urban agglomerations, the issue whether the choices of meeting mechanisms and the effects of cooperative governance are different is also worthy to be further explored.

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## The Superior System of Sci-Tech Development in China: An Overview of the Research on the Whole-Nation System of Sci-Tech Innovation

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**Abstract** The whole-nation system of sci-tech innovation, which is derived from the whole-nation system of sports, is an important facet of the socialist whole-nation system. The whole-nation system of technological innovation is an integral part of the China model. It is characterized by the China-style big science. With the help of the whole-nation system, China has realized the leap-forward development of science and technology. Such system has a series of institutional advantages. Under the whole-nation system, we “concentrate our forces on major tasks” to achieve high efficiency, develop a spirit of “strong social cohesion, lofty spiritual driving force, strong sense of national identity”, establish a scientific decision-making system. However, this system also has its limitations, such as putting too much emphasis on the role of government. The discussion about the institutional advantages of China’s sci-tech development is conducive to understanding, building and deepening the development of socialism with Chinese characteristics.

**Key words** Sci-tech innovation, The whole-nation system, Management of science and technology, Reconstruction

The whole-nation system of sci-tech innovation mobilizes and concentrates limited resources towards the domain of strategic targets with efforts nationwide to solve major sci-tech tasks, thus having obtained significant sci-tech achievement such as the success of making our own “atomic bomb, hydrogen bomb and artificial satellite”. This paper, based on the perspective of literature review, summarizes the experience of the technological leap-forward development of China, and illustrates the Chinese path by which a nation with less-developed science and technology developed quickly, from falling behind to chasing up, and from chasing up to keeping pace with other developed countries, and finally to surpassing in innovation. The whole-nation system of sci-tech innovation is an important component of national governance, revealing the non-western social governance model can provide the world with “a Chinese scheme for human beings to explore a better social system”, which, to a certain extent, can reverse the idea that western developing patterns predominate the global development.

### 1 The definition and connotation of the whole-nation system of sci-tech innovation

The connotation of “the whole-nation system of sci-tech innovation” can be understood from three aspects.

Firstly, referring to the whole-nation system of physic education. The term “the whole-nation system of sci-tech innovation” was originally borrowed from physical education system. “The whole-nation system” was a commendatory term used by foreign countries to refer to the Chinese system of P.E. in early 1980s. It is featured by an orientation of national targets, abundant national resources, solid base of the masses and an integrated managing system (Fan Chun-liang, 2010<sup>[1]</sup>).

Secondly, consisting of the China model. We have an extensive and profound social base for the implementation of the “whole-nation system of science and technology”. There were similar traditions in history like organizing the masses to complete huge projects such as the Great Wall and The Grand Canal in large scale. China also has powerful mobilizing ability in terms of politics, which can release huge mental energies after integrating with national emotions of the Chinese people. Besides, the great sense of identity of social value and political belief are the major power source and ethical basis of Chinese whole-nation system of science and technology, differing it from any other nation’s operating mechanism (Wang Su-li, 2001<sup>[2]</sup>). “The whole-nation system”, also known as national mobilizing system, is a part of the China Model, which can be dated back to thousands of years of traditions.

During our long-term operation of sci-tech system, the characteristics of the socialist system and the cultural atmosphere of collectivism enable our nation to tackle hard-nut problems in science and technology with centralized management. (Sun Zhao-gang, 2011<sup>[3]</sup>). The western scholar Wittfogel cited “King Yu taming the flood” as his theoretic basis of water control, and as the organizing plan for national integration. The implementation and control of this plan require the safeguard of national supreme power. And also, the scientific research of China also needs an integrated plan for organization guaranteed by the supreme power (Li Zu-de, 1995<sup>[4]</sup>). Nibisttle referred the Chinese system to a type of vertical democracy, which includes top-down instructions and bottom-up participation, demonstrating spectacular efficiency and practicality in concentrating institutional resources, gathering public wisdom, amassing powers of people, and solving many significant problems (Zhou Shi-qiang, 2012<sup>[5]</sup>).

Thirdly, developing big science in the Chinese way. After the Second World War, science and technology has developed under the trend of “big science”. The trend is feature by great scale, large quantity, great influence, clear organization and planning, and has become an important pattern for scientific development. The whole-nation system of sci-tech innovation is the inevitable choice for the implementation of “big science project”. The nation has responsibility to organize the implementation of “big science project” (Zhong Shu-hua, 2009<sup>[6]</sup>). Viewing the developing condition of Chinese major scientific projects, we can tell that each breakthrough of significant sci-tech projects is closely related to the influence of “whole-nation system”. It reflects the ideology of sci-tech nationalism: the nation is the sole subject and investor of sci-tech projects and the only beneficiary of the sci-tech achievements; the country will govern the process and direction of sci-tech activities, and science and technology become the means of realizing national goals (Duan Zhi-wen and Zhong Xue-min, 2006<sup>[7]</sup>). The conditions of socialist public ownership closely correspond to the coordination and unification required in the development of big science (Shen Dan-na and Shen Dan-hong, 2011<sup>[8]</sup>). However, the whole-nation system is distinctive from big science. With obvious Chinese characteristics, the system is not the natural result of large-scale scientific development, and hasn’t a base of many sci-tech research achievements. Instead, it shows its features of an artificial top-down drive and administration (Hu Wei-jia, 2006<sup>[9]</sup>).

## 2 The advantages of the whole-nation system of sci-tech innovation

To meet the rigid demand of national benefits, institutions of top-level design are arranged. This unique institutional advantage has always been the most essential part of competitive advantage of China. The advantages are mainly reflected in the following three aspects.

Firstly, “concentrating our forces on major tasks”. “atomic bomb, hydrogen bomb and artificial satellite”, manned space flight and lunar exploration programs are all completed under the “whole-nation system”. The primary advantages are the nation’s ability to mobilize science and technology so as to concentrate our forces on major tasks, the comprehensively high efficiency in achieving extraordinary and leap-forward development, and a high-level autonomy in mobilizing intelligence, technologies and matching capacity both at home and abroad. The whole-nation system of science and technology possesses high efficiency in resource allocation under either planned economy or market economy. Under planned economy, through administrative planning, the government assigns manpower, financial resources and material resources to relevant fields, and directly organizes the implementation. While under the market economy, products and services realize the flow and allocation of resources through market mechanism, and then guide the aggregation and distribution of innovative resources (Chen Hua-xiong and Wu Jia-xi, 2013<sup>[10]</sup>). “Grand unification” theory can be used to explain the characteristics of the whole-nation system of sci-tech innovation: all of the units participating in sci-tech programs can be regarded as an integrated system, within which subsystem can be employed whenever needed, and with the cooperation of efficient distribution of resources, to achieve lead-forward sci-tech development (Zhen Zhi-hong, 2012<sup>[11]</sup>).

Secondly, “strong social cohesion, lofty spiritual driving force, strong sense of national identity” serve as the spiritual root. The whole-nation system allows failures in sci-tech projects, and this help minimize the spiritual aftereffect of failures (Si Jian-nan, 2010<sup>[12]</sup>). The whole-nation system is

established on the basis of Chinese people's confidence and pride. It is the precious fruit of the combination of patriotism and collectivism of Chinese people (Wang Su-li, 1995<sup>[13]</sup>), with an ability to generate a spiritual power that gathers the whole nation, and improve the holistic cognition of the national strength. What's more, the development and achievements gained extend far beyond the cost paid by the project itself (Ren Jian-tao, 2014<sup>[14]</sup>). The immediate interest obtained from "the whole nation system" is obvious, however, the indirect benefit and implied benefit (such as political benefit and image benefit) is more important (Zhu Yu-xia, 2011<sup>[15]</sup>).

Thirdly, making scientific decisions within the institution. The advantage of Chinese political system determines that a "neutral government" can be maintained to a great extent no matter what kind of decisions or actions are made. The government can make any decision and action only out of its own interests, so as to be more scientific and reasonable in decision-making, and to avoid being hijacked by any interest group. Those characteristics usually are not possessed by western countries (Hu Wei, 2016<sup>[16]</sup>). The whole-nation system is built on scientific and democratic decision-making. Formally, the system is not only a working mechanism but also a political strength (Ye Du-chu, 2008<sup>[17]</sup>). Its advantages generally include "brainstorming, democratic decision-making, investigation and research, public decision-making, being practical and realistic, rational decision-making, dialectical consideration and correct decisions (Hu An-gang, 2013<sup>[18]</sup>)".

### **3 The limitations of the whole-nation system of sci-tech innovation**

Under the socialist market economy system, the "whole-nation system" shows inelasticity in meeting the needs of rapid sci-tech development, such as overemphasizing the government's plan and national will, lacking of sensitivity to market, having difficulty in rectifying a deviation once the goal or task are set up, and ignoring the uncertainties of scientific research, especially of the fundamental research.

Firstly, overemphasizing the driving force of the government. Popper pointed out that, little science plays a considerable role in the advancement of science and technology, and over-pursuing the value and meaning of big science can often destroy great science. Therefore the government should encourage liberal scientific environment (Popper, 2004<sup>[19]</sup>). Scientific development is unpredictable, so the "big science program" desired by the whole-nation system is risky itself. If the government, with limited resources, is inclined to allocate too many resources on big science, they will bring about the shrinking of resources of small-scale research programs (Pu Mu-ming, 2005<sup>[20]</sup>). The whole-nation system of sci-tech innovation belongs to "other-organization innovation system", which is implanted with powerful national authority and organizing capability, so as to monopolize innovative elements and resources. Such innovation relies on external instructions to achieve and integrate innovation, therefore neglecting the internal spontaneity and primitiveness of sci-tech innovation (Tang Ren-wu, 2013<sup>[21]</sup>).

Secondly, overemphasizing the guidance of artificial plans. Scientific research is an action of strong privacy. Individual research freedom is the prerequisite of scientific progress, while the external organizing and planning is only a shoddy tool (Li Xing-min, 2010<sup>[22]</sup>). Sci-tech innovation is a complex process with uncertainties, and scientific research, especially the innovation in the field of basic research, is even harder to preset and engineer. Overemphasizing the engineering actually is limiting the limitless innovative possibilities to several limited areas, which undoubtedly is an act of sacrificing the majority for the minority (Huang Tao, 2015<sup>[23]</sup>). From the perspective of risk management, big science program is an integrated project with large-scale investment and huge risks in terms of techniques, management, environment and science (Luo Xiao-an, 2007<sup>[24]</sup>).

Thirdly, overemphasizing the national will. The vague boundary between government and market is a long-existing problem in our country. Therefore, for a long time, the market is controlled by the nation, and the national will determines the freedom of it. Sadly, under the whole-nation system, the cost for great achievements obtained in a short period is that the freedom of the market is suppressed infinitely. And also, The whole-nation system including the whole-nation technology system has obviously become the tool for the national will. In the long run, the whole-nation system will become a self-defeating system (Zheng Yong-nian, 2016<sup>[25]</sup>). We need to seek reasonable balance between the

whole-nation system and decentralized governance. But at present, we still rely too much on the top-level design for breakthroughs, and keep ignoring the vitality of the market and scientific research institutions (Cao Cong, 2015<sup>[26]</sup>).

#### **4 Countermeasures of reconstructing the whole-nation system of sci-tech innovation**

Firstly, we need to bear in mind the concept of governance to construct the whole-nation system of sci-tech innovation. The technological system must realize the conversion from a management concept centered on control to a governance concept centered on coordination, from single management of government to joint management by diversified subjects, from management technology to governance innovation, and from plan management and policy management to multiple governance (Sun Fu-quan, 2014<sup>[27]</sup>). An efficient sci-tech managing system requires multiple-way coordination and self-autonomy between the national power, the market institution and scientific community. (Yang Ji-ming and Feng Jun-wen, 2013<sup>[28]</sup>). The whole-nation system doesn't mean that the nation should undertake everything. The nation, together with civil, enterprise and social power, should play their separate roles in sci-tech innovation. The new pattern of whole-nation system does not push the scientific research with administrative planning, but establish large-scale scientific research teams nationwide, integrating multi-powers of colleges and universities, scientific research institutes and enterprises, to pool all wisdom and efforts to make breakthroughs in key sci-tech fields.

Secondly, constructing a new pattern of sci-tech whole-nation system requires proper disposals of several relationships. The whole-nations system of sci-tech innovation should adapt to the technological advancement and its own objective law, and handle the relationship between means and goals, the nation and the market, the part and the whole, concentration and integration, success and failure based on specific national conditions (Du Bao-gui, 2012<sup>[29]</sup>). The government plays the role of a decision maker, an activator, a coordinator and an estimator in significant technological programs. To deal with the relationship between other-organized innovation and self-organized innovation requires not only the innovation of organization, which means proper use of the whole-nation system under market economy, but also high degree of attention to self-organized innovation, optimization of the environment for sci-tech research, the improvement of enterprises' vitality, and public participation (Chen Jin, 2014<sup>[30]</sup>). A good command of the balance between big science and little science requires establishing a sci-tech system structure, which dose not only adapts to the real economic society but also conforms to the law and requirements of contemporary scientific development. Besides, the structure should be an elastic structure with both the hard core of big science and the soft organization of little science, so as to prompt the comprehensive balance and harmonious development of the scientific system (Shen Dan-na, 2009<sup>[31]</sup>).

Next, constructing a new pattern of the sci-tech whole-nation system requires sufficient reference to the experience of the old whole-nation system. On one hand, we should learn from the experience of making "atomic bomb, hydrogen bomb and artificial satellite" under planned economy: scientific decision-making, centralized and unified organization and leadership, scientific strategy planning, proper guidelines, unique managing mechanism and construction of scientific research team during engineering practice (Liu Yu-dong and Zeng Hua-feng, 2013<sup>[32]</sup>). And also, we should be aware of that, solid fundamental research is the premise of self-dependent innovation; collaborative innovation of industry-university-research is the valid way of overcoming difficulties; systematic and scientific management is the efficient way to implement major projects; deep integration of army-civilian technology is the important safeguard for sound and fast development; proper deployment of human resources is the key to career success; and the spirit of patriotic dedication and bravery of conquering the peak is the power source of accomplishing great causes (Chen Ru-biao, 2014<sup>[33]</sup>). These elements constitute a "tasks-leading-disciplines" managing mode of science and technology, and a trinity management system of "policy+administration+technology" (Dong Jia-min, 2016<sup>[34]</sup>). On the other hand, we should also refer to the experience of manned space flight under market economy. The manned space flight project creatively adopts a flexible project mechanism of "two-general system" (general director and general designer). This modern theory of project management makes the division of labors more clear, systematic and reasonable (Xing Chao, 2012<sup>[35]</sup>). By combining the innovation



chain with industry chain both internally and externally, the mechanism abides by the objective law of both technical innovation and market development, thus realizing the efficient organization of big science projects (Ren Ping, 2016<sup>[36]</sup>).

Fourthly, constructing the new whole-nation system of sci-tech innovation needs a few transformations. Compared with the traditional whole-nation system, the new whole-nation system has three transformations. The first one is transforming the administration-configured resources into the market-configured resources, solving project issues such as approvals, decision-making, budget and profit distribution. The second one is transforming from the product orientation to commodity orientation, meaning paying attention to both technology chain and value chain, and to both the product and the market performance. The third one is transforming the focus on the realization of goals to equal attention to realization of goals and benefits, meaning taking both realization of goals and input and output profit into consideration (Li Zhe and Su Nan, 2014<sup>[37]</sup>).

Fifthly, constructing the new-whole nation system of sci-tech innovation needs to moderately draw lessons from the practice of other countries. Western countries including the USA also adopt the whole-nation system while proceeding major technological projects, of which some common principles and experience are worthy of notes. Learning from their experience, we should establish similar scientific and effective decision-making and organizing systems. We should also refer to the organizational management mode of foreign major sci-tech programs, deeply analyzing the lifecycle of major special projects, estimating the stage characteristics of major special projects in the course of tackling hard-nut problems in science and technology, developing technologies and going through industrialization, and timely adjusting the organizational management mode with thinking of adaptability in tactics. According to the goal, research contents and technical route of every sci-tech special projects, we can formulate specific organizational management modes in sorts with avoiding the sweeping approach. (Feng Shen-hong and Liu Rui-tong, 2011<sup>[38]</sup>). Then, we should establish process management system to enhance process supervision on the implementation of scientific projects, by intensifying the dynamic monitoring of projects, introducing project supervising system and project assessing mechanism, strictly controlling the project quality, and ensuring the validity of resource allocation (Wu Jia-xi and Dong Cheng, 2011<sup>[39]</sup>). Apart from reinforcing the leadership and coordination in the top level, we should adopt the mode of “centralization+decentralization” in the management, and employ responsibility system, letting responsible departments supervise, manage and evaluate their corresponding projects (Cheng Ru-yan and Wang Yan, 2008<sup>[40]</sup>). The assessment of big science projects should adopt a comprehensive assessment mode with the third-party evaluation as its core, and with mutually independent and supportive third-party evaluation and internal evaluation (first-party and second-party evaluation) (Wang Chuan-ke, 2016<sup>[41]</sup>).

## 5 Conclusions

Firstly, deepen the theoretic research. Radical reform shall be conducted inwardly to clarify the relevant concepts and scientific connotations of the whole-nation system of sci-tech innovation. Based on the clear definition of such concepts as science, technology, engineer and innovative whole-nation system, we should discriminate the distinction and relation between the whole-nation system and big science, and research on the effect range and manners of innovative whole-nation system in different fields including science, technology, engineering and innovation. The government not only need to implement the national will to realize the national strategic goals, but also need to maintain and stimulate the vitality of subjects of all kinds of sci-tech activities, thus making the system conform to the operating law of the government, of science and technology itself, of market economy and of socialism.

Secondly, intensify the empirical research. We need detailed research on principles that need adhering to, on measures needing enhancing, on fields needing perfecting, on practice needing abandoning or referring to. Besides, we need to conduct sort research on the whole-nation system modes of sci-tech innovation, including united research mechanisms that have international influences (e.g. SLSI program of Japan), public and private partnership (e.g. Galileo program of EU), project responsibility system (e.g. National Nanometer Program of the US), corporative enterprise system (e.g.

Airbus Industrial Company) and whole-nation system of “politics+administration+technology”(e.g. atomic bomb, hydrogen bomb and artificial satellite).

Thirdly, optimize research on countermeasures. Under the circumstances of globalization of science and market economy, we need to further define the functions of the government in the whole-nation system, and perfect and redefine the respective effect range, degree and pattern of manifestation of the government and the market.

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## On Multi-dimensional Collaborative Governance in the Construction of Cultural and Creative Communities—A Case Study of Zengcuo'an Community in Xiamen, China

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**Abstract** In the trend of modern development, with the increasing recognition of culture and creativity among the government and the public, the development of local cultural industry has become an important direction of “integrated community construction”. Building cultural and creative communities and shaping community bonds should not rely solely on the government, but also the collaborative governance of other players. This paper focuses on a case study of the Zengcuo'an Community in Xiamen and explores community construction through the introduction of culture and creativity. The collaborative governance of the government, community self-governing organizations, residents, and businesses in space rearrangement, site construction, governance mechanism construction, and system guarantee is studied with the case analysis method. The experience in the multi-dimensional collaborative governance of the Zengcuo'an Community in Xiamen is summarized to serve as reference for the development of cultural and creative communities.

**Key words** Case study, Cultural and creative communities, Zengcuo'an, Collaborative governance

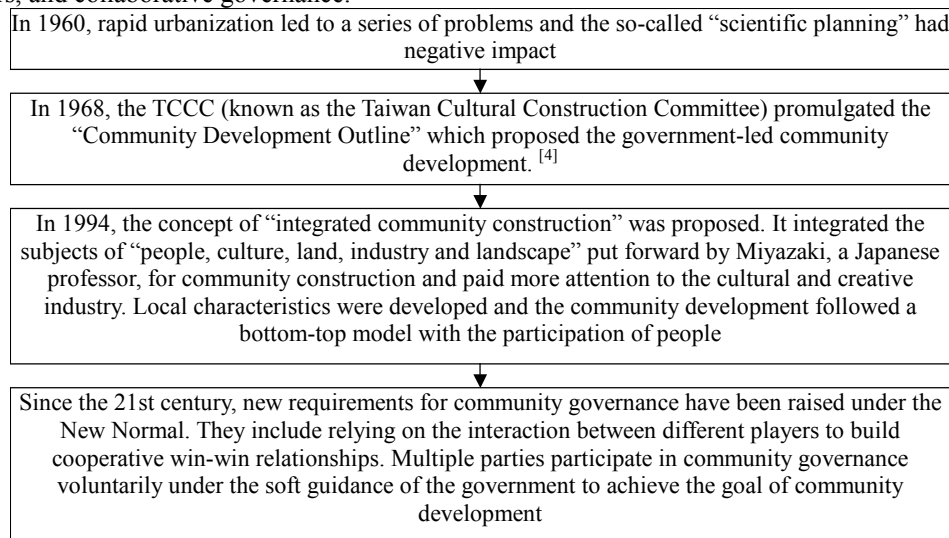
### 1 Introduction

Community is an integral part of society, and the quality of community governance has a crucial effect on society. Since the Fifth Plenary Session of the Eighteenth CPC Central Committee, a new path of social fine governance has been identified. “The Thirteenth Five-Year Plan” also emphasizes the innovation of social governance model. A wave of exploring new community governance sweeps across the country<sup>[1]</sup>. Exploring the governance of cultural and creative communities should start with the community formation and pays attention to the process of cultural deposition. The construction of the community needs to integrate various resources, especially cultural resources, so as to achieve the purpose. Since the unique culture and characteristics of a local community are irreplaceable, the culture and creativity of the community should be fostered during the construction process to prepare for the construction of a cultural and creative community economically and environmentally. This is an active response to the call of the CPC Central Committee for promoting the integration of the cultural industry with tourism, sports, information, logistics, and construction<sup>[2]</sup>. *The Several Opinions on Promoting the Integration of Cultural Creativity and Design Services with Related Industries* requires promoting the cultural and creative industry and tourism development and the integration of the two industries. The construction of cultural and creative communities is part of such integrated development as it gives full play to the advantages from the integration of the two industries and adds sustainable vitality to communities<sup>[3]</sup>.

Under the influence of the culture and creativity building wave, how to build a cultural and creative community and exercise fine governance is a question to think about. In the construction of a cultural and creative community, culture has become a key factor. Creating a community identity no longer relies solely on the government. The government-led management model no longer meets the needs of a cultural and creative community. Instead, multi-dimensional coordination and participation is needed to give full play to the power of the government and social self-governing organizations, to combine the autonomy of the community public and the cultural businesses, to arouse the sense of belonging inside the residents to the community, to maximize the use of the power of the main players, and to finally achieve sustainable development of the community. With the Zengcuo'an Community in Xiamen as an example, this paper analyzes the governance method of Zengcuo'an Community and explores how to enrich the collaborative governance of cultural and creative communities, in the hope of offering some reference for the development of such communities.

## 2 Existing studies on the collaborative governance of cultural and creative communities

As shown in Figure 1, rapid urbanization has led to disorderly communities, the basic social units. In order to develop the communities, a community construction movement occurs. During the construction process, time has proven that the government-led community development model has not been adapted to the integrated community construction. Moreover, due to the different interest demands of different players, to achieve win-win needs government guidance, participation of multiple players, and collaborative governance.



**Figure 1** Brief introduction to the studies on the collaborative governance of cultural and creative communities

### 2.1 Integration of cultural creativity and community construction

As the cultural and creative industry is introduced into the community construction process, more connotation will be given to the “culture” in the “people, culture, land, industry and landscape” and travel, accommodation, traditional arts and crafts, local customs, cultural customs, and historical buildings are melted into the community life as local industries<sup>[5]</sup>. Wu Li-ren created community characteristics from clogs as a cultural and creative product; Lin Rong-tai dramatized the cultural figures in the community to form cultural products; Wang Qing-hua rebuilt the community industry model with a characteristic industry; Liao Zhe-qiang developed the community by rebuilding the Hakka culture. In these cases, culture and creativity are more or less added to the community construction process.

### 2.2 Development of multi-dimensional community collaborative governance

Community governance requires cooperation, reciprocity and trust. The governance subjects, pluralistic but not single, can achieve win-win through cooperation. Zhou Jin-ping suggested that citizen participation degree and scientific participation have a great influence on community governance. Community governance requires the synergistic interaction between community governance and residents’ autonomy<sup>[6]</sup>. Due to the diversification of public goods supply structure, community governance also requires the participation of multiple parties, including the government, social organizations and community residents<sup>[7]</sup>. Public affairs are solved through the order of cooperation. In community governance, cooperation is a form of governance to solve the problem. Cooperation encourages consensus and can increase the collective interests<sup>[8]</sup>. Due to the inner differences in different communities, adjustments should be made to the governance model for different community forms, affairs and needs<sup>[9]</sup>.

### 3 Analysis of the Zengcuo'an Community in Xiamen

Based on the collected papers, introduction from community-related personnel about community construction, government websites and news reports, the Zengcuo'an Community in Xiamen is found to be an influential and relatively mature example in the construction of cultural and creative communities.

#### 3.1 Basic information about the Zengcuo'an Community

Surrounded by three mountains and one sea, Zengcuo'an is located in the southeastern part of Xiamen Island and is adjacent to Xiamen University. With the development of tourism in Xiamen, Zengcuo'an is an attractive tourist spot due to its cultural characteristics and diversity. Zengcuo'an includes eight natural villages under the control of Binhai Street Office, Siming District, Xiamen City. It covers a total area of 1,450 square meters and consists of 10 residents' groups. There are 1,473 households and 4,252 residents.

Zengcuo'an started as a traditional fishing village and shifted to an overseas Chinese village and then an ordinary natural village. Due to the well-preserved village landscape and the historical and literary heritage, it later became an art village. Owing to commercial corruption, it was labeled as a hotel village. Finally, the collaborative governance of multiple players turns it into a cultural and creative tourism community. Zengcuo'an experiences a process from prosperity, decline and revitalization, as shown in Table 1.

**Table 1 Development process of Zengcuo'an community**

Time	Development stage
Before the 20th century	Traditional fishing village, military fortress, later with investment from overseas Chinese, attracting a few artists to settle down
Mid and late 20th century	Later a marginalized urban village, overseas Chinese moving out, cultural carriers declining, a natural village
2000	Developing tourism by virtue of the traffic location, the complete village pattern and the ancient culture
2003	Village reformed to community, an urban community that attracted art lovers to promote community development
2004-2005	Due to low rent, a large number of bed-and-breakfast owners were attracted into the community
2006	Housing rental became the main community income and the community became a fully degraded "fishing village" that attracted many literary young people
2007	The government reformed it as a urban cultural and educational, convalescence, and entertainment community
2009	With the development of the Internet, it attracted a large number of art writers to settle down
2010-2011	With the development of traffic, a large number of bed-and-breakfasts, stalls and art shops emerged and the land prices soared
2012	High degree of commercialization, over-exploitation, chaotic market order, tardy garbage disposal, backward facilities, etc. A transformation plan was made to solve these problems and the community was positioned as a cultural and creative village to develop local cultural and creative industry and tourism. Commercial corruption gradually drowned the artistic atmosphere in the community
2013	Zengcuo'an became a pilot urban village in Xiamen City, with its infrastructure such as drainage, roads, and hygiene all being transformed. "Temporary Measures for Managing the Cultural and Creative and Recreational Bed & Breakfasts in Zengcuo'an" and other rules and regulations were formulated. For collaborative governance of the government, proprietors, businessmen, and tourists, self-governing organizations such as the Association of Proprietors, the Cultural Creativity Committee and the Public Council were founded.
2014	Stick to multi-dimensional collaborative governance under the guidance of the government to construct Zengcuo'an
2015	During the community construction process, the autonomy of residents was strengthened, and the Cultural Creativity Committee and the Association of Proprietors built a bridge among the government, entrepreneurs and residents to achieve win-win
2016	It attracted 14 million tourists and the tourism output was not less than RMB1.9 billion <sup>[10]</sup>

### 3.2 Operation of the collaborative governance of Zengcuo'an community

Although the number of local residents in Zengcuo'an is limited, the development of tourism has led to the rapid growth of businesses and practitioners and the number of tourists remains high. It is difficult for the government to solve the problem of governance effectively all by itself and it is hard to meet the governance needs of multiple players. A governance model that relies on the soft guidance of the government and the voluntary participation of residents to address space rearrangement, site construction, governance mechanism construction, and system guarantee of Zengcuo'an Community is adopted to encourage multiple players including businesses and proprietors to manage the community together.

#### 3.2.1 Organization structure of the collaborative governance of Zengcuo'an community

Zengcuo'an community is under the jurisdiction of Binhai Street Office of Siming District and there is a neighborhood committee in the community. Under the guidance of the government, a self-governing organization named Public Council of Zengcuo'an was founded to be responsible for coordinating the conflicts between residents and businesses. The council includes the Cultural Creativity Committee (composed of the businesses), the Association of Proprietors (composed of the residents) and the community cadres. The Cultural Creativity Committee rules a market operation center, a tourist service center and a cultural creativity center, and it is mainly in charge of market affairs. The Association of Proprietors rules a fire brigade, a security patrol, a temple council, and an elderly association, and it is responsible for market maintenance. The security volunteers in the community also assist in daily management. Any conflict of interest between the Association of Proprietors and the Cultural Creativity Committee is solved by the dispute mediation center. In order to stimulate the vitality of the community, a public creative space was created in Zengcuohuo and it consists of the grassroots government and the Cultural Creativity Committee. This space's main mission is to provide community design and transformation and to enhance the image of the community brand so as to create a good environment and atmosphere for entrepreneurship.

The government organizations, subordinate units, social organizations, businesses, and residents are the main players to govern the community on a consultative basis to jointly address community development and daily community management. (Figure 2)

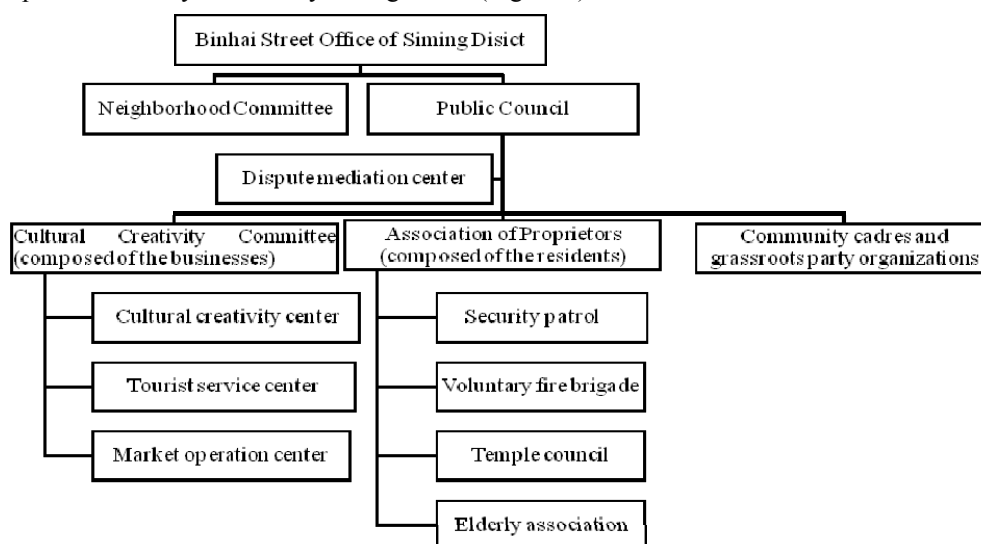


Figure 2 Organizational structure of Zengcuo'an community governance

#### 3.2.2 Analysis of the collaborative governance of Zengcuo'an community

In terms of space rearrangement, the analysis focuses on the main infrastructure, the spatial pattern and the environmental optimization. The government, the neighborhood committee, residents, businesses, and self-governing organizations have contributed their own strength. From the building to the renovation of infrastructure, the government's role shifted from being a leader that invested a lot of

money to a guide that embraced the participation of other players such as businesses, residents, the Cultural Creativity Committee, and the Association of Proprietors. They successfully built in the “five streets and eighteen alleys”<sup>[11]</sup> and the road and sewage discharge system of Zengcuo’an. In terms of spatial pattern, the pedestrian overpass that was connected to sea was built under the leadership of residents and the support of the government. With the assistance of the neighborhood committee, the government funded an expert team and combined the views of residents and businesses to build the overpass. It also hired experts and planners to work out a systematic plan for the community as a whole and rewarded residents and businesses that provided art paintings in the streets and landscaping transformation<sup>[12]</sup>. The purpose was to increase the literary and cultural elements of the community and ultimately form a unique local culture. In terms of environmental optimization, the government dominated the construction while businesses and residents participated in the construction of green space. The trash control campaign initiated by the Cultural Creativity Committee and individual businesses was supported by the government and the Neighborhood Committee and was participated by residents and tourists alike. These joint efforts were crystallized into a beautiful and clean community environment. In general, from pedestrian overpass to the sewage discharge system, as well as the roads, the infrastructure, and the community environment layout, the government, the Neighborhood Committee, residents and businesses all participated as collaborators. The community was systematically optimized from details to the whole.

In terms of site construction, cultural and landscape transformation activities such as temple repair, community change, and celebrity and cultural anecdotal tracing were carried out. The government launched the “Southern Fujian Historic Houses Regeneration” program to create characteristic communities. Historic houses in Southern Fujian were renovated with other participants. The residents led the restoration of the religious buildings, namely: Yonghu Temple, Holy Goddess Temple and Fuhai Temple that had strong local cultural characteristics in Zengcuo’an. They became real owner of the community with their own power, along with the assistance of the government and the strong support from the Neighborhood Committee. The residents also led the construction of the “Flower Tunnel” landscape project. Under the supervision of the government and the support of the Neighborhood Committee, the businesses participated in the project and a design company was invited to be in charge of design and transformation. With both internal and external landscape transformation, the flower tunnel ultimately became a major highlight of the community. In order to strengthen the building and cultural construction of the cultural and creative industry in the community, the government guided the residents and businesses to participate in exploring community celebrity anecdotes voluntarily and built the “Time and Space in Fishing Village” in the Village History Museum and “Ode to Golden Gate” in the Cultural Museum of Zengcuo’an. With the community construction and development, the market has attracted a variety of creative shops to settle down, and these creative shops and street paintings complement each other to gradually form a community art culture. Under the collaborative governance of the government, residents and businesses, Zengcuo’an successfully retains the cultural essence of Southern Fujian.

In terms of governance mechanism construction, with the maturation of the Temple Council, the Association of Proprietors, the Cultural Creativity Committee and the Public Council, an increasingly mature governance mechanism takes shape in Zengcuo’an. The village affairs used to be co-managed by the government and the Zeng clan, and the clan elected their authoritative members to constitute the “Elderly Association” and to serve as representatives of the Temple Council in charge of clan and temple affairs. With the community development and the settlement of external businessmen, problems like disorderly stalls, arbitrary expansion of residential houses to be hotels, and willful rental rise emerged. In order to get rid of these problems, the Association of Proprietors was founded under the support of the government and the promotion of the Neighborhood Committee and community residents in 2012. Through continuous efforts, the problems were solved. Due to rent increases, increased rent disputes, illegal expansion of hotels and houses, the owners of family hotel businesses that were not approved by the government held regular meetings to discuss about the response to government inspection and the legalization of hotel business. Later, these business owners developed into an Association of Youth Entrepreneurs. They then further decided to found the Cultural Creativity



Committee to focus on solving these problems. Some businesses decided to organize cultural activities such as “Cultural Youth Festival” in order to win government support. These cultural activities allowed businessmen in the community to strengthen communication and provide new ideas of cultural development. The “Cultural Youth Festival” finally evolved into a community festival that was supported by the Street office and the Neighborhood Committee. In 2013, the Cultural Creativity Committee gained general recognition among the businesses and obtained the legitimacy status. After the legitimacy status for the bed and breakfasts was obtained, the Cultural Creativity Committee shifted its focus to managing the businesses, promoting the development of cultural industries in Zengcuo’an, safeguarding the interests of the businesses, and building the community as a cultural and creative brand. Indeed, the Association of Proprietors and the Cultural Creativity Committee had a lot to communicate. In order to facilitate the communication between the proprietors and the businesses, the government organized the establishment of a public council which was composed of the elected representatives of the NPC, representatives of the Neighborhood Committee and the Party secretary of the community in late 2013. The Public Council is in charge of the communication and negotiation between the Association of Proprietors and the Cultural Creativity Committee. As the self-governing organizations become increasingly mature, the community governance mechanism is further developed and improved and the community development is more orderly.

In terms of system guarantee, all aspects of community affairs can be carried out smoothly only under the constraints of systems. Under the guidance of the government, the self-governing organizations have established relevant systems to jointly safeguard the community order. In 2012, the Association of Proprietors passed the “Articles of the Association of Proprietors in the Cultural and Recreational Fishing Village in Zengcuo’an”, which stipulates that the nature of the Association of Proprietors is a nonprofit organization voluntarily founded by the residents. The rights and obligations of the members, the organizational structure, the assets management and other matters are also prescribed. This Articles of Association is recognized by most residents. Due to the increasing number of businesses in Zengcuo’an, the interest between businesses and proprietors is expanded. In order to standardize the management, the Cultural Creativity Committee adopted the “Interim Measures for the Management of Bed and Breakfasts in Zengcuo’an Village”. These consensus management rules are supported by the proprietors and the government and allow businesses to make self-rectification. Ultimately, a healthy environment for community development is created. In 2015, under the guidance of the Public Council, in order to systematically regulate the rental market, shop decoration, business integrity and other issues, “The Convention on the Self-government of Zengcuo’an Cultural and Creative Village” was formulated to regulate the businesses, tourists and residents<sup>131</sup>. On this basis, the “Management Methods” and the implementation rules were introduced to clearly define issues such as housing rental and alteration, environmental remediation, fire safety, and business management. At this point, the management systems that cover inns, illegal construction, hygiene, and night market have been in place to guarantee the development of the community.

### **3.3 Effects of the collaborative governance of Zengcuo’an community**

#### **3.3.1 Optimized and integrated community resources**

The multi-dimensional collaborative governance truly reflects the notion of serving the residents and meets the real needs of residents. The multi-dimensional collaboration approach absorbs the proprietors, businesses and individuals to participate in the whole process of community building. As the space rearrangement and the site construction are advanced on the basis of the participation of all parties, the external costs for community governance are low.

#### **3.3.2 Enhanced sense of belonging and the community identity among the residents**

The community awareness of residents continues to expand and they become real owners of the community. As the owners of the community, the residents have the right to participate in and supervise the operation of community affairs. In the construction of Zengcuo’an community, the residents are gradually shifting from passive participation to active participation and play the role as the most important participants.

#### **3.3.3 Harmonious relationships between different factions within the mechanism**

The factions within the community adhere to the concept of equality and participate in public

affairs through consultation and cooperation. Breaking the original way of acting independently, they work together to deal with community affairs.

### 3.3.4 Good results achieved from system construction

In Zengcuo'an community governance, the Public Council builds a communication platform for residents and businesses. A self-governing convention is introduced to play due role in promoting orderly development of the community. The Cultural Creativity Committee and the Association of Proprietors introduce respective management approaches to play their due roles and participate in the community governance under the guidance of the government to make the governance process more transparent.

## 4 Conclusions

The space construction and transformation of Zengcuo'an community makes the overall environment complement each other, and the infrastructure, roads, and public facilities of sanitation and drainage are gradually improved through the joint efforts of all parties. The overall effect of space is strengthened. The development and inheritance of religious culture and art culture in the community benefit the relevant stakeholders, and the cultural and creative industry enlivens the community economy. The self-governing organizations in the community are established in an orderly manner under the guidance of the government to improve the channel for residents and businessmen to participate in community management. A mechanism for negotiation among multiple parties such as the grassroots government, the Neighborhood Committee, proprietors, and businesses is established. The proposal and revision of relevant regulations, methods, and conventions provides system guarantee for the community and self-governing organizations and enhances the community identity among the community members. The multi-dimensional collaborative governance of Zengcuo'an Community provides a benign regeneration and development platform to achieve sustainable development of the community from material to spiritual and from tangible to intangible construction.

The following aspects, therefore, are of concern in the construction of cultural and creative community: (1) Importance should be attached to historical and cultural heritage, protection of traditional culture, addition of creative and cultural elements, development of cultural and related industries, and shaping of new special cultures; (2) Space should be integrated with the overall environment; (3) The role of community self-governing organizations should be emphasized, and the government should guide the relevant players moderately until multiple parties are gradually involved to manage the community; (4) Efforts should be made to improve the governance mechanism, strengthen the system construction, and ensure the identity of the diverse players; (5) The government should guide the community in the mobilization of self-empowerment so as to reduce the costs and government investment in community construction. Indeed, cultural and creative communities with varying degrees of maturity should be constructed with different methods under different development stages. The success of Zengcuo'an community provides a reference instead of a model to be copied blindly.

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## An Empirical Study on the Fertility and the Supply of Maternal and Child Health Care Service in China \*

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**Abstract** With the implementation of the “The universal two-child policy” in China, the fertility desire of the people of childbearing age has gradually become a hot spot in the research of relevant scholars. To understand the current fertility desire in China is conducive to improve the fertility rate and change the current unbalanced population structure in China. However, the factors affecting the desire to give birth to a second child are diverse. In this paper, in addition to measuring the fertility desire of the people of childbearing age, we also focused on measuring and analyzing the impact degree of the current business services supply, social services supply and government service supply of maternal health care and child health care on the fertility desire. Meanwhile, we investigated the policy needs of the childbearing age people for the relevant public service of the maternal and child health care. And combined with the empirical analysis, we put forward some suggestions to better the current situation of maternal and child health service supply in China, thus improving the fertility desire of the childbearing age people, reducing the social risks brought by their two children, optimizing the population structure and improving the population quality of China.

**Key words** Childbearing age people, Fertility desire, Maternal and child health care, Service supply and demand

### 1 Research background and problems

China began to implement the “one couple can only have one child” fertility policy in the late 1970s. For nearly 30 years, the population of China has been effectively controlled, achieving the change of population reproduction type from the “high birth rate, low mortality and high natural growth rate” mode to the “low birth rate, low mortality and low natural growth rate” mode. However, the long-term implementation of the one-child policy also has a negative impact on China’s population structure. According to the published data from China’s Bureau of Statistics, in the two decades from 1980 to 2015, the old-age dependency rate of China’s population increased from 9.5% to 14.3%, the child-age dependency rate decreased from 39.3% to 22.6%, and the birth rate also decreased from 16.98% to 12.07%, which was lower than the critical fertility level. Many problems such as the imbalance of population structure and the reduction of new labor force have become increasingly prominent. These changes are very detrimental to the long-term development of our society and economy.

In view of this, China began to implement the “selective two-child policy” in 2014 and implement “The universal two-child policy” in 2016, hoping to change the situation that becoming old before becoming. However, some scholars have made surveys on the fertility desire of some cities and some groups in our country. The results show that the fertility intention of the two children is not optimistic (Yang Ju-hua, 2015<sup>[1]</sup>). And the fertility rate of China is not ideal. It can be seen that in the case of letting births, it will be also difficult to raise the fertility desire of the group of childbearing age and realize the expectation of fertility policy without providing relevant social policies’ auxiliary propulsion.

Among a large amount of public service contents, this paper takes the health care management services of maternal and children as the research topic, and centers on five aspects including the premarital care, pregnancy care, puerperium care, maternal and infant care and child care of maternal and child health care service, trying to answer the following two questions: Firstly, how is China’s

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current policy supply situation of the public health care service of maternal and child; Secondly, how will the maternal and child health care policy supply affect the fertility desire of the group of childbearing age.

## 2 A summary of domestic and foreign research

At present, the interpretations of the fertility desire of our scholars mainly based on Gu Bao-chang's fertility three-dimensional theory (Gu Bao-chang, 1992<sup>[2]</sup>), that is, any fertility has a certain number, a certain period and a certain gender. The fertility research in China is often closely linked with the fertility policy, in the stage of family planning policy in China, since the policy stipulates that only one child can be born, the research of this period is mainly to study whether our people are willing to give birth to one child and the willing is strong or not. As the research shows, the ideal number of children in our population showed a declining trend in general (Zheng Zhen-zhen, 2014<sup>[3]</sup>; ). With the successive introduction of "double two-child policy" and "selective two-child policy", the relevant scholars' study became focused on the desire of having two children, that is, if people are willing to give birth to a second child. Although the research results of this period had shown that fertility willingness improved (Mao Zhao-yan, Luo Hao, 2013<sup>[4]</sup>), the childbearing age people's ideal number of children also increased. But because our current scholars' measurement on the fertility desire is still sporadic, if "the universal two-child policy" can really achieve its expectations, improving our fertility rate, also need to conduct in-depth tracking measurement, further follow-up investigate the changes in fertility desires of the of the childbearing age people.

In terms of the factors which affect fertility desires, research achievements are most prominent in sociology and economics. In the field of sociology, sociology incorporate social and personal factors into the scope of the study. Some scholars indirectly investigate the relationship between fertility policy and fertility by measuring the change of individual fertility behavior under different fertility policies (Yang Tao, 2000<sup>[5]</sup>). And there are also some scholars starting from the family and individual, discussing the influence of some factors on fertility such as education level, work type, income, human capital, marriage and nationality (Li Jian-xin, Peng Yun-liang, 2012<sup>[6]</sup>). In the field of economics, scholars are mainly study from the perspective of family economics, investigating the influence of family economy on different people from the theory of cost-benefit (Leibenstein, 1973<sup>[7]</sup>; Becker G S, 1960<sup>[8]</sup>), consumer savings theory (Qian Ming-liang, 2007<sup>[9]</sup>), preference-utility theory (Easterlin R A, 1985<sup>[10]</sup>)

China's research achievements on fertility is quite fruitful, but the existing research is still not comprehensive, the subject area is also concentrated in the social demography and economics, few scholars analyze how the policies and systems under China's national condition affect the fertility desire, and we also lacks the perspective of public policy disciplines to study how to improve the fertility desire through designing social policy. Therefore, this paper do the study from the perspective of maternal and child health public service and social policy supply, through the investigate of the current situation of maternal and child health public health services in China and its impact on the fertility desire, in order to give some suggestions on improving the relevant policies of maternal and child health care service supply.

## 3 Research methods and design

In order to solve the above-mentioned problems, the study will investigate the present situation of childbearing people's fertility desire and maternal and child health care service in China by questionnaire. The questionnaire is mainly divided into three parts. The first part is the measurement of personal basic information and the influencing factors, which mainly involves gender, age, nationality, income, account, job, education level, marriage and family, etc. The second part is about the measurement of the fertility desire, mainly measuring the ideal number, ideal gender, ideal childbearing age and age interval of children. And the fertility is also included. The third part is the measurement of the current situation of maternal and child health care in our country, mainly related to the number of relevant medical institutions, the frequency of the provision of young health care and its professionalism and accessibility. Also, it tries to grasp the situation of private inputs for maternal and

child health services, and know if the work unit would like to provide relevant service. In the early stage of the questionnaire design, mainly through the literature research, summarize the factor index which need to be measured. Before the questionnaires were released, the questionnaire was pre-surveyed, and the problems of the questionnaire surveyed were pre-corrected and redesigned to determine the final structure. And then the official releasing stage was entered.

This research used the convenient sampling and snowball-type online questionnaire methods so that it is hard to involve all the people of childbearing age, and the research is mainly focus on exploring. The questionnaires were issued on 29th, June, 2017. Until 2nd, July, 2017, no one filled in the questionnaire anymore, a total of 200 questionnaires were collected and there were 200 valid questionnaires. The recycling rate reached 100%. According to the recovery results, the questionnaire data cover the eastern, central and western religions, 25 provinces in all, among which the proportion of men and women close to 3: 7, age level of the survey object is mainly on 20-30 year-old ,and also taking into account the 30-40 year-old crowd, and ethnic minorities accounted for 20%. The survey object does not limit whether have married and whether have given birth, basically meet the requirements of the groups of different regions, different childbearing age. This paper understood how is the current fertility willingness of the population of childbearing age in China like through the analysis of the questionnaire data, and also investigated the present situation of maternal and child health care in our country, analyzing how the situation of maternal and child health care supply affects the fertility desire of the childbearing age people.

## 4 Empirical analysis results

### 4.1 Fertility desire

In this research, the survey about the fertility desire is mainly based on the ideal number of the children and the willing number of children. The former is the number of child in the pure ideal state without concerning any other factors. The specific question is “How many children do you want to have without concerning any limiting factors?” And the latter one is the number of children that people are willing to give concerning the reality factors. The specific question is “Will you have the plan to bear in the future” and “How many children do you plan yo bear?” According to the data, it shows that in the answer to the ideal number of children, there are 6% choosing 0, 16.5% choosing 1, 71.5% choosing 2, 6% choosing 3 or more than 3. In the answer to the willing number of children, 17.69% choose no to bear, 20.41% choose 1, 58.5% choose 2, 3.4% choose 3 or more than 3. As shown in Figure 1, it can be seen that regardless of the deal number of ideal children and the willing number of children, the proportion of the two children and above is the majority, indicating that the current population of childbearing age in China have an intense to bear more than 1 child. Compare the ideal number of children and the willing number of children, and we can find that after considering the reality factors, the proportion of not bearing children or just bearing 1 child increased, and the proportion of bear 2 or more than 2 children decreased, there are differences between the ideal number of children and the willing number of children.

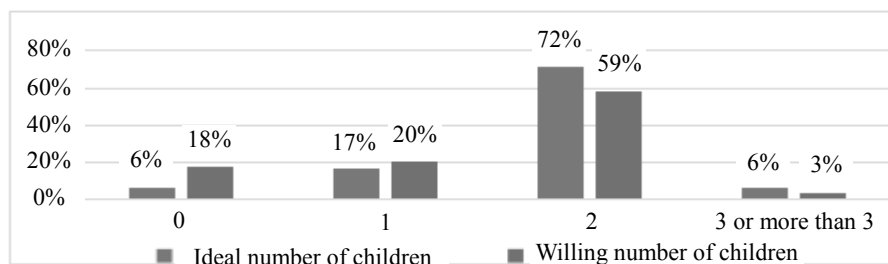


Figure 1 Sample situation map of the ideal number and the willing number of children

That is to say, when the population of childbearing age takes into account the real factors, it will reduce the expectation of the number of children who are desire, and this may be due to the fact that there is no provision of services related to childbearing in practice or insufficient quality In the process

of childbearing or raising a child, the cost of obtaining these related services is high, and this cost is only incurred when childbearing and raising children. Therefore, this study selected maternal and child health as the starting point to explore the supply of maternal and child health services on the fertility of the impact of the factors that are obstacles or factors.

#### **4.2 Accessibility of maternal and child health care institutions**

In this study, when determining the medical institutions, considering that many comprehensive hospitals, community health service centers (stations) and street hospitals will also provide related services in addition to the provision of maternal and child health services by professional maternal and child health hospitals. Therefore, the research mainly focus on the comprehensive hospitals, maternal and child health centers, community health service centers (stations) and street health centers, the analysis of its accessibility is carried out mainly through the number and convenience of these institutions. The specific questions are “which of the following medical institutions can provide maternal and child health care related to the general hospital”, “Is there convenient transport for you to go to these medical institutions” and “Is it convenient for you to register for medical treatment in these medical institutions?” According to the recovery data, it shows that in the question of “What are the medical institutions,” 55% choose comprehensive hospitals, 78.5% choose maternal and child health care, 25.5% choose community health service centers (stations), 14.5% choose street hospitals, and there are still 5% choose there is no relevant medical institutions. It can be seen that the number of maternal and child health care institutions is relatively large, including intensive maternal and child health centers and comprehensive hospitals, basically covering the majority of the population, but the data also shows the community health service centers (stations) and street hospitals Maternal and child health services provide poor coverage.

In the analysis of convenience, mainly to analyze the convenience of traffic and register, the questionnaire is in the form of a matrix scale, the scale is set to very inconvenient, not convenient, generally, convenient, very convenient, and scoring them in turn were 1 point, 2 points, 3 points, 4 points, 5 points, the more convenient, the higher the score. The data show that the average score is 3.5 in terms of the question that if the traffic is convenient, the comprehensive hospital and maternal and child health care center score relatively lower among the 4 medical institutions. On the issue of register convenience of medical treatment, the average score is 3.31, comprehensive hospitals and maternal and child health centers also score lower among the 4 kinds of medical institutions. The convenience of traffic and register of maternal and child health care institutions is between the degree of convenience in general and convenient, indicating that the overall convenience of the medical structure is still general. Combining the analysis of the number of these institutions, it can be seen that the provision of maternal and child health services is dominated by comprehensive hospitals and maternal and child health centers, but compared to community health service centers (stations) and street hospitals, both get poorer scores in traffic and register, while the maternal and child health services supply of the more convenient community health service centers (stations) and street hospitals is not high. It shows that the provision of maternal and child health services is not yet universal for all applicable populations and the accessibility is not so high, also, the distribution of resources is uneven. The time and effort cost of the childbearing age population in obtaining maternal and child health care services is big.

#### **4.3 Community and government maternal and child health services**

This research divide the maternal and child health care service into 5 stages, they are premarital care, pregnancy care, puerperium care, maternal and infant care, and child care, investigating the number of community and government in the provision of maternal and child health services, the degree of professionalism and satisfaction. The questionnaire is designed to be matrix form on these three issues. On the question of the number of the provision of maternal and child health services, the options are set to be never, once, several times, always, and the scores are set to be 1 point, 2 points, 3 points and 4 points in turn, the more the number, the higher the score. The recovery datas show that the average score is 0.98 after removing the sample that has not experienced this stage and the score of each stage is not so different. It can be seen that communities and governments do not do very well in the provision of services. When asking the professionalism, scale scores set in accordance with very

non-professional, not professional, general, professional, very professional and set the scores in accordance with 1 point, 2 points, 3points, 4 points and 5 points in turn, the higher the professionalism, the higher the score. However, the data shows that the professional score of each stage of the service is 1.61 points after removing the sample data without experiencing this stage, belonging to the not professional scale and the average score of each stage also have little difference. On the question of the satisfaction of the service, also set in accordance with very unsatisfied, not satisfied, general, satisfied, very satisfied and set the scores in accordance with 1 point, 2 points, 3points, 4 points and 5 points in turn, the higher the satisfaction, the higher the score. The recovery data shows that the average score is 1.62 after removing the sample that has not experienced this stage , which belongs to the not satisfied scale. And the score of each stage is not so different as well. We can see, the supply of maternal and child health services by the community and the government is not satisfactory. The number of times of service provision and the degree of professionalism are not high, and the satisfaction degree of the provider is not high. And this situation will not change because of different stages of service.

It can be seen that the situation of our community and government in the provision of maternal and child health services is worrying, the number of services provided in each stage is very small, the professionalism of the service is very low and the audience’s satisfaction with the services provided by the community and the government is not high It is difficult for the population of childbearing age to obtain the high-quality maternal and child health services provided by the community or the government.

#### 4.4 The present status of maternal and child health services provided by other institutions

In addition to investigating the provision of maternal and child health care service by the medical institutions, government and communities. This research also investigated the situation of health and safety care of kindergarten(nursery) and the situation of health care services for the female staffs provided by work units. The specific questions are “Are you satisfied with the health and safety care of your children’s kindergartens or nurseries?” and “Do your or your spouse’s work units provide benefits on the health care for the female staffs?” The recovery data show that on the issue of health and safety care satisfaction with the kindergarten and nursery, except those samples choosing no children in the nursery, 52.8% choose in general, 25% choose not satisfied, 22.2% choose satisfied, it can be seen that if there are children in the nursery, the provision of health and watery service of kindergartens and nurseries is not very good, need to be further strengthened. On the issue of whether the work units will provide health care service for female worker, except those samples who choose no work units, there are 33.3% choosing never, 24.3% choosing occasionally, 34.2% choosing sometimes, 6.3% choosing often and only 1.8% choosing very often. As shown in Figure 2 below, the vast majority of units do not provide health services for female workers, even if they do, it’s not frequent and the times are few.

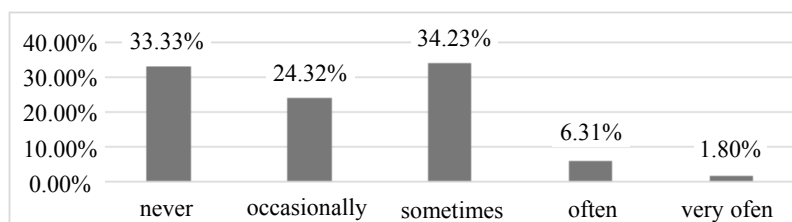


Figure 2 The situation of the health care service for female staffs provided by work units

Combining with the above investigation of the subject of maternal and child health care service, except the related medical institutions, community and government, other institutions do not reach a satisfying state on maternal and child health services provision. Especially for the group of femineity, though most work units are providing health care services, but the number and frequency is not high, and though child health care services are not bad, there are still insufficient, the provision situation of maternal and child health care service of other institutions can’t make women, children and their families feel very satisfied.

#### 4.5 The analysis of private investment in acquiring maternal and child health care

This research investigated the proportion of private investment in acquiring maternal and child



health care services, the private investment proportion mainly refers to the proportion need to pay, although besides money, acquiring maternal and child health services also need the cost of time and energy, time and energy can not be measured directly, therefore this research measures it mainly through the medical expense which is the most direct. The specific question is “What is the percentage of the private investment(paid by yourself)in the maternal and child health care service that you or your family can accept?” As shown in the result, more than half of the population chose accounting for less than 20%, and only 16% of the samples have private investment accounting for more than 60%. This shows that China’s achievements of medicaid are obvious. Patient’s cost of direct capital for acquiring maternal and child health care service is not high, which greatly reduces the difficulty of obtaining services.

#### **4.6 The analysis of the pregnancy service provision subject**

The patients need to be looked after during the period of pregnancy, and the subjects of providing services for the patients are diverse. Therefore this research also investigate which institutions the pregnancy patients gets service from, and how is the percentage of each institution accounts for. The specific question is “What are the subjects of maternal and child health care service providers for you or your spouse during pregnancy? And what is their respective proportion?” The providing options are family, nurse, maternity hotels and other social institutions, community hospitals. In the stage of pregnancy, the main service provider is family oriented, nanny second, and the maternity hotels&other social institutions and hospitals is fewer. In other words, most family have a bias towards internal service and self-regulation, but if the family internal condition can not give a support, they will intend to nurse come home service, rarely considering maternity hotels&other social institutions and hospitals, it is may because family and nurse can serve the patients at home, but maternity hotels&other social institutions and hospitals need the patient go to their place. This also reflects a phenomenon from the side, in the maternal and child health care services, the family is the main force, and secondly, the market regulation is also good in some areas, and the community and the government in this regard is still far from enough.

#### **4.7 Impact of maternal and child health care on fertility desire**

This research measures the fertility desire, the number of maternal and child health care institutions, the convenience degree, the maternal and child health care service provision of community and government, the private investment of obtaining the maternal and child service and the subjects of providing the pregnancy service. The result is as analyzed above, whether it is provided directly by the community and the government or indirectly provided by the community and government, the present provision situation of all aspects of the maternal and child health care service is not so satisfying. In order to further analyze the impact of the present provision situation of the maternal and child health care service on the fertility desire, this questionnaire also aims at the maternal and child health care service provision situation, making a direct investigation. The specific question is “If the supply intensity of the maternal and child health care service provided by the government and the community improves, are you willing to raise your fertility desire?” Among this, 30% clearly expressed they would not raise the will to give birth, 25.5% clearly expressed that they would, while 44.5% were uncertain. It can be seen that the possibility that government and community increasing providing the maternal and child health care service will not raise the fertility desire of the childbearing age people is about 30%, while the rest 70% childbearing age people will or may raise their fertility desire, indicating that the increase of maternal and child health care provided by the community or the government will have a positive effect on the fertility desire of the child-bearing age people.

## **5 Conclusions**

This research mainly has conclusions below through analysis: First, the fertility desire of childbearing age people is not bad, most people are willing to give birth to one or two child, but the actual willing number of children is fewer than the ideal number of children, that means there are some hindrance factors in the reality, making the willing number of children fewer than the ideal number. If we want to improve the fertility desire, we need find out what hindrance factors are here. Secondly, the improvement of maternal and child health care supply is a propulsion variable for the fertility desire of

childbearing age people. Community and government stepping up efforts to provide the maternal and child service is helpful for improving the fertility desire. Thirdly, on the whole, the present situation of maternal and child health care service supply is worrying. If we want to raise the fertility rate to change the population structure, we need to improve the fertility of childbearing age people. And we can strengthen the construction of the contingent of maternal and child health care professionals, improve the comprehensive quality of personnel's. The government should increase the financial input, increase the number of maternal and child health care institutions and expand its popularity. Meanwhile, the government also need to improve relevant laws and introduce relevant policies, proving a good breeding ground for maternal and child health care service. Lastly, the government should strengthen the cooperation with society and market, achieving the triangular cooperation and proving the maternal and child service which is excellent and available.

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## A Mixed-method Research of Public's Continuous Use Intention of Government Portals

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**Abstract** Adopting the sequential explore design of the mixed-method research. Firstly, analyzing the interview materials by the coding according to the grounded theory, and constructs the theoretical framework of public's continuous use intention of the government portals. Then, using the method of Questionnaire Survey to do the quantitative analysis. The result shows: the psychological perception, the external environment of the government portal, user's characteristic, the service operation of the government portal and the government idea influence the continuous use intention of the government portal. And the psychological perception has the strongest effect.

**Key words** Mixed-method research, Grounded theory, Government portals, The continuous use intention

### 1 Issue proposal

As the most important component, the high-efficiency of government websites has close relations with the realization of the formalization of political affairs. However, in the first investigation on China's governmental websites of 2015, some problems have been found, such as the imperfection of dealing with affairs of government websites, the convenience and practicability of governmental websites to be improved, the overdue update of information, low accuracy and inactive interactive responses, which cause the low utilization rate of the governmental websites<sup>[1]</sup>

Hence, how to make the public use government websites has become the key for the construction of government websites. At present, as for the research on the problems of the usage of government websites, the academic mainly focuses on discussing the initial adoption of government websites, however, there are few researches on the continuance, and the success of government websites depends on the continuance of the public. According to this, this paper will study from the perspective of the continuance intention of the public on government websites, and those influential factors will be found; besides, the author also puts forward the acceptance of continuance theory model which fits for local people, in order to raise the usage rate of China's government websites and provide some theoretical support.

### 2 Literature review

In recent years, researches on behavioral science research have become popular,<sup>[2]</sup> and lots of research achievements emerge. In the field of researching the acceptance of the public on government websites, researches mainly treat government websites as an information system which they often use some related theories based on behaviors to study, and specifically they can be divided into the initial adoption research of government websites and continuance research of government websites. Scholars use the theory of reasoned action<sup>[3]</sup>, theory of planned behavior<sup>[4]</sup>, technology acceptance model<sup>[5]</sup> and so on to have a case study, so lots of factors influencing the initial adoption of the public on government websites have been proved. But initial adoption is just the first step for users in the adoption behaviors, and the continuance of users is the final goal for government websites. In order to research those influential factors of continuance of users, the academic has plenty of researches and discussion. Especially the information system continuance model proposed by Bhattacharjee, this model has explained the developing process of users' intention to use continually; it creates the theory on researching information system continuance and it has been widely accepted. By combing the existing documents, the author has concluded two directions of continuance intention of government websites: first, using some related theories or models on the initial adoption to discuss those factors influencing the intention of continuance;<sup>[6,7]</sup> second, having problems researching based on information

system continuance model.<sup>[8,9]</sup>In addition, there are few literature on the continuance of domestic and oversea government websites ( by the end of May, 2016), and most of them use the method of quantitative research (Table 1) to discuss those factors, which influence the public to use government websites continually. Few articles apply non-empirical method or case study, and they mainly establish theoretical frames by qualitative analysis, or some strategies that facilitate the public to use government websites continually have been raised by case study.

**Table 1 Study methods on continuance of the existing government websites**

The method of research	Proportion (%)
Quantitative method	86.2
Case study	3.5
Non- empirical method	10.3

From above, the author has found that there are some shortcomings in the researches on continuance of the existing government websites: first, China is mainly based on the mature theoretical models of foreign countries, such as TAM, ECM-ISC and so on, and China haven't established the continuance intention model of government websites which fits for China itself; second, majority of TAM, ECM-ISC these theoretical models originate from the researches on adoption behaviors of commerce system; when people use these theoretical models to have researches if people are supposed to neglect the specificity that government system is different from commerce system, it will not only impact the degree of interpretation of researches, but restrict the development of theories;<sup>[10]</sup> third, during the researches, people often use single method to research, and they mainly focus on quantitative researches. Although lot of influential factors of the continuance intention of the public have been turned out, the fragmentation of research prospective caused by quantitative researches may hinder the discovery of new influential factors.

As a result, these problems should be solved: what influential factors will have about the continuance intention of the public for government website? What role do these factors play? In terms of lacking persuasion in the continuance study of government websites, the innovation of methods is needed to overcome the shortcomings of existing researches, to find out new factors impacted the continuance intention of the public of government websites, and to construct the local theoretical model, so that more practical suggestions will be raised.

### 3 Research methods

#### 3.1 Study object

There are plenty of government websites in China, so it is important to choose appropriate websites to study. Among these government websites, those people's government websites in local in China have greater research significance, and there are three causes: first, local governments not only link with nation and their province, municipality and municipal people's government, but connect with their county level governments. And they serve as a connecting link between the preceding and the following. Second, the local people's government websites provide more detailed information and careful service for people which are closer to people's life. Third, all local governments in China open their own portals.<sup>[11]</sup>Therefore, this paper chooses the continuance intention of the public of local people's governments as the study object. In order to express clearly, the following will use government websites to replace local people's government to demonstrate.

#### 3.2 Study methods and thought

Through combing documents and literatures, the author has found that, on the problem of *Continuance Intention*, there exists some restrictions on the research methods and research perspectives, which means that those existed theories or models can't solve those existing problems, so researchers need to use constructed thought to develop theories. According to this, the author will apply the sequential inquiry design QUAL→QUAN of mix methods to research. This design fits for cases that should have quantitative study without existed variables or concepts frames. Combining with qualitative and quantitative researches, this paper has discovered those key factors that impact the continuance of the public to use government websites and demonstrated the relations of variables to

check and optimize. In addition, this paper also compares the results of qualitative and quantitative researches to prove each other, so that the reliability of those results can be enhanced. What's more, it also combines research data with results to analyze and explain the function mechanism between variables to enhance the persuasion. The study thought is shown by Figure 1.

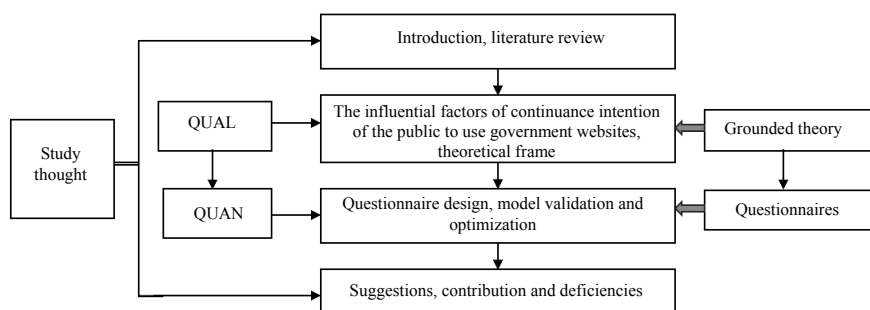


Figure 1 Study thought

## 4 Qualitative research design and the construction of theoretical frame

### 4.1 Grounded theory and interview

Grounded theory was proposed by Barney G. Glaser and Anselm L. Strauss, which can explain those existed problems in real life. It requires researchers should keep open in the study process, so that they can find some new theoretical factors in the existed researches that haven't been found before. On this basis, this paper uses Grounded theory as the research method in the qualitative research to explore the influential factors of continuance intention of the public to use government websites. The research steps will be shown in Figure 2.

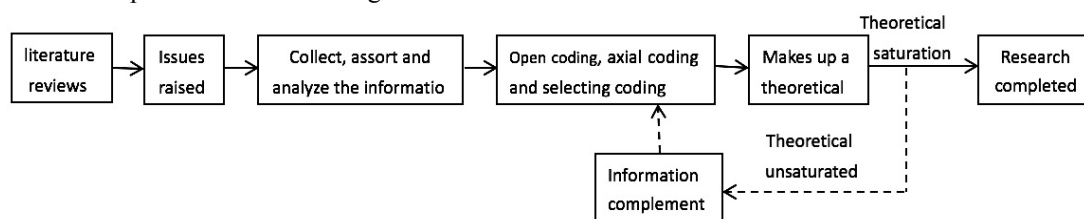


Figure 2 Research step<sup>[12]</sup>

The interview questionnaire is based on the research subject and is made by consulting experts and open discussion. The key points include the impress on government websites, the causes and feelings about interviewing government websites, the causes and shortcomings of the service of government websites, and the methods to facilitate the continuance of government websites. What is more, they choose interviewees according to the method of theory of sampling, and those interviewees have used government websites before, and then they get research data after one-to-one interview. We end this data collection until the theories of research have been enough by continuous collecting data and coding analysis. In total, 56 interviewees have been interviewed.

### 4.2 Coding analysis

According to the coding analysis steps of Grounded theory, this paper gets core category by open coding, Axial coding and selecting coding in order. (Table 2)

First of all, open coding. Coders makes all interview data conceptualize sentence by sentence, and then compare this information to form into categories. In the end, 87 concepts and 27 categories have been formed.

Second, axial coding. In this step, those categories that have concluded from the first step will compare again to analyze their relations, so that the main category linking each other can be got.

Third, selective coding. In this step, coders will make the relations of categories more clearly, and they will analyze and classify main category, so that they can get five core categories with ruling position.

**Table 2 Results of coding analysis**

Core category	Main category	Category	Concepts			
Government idea	Government idea	Government information thinking	Dependence of traditional seal Identity of electronic seal Thinking of handling affairs below the line			
		Concepts of service-oriented government	Concepts of service-oriented government			
		Government paying attention or not	The degree of department paying attention The degree of leaders paying attention			
	Service operation of government websites	Organization guarantee	Organization guarantee	Staff stability Established related functional departments Manning Providing post staffing Working skills Material inputs Coordination mechanism Working mechanism Evaluation mechanism Incentive mechanism		
				Governmental innovation diffusion	Media propaganda Publicity efforts Propaganda on the spot Websites popularity The popularity of website functions	
					Department cooperation	Degree of department information sharing Cooperative operation of department business Coordinating department resources
						Service quality
	Service operation of government websites	Service quality	Responses Quality of responses Attitude of responses Feelings for obtaining service Service efficiency			
			System quality	Characteristics of websites Website response speed Website stability Website security Website features Website compatibility		
		Information quality		Page design Page content Page attractiveness Serious websites Simple and lively design Flat design Page frame		
Information quality			Information status of websites	Information effectiveness Interest of content Information comprehensiveness Degree of importance of public information Information availability		
				Information status of websites	Information effectiveness Interest of content Information comprehensiveness Degree of importance of public information Information availability	

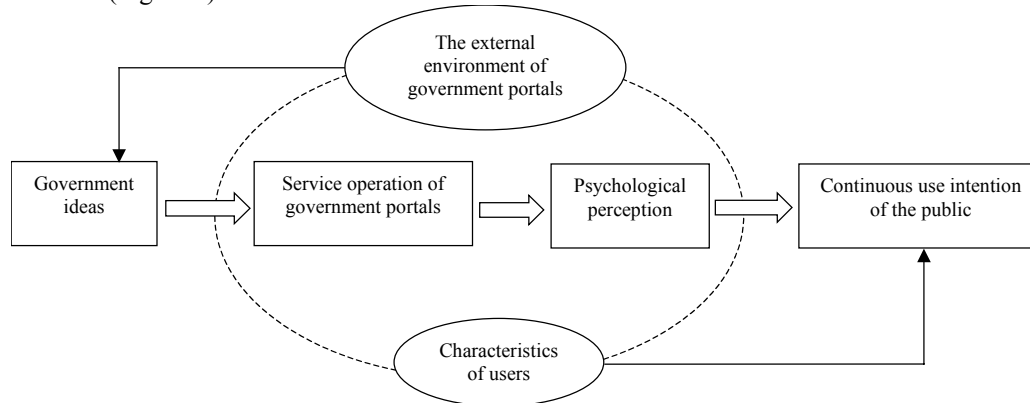
Core category	Main category	Category	Concepts
Psychological perception	Psychological perception	Degree of satisfaction	Satisfying psychological expectation Feeling surprised Degree of satisfaction Satisfaction degree of competitive products
		Convenience perception	Service processes Degree of feeling convenience Degree of using easily
		Cost perception	Deadline Amount of printing Capital saving
		Alternative perception	Regarding some functions uniquely irreplaceable
		Usefulness perception	Use effect Feeling useful
		Trust perception	Trust techniques Trust websites contents Trust websites Trust governments
		Security perception	Sense of security Privacy concerns
Characteristics of users	Characteristics of users	Habits	Information inquiry Frequency of scanning government websites Fond of surfing Internet
		Demands	More frequently used functions/ infrequently used functions Unaware demands
		Individual ability	Computer knowledge Getting used to websites Experience of using computer
External environment of government websites	Alternative resources	Alternative ways	Receiving influence of political new media by traditional media or going to the spot
	Interpersonal influence	Interpersonal influence	Influenced by friends or families
	Infrastructure	Infrastructure	Hardware of network The popularity of broadband
	Legal environment	Status of laws	The existed technical safety regulations
	Economic environment	Economic environment	Economic developmental level

### 4.3 The construction of theoretical frame and the test of saturation

#### 4.3.1 The construction of theoretical frame

Through the coding analysis of interview information, this paper has received five core categories: psychological perception, service operation of government websites, characteristics of users, government ideas and the external environment of government websites. Among them, psychological perception is the feeling that users receive from the process and results after using government websites, which impacts the continuance intention of the public; the service operation of government websites means the management and guarantee of the service operation of government websites from governments, and the design, development, maintenance and optimization of government websites, which also impacts psychological perceptions; the characteristics of users reflects the operation level of computer of users, behaviors and the situation of service demands of their own, which impacts the service operation, psychological perception and the continuance intention of government websites; government ideas mean the ideas of thinking for the service of government websites from governments, which impacts the service operation of governments; the external environment of government websites is the external objective environment where the public, government and government websites exist,

which impacts the service operation, government ideas, psychological perception and the characteristics of users. Therefore, the theoretical frame of continuance intention of the public has been constructed (Figure 3).



**Figure 3 Theoretical frame**

#### 4.3.2 The testing of theory saturation

After constructing the preliminary theory frame, its saturation needs to test to prove that no other categories impact the integrity of the theory. According to the experience of testing saturation of predecessors, this paper will test this theory with these questions: how to transform data into categories? How does this transformation explain categories? Can it explain in other way? Will it create new concept relations if there exist other explanations? Through repeated tests of systems, no new concept relations can be found. This paper holds that the theory frame constructing by Grounded theory has reached saturation.

## 5 Quantitative research design and data analysis

### 5.1 Research models and hypothesis

According to the qualitative analysis of the previous text, this paper uses five core categories as the five influencing factors that affect the intention of the government website. Among them, the good external environment of the government website will have a positive impact on the psychological perception, user' characteristic, government concept and service operation of the government website. Based on this, it is assumed that: H1: the external environment of the government website positively affects the user' characteristic; H2: the external environment of the government website positively influence the government concept; H3: the external environment of the government website positively affects the service operation of the government portal; and H4: the external environment of the government portal positively affects the psychological perception.

Government portals need to operate based on the characteristics of the user service, and user' characteristic as the public's own attributes, will also positively affect the public's psychological perception and continued use intention. I propose that H5: user' characteristic affect the service operation of the government portal; H6: user' characteristic affect the psychological perception; and H7: user' characteristic positively affect the government portals' continuous use intention.

A good government concept is conducive to the service operation of the government portal. And put forward the hypothesis H8: the government concept positively affects the service operation of the government portal.

The better the quality of service, the quality of information and the quality of the system provided by the government portal, the better the psychological perception of the public. Therefore, put forward the hypothesis H9: the service operation of the government portal positively affects the psychological perception.

The better the psychological perception of the public is, the stronger the intention to continue use



of government portals is. So put forward hypothesis H10: psychological perception positively impact the intention of continuous use the government portals.

## 5.2 Questionnaire design and data collection

### 5.2.1 Questionnaire design

The questionnaire design of this study is divided into two parts: personal basic information and variable measurement. Personal basic information includes gender, age, education, occupation, political outlook and so on. The variables to be measured are user' characteristic, psychological perception, external environment of government portal, government concept, service operation of government portal and intention of continuous use of government portal, use Likert five-level scale measurement item (1 represents not Agreed→5 represents agree very much). In addition, refer to Bhattacharjee (2001) research results the continuation use of the government portal measurement set three questions; the measure of other five variables, refer to the previous study of the questionnaire design, combine with the qualitative analysis of this article and set a total of 46 questions.

### 5.2.2 Data collection

This article uses the public who have used the portals of the government as the object of the questionnaire, and tests and adjusts the questionnaire through a small pre-survey. In this process we delete the questionnaire of the continuous use intention, and then form a formal questionnaire. Then we send the questionnaire to the survey object through the questionnaire star, QQ, WeChat, e-mail, etc and asked the respondents to help spread the questionnaire in the form of snowballs. When determining the number of survey samples, we refer to the scholar Gorsuch (1983) view and choose to issue 350-400 questionnaires.

Finally, after a month (April 26 to May 25, 2016), 400 questionnaires were collected and 354 valid questionnaires were obtained after the invalid questionnaires were removed. Questionnaire efficiency was 88.5%. Sample data are mainly from Sichuan, Guangdong, Shaanxi, Beijing, Shanghai, Chongqing, Zhejiang, Fujian and other places. Among them, men accounted for 52.5%, 90.4% of the respondents concentrated in the 18-39 years old, and 97.9% of the respondents' qualifications are college degree and above. In addition, the respondents were mainly students (49.7%), employees (20.3%), civil servants or public service staff (16.9%), and their political status is mainly the Communist Party members (41.2%) and the Communist Youth League members (39.5%).

## 5.3 Data analysis and results

### 5.3.1 Reliability and validity test

Cronbach's  $\alpha$  coefficient method was used to measure the reliability of the questionnaire. The results showed that the  $\alpha$ -coefficients of the government portal continuous use intention, psychological perception, government portal service operation, government concept, user' characteristic and government portal external environment respectively are 0.928, 0.871, 0.886, 0.830, 0.804, and 0.734. The results showed that the measured items have good reliability. Then the validity of the questionnaire was tested. The KMO of the sample data was 0.920 and the significance was 0.000, which indicated that the questionnaire had good validity.

### 5.3.2 Model fitting and hypothesis testing

This study used AMOS 21.0 software for confirmatory factor analysis. As can be seen from Table 3, the fitness index of the whole model reached the adaptation standard, that is the degree of fitting is good.

**Table 3 Model fit summary of the research model**

Fit index	CMIN/DF	RMR	GFI	AGFI	NFI	RFI	CFI	RMSEA
Recommended value	<3	<0.05	>0.90	>0.90	>0.90	>0.90	>0.90	<0.05
Research model	0.523	0.010	0.999	0.990	0.999	0.994	1.000	0.000

From the results of the structural equation model, we can see that the rest of the hypothesis is validated except H4 (Figure 4). As for the reasons that H4 has not passed, this study suggests that the more the user's needs are and the more different the individual's ability and user habits are, the more difficult it is for government portals to take into account different user' characteristic, which in turn

causes the user' characteristic negatively affect government portals' service operation.

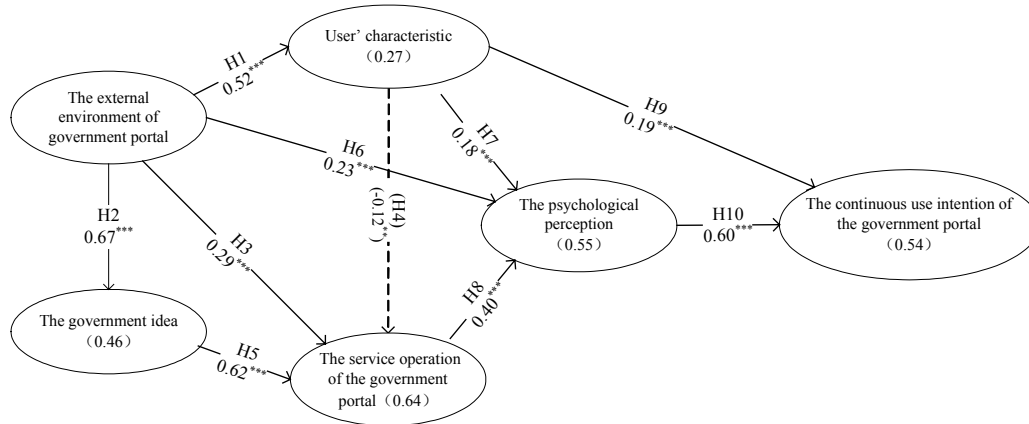


Figure 4 Structural equation model hypothesis test results

5.3.3 Findings

The endogenous variables of the whole model are interpreted to an ideal degree, which respectively are: user' characteristic (R2 = 0.27), government concept (R2 = 0.46), government portal service operation (R2 = 0.64), psychological perception (R2 = 0.55), government portal continuous use intention (R2 = 0.54). It should be noted that the government portal continuous use intention is explained by the variation of 0.54. High degree of explanation to some extent proved that the application of this model to explore the continuous use intention of government portals is effective. In addition, from the path coefficient we can see: (1) the path coefficients of the external environment of the government portal on the user' characteristic and the government concept of are 0.52 and 0.67, suggesting that positive impact is strong. (2) The absolute value of the path coefficients of the government's concept, the external environment of the government portal and the user's characteristics on the service operation of the government portal are 0.62, 0.29 and 0.12 respectively, which shows that the influence of the government concept is more significant. Similarly, the impact of government service operations on psychological perception is stronger. (3) Through the calculation, the effect values of psychological perception, the external environment of the government portal, the user' characteristic, the service operation of the government portal, the government concept on the government portal continuous use intention are 0.60, 0.46, 0.27, 0.24, and 0.15. It can be seen that psychological perception has the strongest effect on the continuous use intention of government portals.

Based on the previous study, this paper presents a theoretical model of the public continuous use intention of the government portals (Figure 5), where the solid line indicates positive correlation and the dashed line indicates negative correlation.

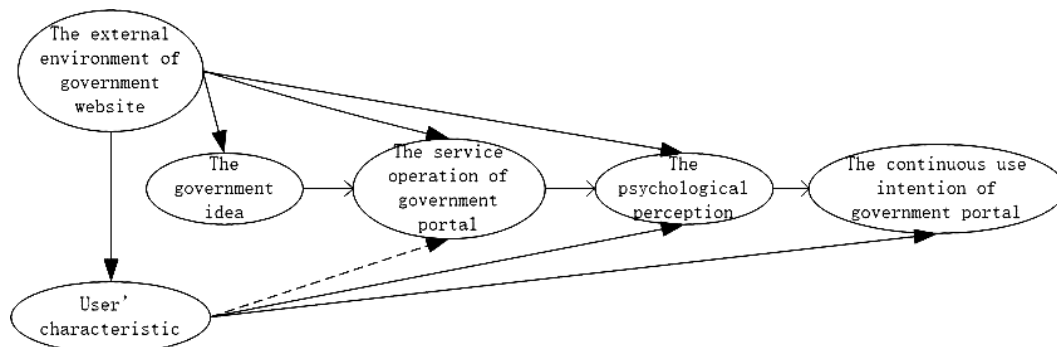


Figure 5 Theoretical model of the public continuous use intention of the government portals

## 6 Conclusions

### 6.1 Countermeasures

By summarizing the data and results of qualitative research and combining with the conclusion of quantitative analysis, this paper puts forward the following suggestions on the construction of government portal:

(1) create a good government portal external environment: develop of relevant laws and regulations; optimize the network infrastructure and create a good e-government culture; learn from the advantages of other alternative ways to improve the competitiveness of government portals.

(2) establish the correct concept of government: strengthen the concept of service-oriented government to improve the importance of government sites; confirm online service and on-site service services with the same effect, and improve the information thinking of the staff.

(3) define the characteristics of government portal users: improve the government portals' data mining and analysis capabilities to accurately understand the user needs; let some services to cultivate the public's habits, such as test registration which must be handled on the government portal.

(4) ensure the government portals' effective service operation: establish the corresponding functional department and ensure the input of manpower and property; carry out business training for staff and establish a reasonable working system; By use online media, achieve high-quality government portal innovation and diffusion; integrate information resources and service processes to enhance the synergy of the service agencies; regard user needs as the guide, streamline the online service process, shorten the service period; improve the information disclosure system, emphasize the importance of timeliness and usefulness of information dissemination; improve the compatibility, stability and security of government portals; pay attention to public participation, timely and efficiently to respond to public needs.

### 6.2 Research contributions and deficiencies

Based on the Chinese local environment, this paper chooses the public use intention of the portal of the prefecture-level city's government as the research object, adopts the mixed method research, selects the rooting theory derived from the post-positivism and the symbolic interaction theory in qualitative research, and chooses in the quantitative research. The questionnaire survey not only avoids the limitation of qualitative research, but also makes up the fragmented field of quantitative research, and constructs the theoretical model of public use intention of government portal in Chinese context.

The contributions of this research are as follows: (1) To supplement and deepen the research on the intention of public use in the field of e-government, and put forward the theoretical model of sustainable use intention of Chinese localization. (2) to further enrich the theoretical system of the study of the public behavior intention of the government portal, and to provide theoretical support for the development of the government portal which conforms to the national conditions of our country. It is necessary to add that there are some shortcomings in this paper: the sample coverage and the number of questionnaires still need to be improved; in the actual process of rooting analysis, the author brings a certain empirical factors.

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# Research on Government Governance Innovation under the Background of Big Data in China

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**Abstract** In the Third Plenary Session of the 18th Central Committee of the Communist Party of China, general secretary Xi Jin-ping stressed that scientific macro control and effective government governance are the inherent requirements of giving full play to the advantages of the socialist market economic system. In recent years, the rapid development of the large data provides government governance a new way of thinking and new technology. With the support of the development of network information technology, massive, diverse, multi-source and dynamic data will provide new opportunities and challenges for government governance. This paper mainly uses literature analysis and comparative analysis to study how to promote China's government management innovation under the background of big data. Firstly, introduce the research content of the paper. Secondly, analyze the role of big data technology as a tool in government governance innovation. thirdly, elaborate several fields of government governance innovation in the era of big data. finally, analyze the challenges of government governance in the era of large data, and put forward specific opinions. This study has theoretical and practical significance.

**Key words** Big data, Government, Governance, Innovation

## 1 Introduction

### 1.1 Research background

In 2009, the British government established public data resources website. data.gov.uk. to open up public data from seven sectors. In the same year, the US government consolidated 1279 government departments, 236 civil society organizations and 103 mobile network media data resources, open data.gov website. Britain, the United States and other countries also established a corresponding information data management, integration of resources, developed a related development planning and regulatory system, so that its data governance onto the road of synergy(Wang Meng-meng,2015<sup>[1]</sup>). In the country, fragmentation of the government governance system led to public governance into a low efficiency, low output, high cost of the plight. All levels of government departments have large amounts of data, accounting for more than 80% of the entire community of core information and data, including economic, resource, people's livelihood and other public raw data, constitute the basis of socio-economic development and public governance. But the massive data is still sleeping in the "fragmented" of the sector and not been fully utilized, the Department of internal data rigid, data between the departments of solidification, external "island" phenomenon is serious, it is tantamount to the largest waste of resources. Achieving the government's synergies in large data governance is a challenge for the government in the era of large data, and it is also an opportunity.

### 1.2 Research significance

This paper analyzes the direction of our government's governance innovation in the background of large data, introduces the big data as an important technical tool and resource into the study of government governance theory, and makes theoretical exploration on the government's use of large data innovation government governance, which is conducive to providing a new theoretical perspective for the research of government governance innovation in our country. The combination of big data and government governance innovation research is helpful to solve the dilemma and problems encountered in the innovation of our government in the real situation. It is of great practical significance to study how the government can use the large data technology to realize the path of governance innovation and put forward the concrete and feasible countermeasures and suggestions. It is of great practical significance to improve the level of government governance and promote the modernization of state governance system and management ability.

### 1.3 Summary of research

The United Nations in the “big data to promote development: challenges and opportunities” that: “Many countries around the world in the country through a variety of methods and speed of the data revolution, in this revolution, the data gap between government departments, the public and private sectors, and the private sector is narrowing at more than expected, and new opportunities for international development” (Shu Huai, 2015<sup>[2]</sup>). “People’s lives, work and mind habits have been hit hard in the big data age, and in order to adapt and lead the transformation of this era, we have also changed,” says British data scientist Victor Meyer-Schoenberg (Victor Meyer-Schoenberg, 2013<sup>[3]</sup>). “Big data can help the public sector classify management objects, automate decision making, innovate the supply of products and services, making government governance more transparent and more efficient,” said McKinsey, a leading US consultancy (Liu Shu-yi, 2016<sup>[4]</sup>).

As mentioned above, with the continuous development of science and technology, large data as a highly efficient data and management tools, more and more attention by foreign scholars. The application of big data gradually began to shift from the commercial field to the political field, and become the current Western countries to promote government governance innovation of the main technical means. China’s government governance innovation path can not simply apply the copy of Western government governance model, but the results of foreign research and large data application results of China’s government governance reform process has a theoretical reference.

On the basis of the achievements of foreign government governance theory and practice research, domestic scholars have started to explore the innovation and development of big data for government innovation, “In the era of large data, based on the level of social control means will no longer be used, process management methods are also very limited,” Xu Zi-pei said in his book “Big Data” (Xu Zi-pei, 2013<sup>[5]</sup>). Yuan Xue pointed out: “In the era of large data, citizens in the network and social media access to web pages, read the current affairs, the use of search engines, comments and other activities will be transformed into real-time data, the government can use data mining technology to deal with these data, effectively predict the needs of the public, so as to provide more personalized and accurate public goods and public services” (Yuan Xue, 2013<sup>[6]</sup>). Feng Mei-rong and Wang Zong-yan said: “With the data was large-scale open, the public access to data information channels will continue to expand, the government will become more transparent and easy to monitor, while the flow of data is more free, the full use of data tools can stimulate the public, social and government innovation.” (Feng Mei-rong and Wang Zong-yan, 2008<sup>[7]</sup>).

### 1.4 Concept definition

The so-called government governance, that is, as the main body of social governance to carry out the governance activities, including the government itself, the community and the market governance.

“The concept of large data is the first to show the index of the search engine in the Internet for the analysis and processing of the data set.” (Liu Ying-jie, 2015<sup>[8]</sup>). Big data is not a simple definition of the size of the amount of data, but a variety of massive data in the high efficiency of access to information technology.

## 2 The role of big data technology as a tool in government governance innovation

With the advent of large data age, government governance will enter a new era. Big data will fundamentally reform the government’s organizational model and government form, and then the government governance model innovation.

### 2.1 Big data technology promotes diversification of governance subjects

Big data technology is based on the popularization of Internet, data mining and cloud computing, and its diversified characteristics determine that the government, the private sector and even citizens have become a node in a large data network. Information data in different nodes directly to each other transmission, each of our subjects not only in the dissemination of data information, but also to accept the data information. The diversification of the data source of the traditional government management process has expanded the participation of government governance in the main body. The rapid circulation of data and the realization of open data, so that the social and citizen individual supervision of the government, through the network and achieve high efficiency and low cost, make the common

governance possible, and ultimately change the unilateral decision-making governance mechanism. As Gerry Stoker said; “The government’s obligation to fulfill its functions should be achieved through new technologies and tools, rather than the use of power and authority.”(Gerry Stoker,1999<sup>[9]</sup>).

### **2.2 Big data technology promotes the flattening of organizational structure**

Under the government structure of the pyramid structure, the basic social information and the situation of things are concentrated by the specific staff at the grassroots level, and the top government leaders face the grassroots situation and the specific information need to organize the internal transmission. Once the government organizations within the problem, it is easy to appear under the upload is not easy, so that the release of the poor situation. And through the big data technology, data between the interactive response greatly improved, the exchange of data between the various subjects almost no delay. Government leaders access to information data from the past by a single grass-roots staff to provide a unified multi-terminal, multi-channel access to data information, information data transactions tend to flatten.

### **2.3 Big data technology to promote the content of governance more preventable**

Under the Big data technology, it is possible to obtain all the data, by analyzing the correlation between massive data, to find out the development trend and direction of social events, to explore its laws, to take effective preventive measures. Preventive measures are easier and less costly than remedial measures. The government can use the forecasting value of large data technology in the comprehensive management of stability, traffic guidance, disease transmission and natural disasters and other aspects of prediction and prevention and control work.

## **3 Several fields of government governance innovation in the era of big data**

### **3.1 Public service area**

The environment for public services is more open, the full liberalization of the data will become the main theme of the era of large data, every member of society will be more convenient and efficient access to a wide range of data. Open and mobile data, through the communication terminal, not only pass the knowledge and information, but also to the public to convey the power to supervise and participate in public services. In the era of large data, the government and the public in the open data, to build a low threshold, low latency communication of public service ecological environment. The public demand for public services is more clear and specific, the public service mechanism in the transparent supervision of more perfect, the allocation of service resources tend to optimize. The services provided by the government are also more flexible and the supply of services is richer.

Public service products are more individual, in the era of large data, the diversification of data sources will allow the data to have more sophisticated characteristics, each individual, whether through the government website, social media views expressed opinion, or in social life in a variety of acts, will be the formation of data collected and stored by the terminal, and these are collected and stored data has become its personalized demand for public services.

Public service is more proactive, in the era of large data, the way the government provides public services will be changed from the original passive provision to active provision. When the government is good at using large data for data analysis, it can track the whole process of public services, combined with the regional people’s living habits and feedback to the public service information, forecast the direction of the development needs of the people in advance, not only can guide the government to meet the public demand in a timely and effective manner, but also help to ensure the quality of public services.

### **3.2 Social management field**

Government performance is more quantifiable, in the world of large data, our daily behavior, browse the web, publish microblogging, the use of social tools to chat, online shopping, mail exchange and so on to form a person’s day of information life trajectory was recorded data. Similarly, through the use of data capture, data analysis, data storage and data processing technology, to difficult to quantify the government’s government activities become more easily quantified, so the scope and content of government administrative performance has also been expanded.

Social participation in government decision making is higher, big data age, the whole society has

been integrated into a social platform, a variety of data resources were open trend, the public at any time access to the social platform resources, but also through this platform to express their views and opinions, and the reality of the public demands and recommendations, but also through large data technology into fragmented data by the government departments or active or passive collection and processing.

### **3.3 Government performance management field**

Government decision making is more social, in the big data age, data and information will become an important reference for decision-making. Under the era of large data, the popularity of mobile terminals, the public through the network to express the demands and willingness to reduce the cost of data flow interaction continue to strengthen, so that the public discourse is more likely to be concerned about the community, at the same time, for the government departments to provide a large number of real-time social data.

Government performance evaluation is more relevant, in the era of big data, the use of big data technology, data capture and statistical caliber has been unified, the content of government performance evaluation has relevance. The association between the different departments, between different levels, between the government and the outside of the government can achieve a comprehensive assessment of government civil servants and government departments. In the era of big data, the government will become more transparent and open, and the various administrative activities of the government will be known in the form of data by the public.

## **4 The challenge of government governance innovation in the big data age**

### **4.1 Lack of data governance ideas and thinking**

Regardless of the direction of government governance innovation, the government still plays an extremely important role. Therefore, the maturity of the big data governance concept for the realization of data governance, to promote government governance innovation is essential. In 2011, McKinsey & Company made a study and statistics on the distribution of large data in the world. China's 2010 data volume is about 250PB, while Europe is about 2000PB, the United States is about 3500PB, however, China Internet users about 2 times the United States, mobile phone users about three times the United States (Dai Shun-li, 2015<sup>[10]</sup>). If you only look at the number of Internet and mobile phone users, China's annual data generated by the amount should be far more than the United States and Europe, but the actual situation is far from the case. It can be seen that China is not the lack of data, but to capture, mining data awareness. But lack the awareness of capturing and digging data.

### **4.2 The scarcity of large data talent**

Large data is characterized by a large amount of data, a wide range of data collection and processing speed and low value density, so the data analysis technology and management methods have a new requirement. China has a huge Internet and mobile user groups, but the number of data collection and efficiency is still far behind Europe and the United States, China's large number of data still did not reflect its use value, mainly from the lack of a large number of large data technology and management talent.

### **4.3 The challenge of opening up data and protecting the privacy of citizens**

What is relevant to data liberalization is data security. With the continuous development of information technology, each of us every day will produce a lot of activity information, these information data through our mobile phones, computers, smart TVs, credit cards and other terminals were recorded and stored, and data open and make this information dissemination easier and faster. It can be said that the data under the era of large data open, more likely to expose the privacy of citizens, so that citizens in the data acquisition terminal "prison".

### **4.4 Information island**

The so-called information island, refers to the department and the department between the data and information isolated, do not share the exchange, and information and business processes and references out of touch, thus affecting communication and collaboration, resulting in increased management costs. China has started the construction of government information has been more than 20 years, the government departments have been established between the relatively complete



information platform. But in the data utilization and flow rate is still at a low level. Our government has always attached great importance to the development and construction of information platform, in the internal departments formed between the cross-staggered business system network. But, as a result of the differences between the parallel departments in the construction time, business areas and construction standards, Which leads to the inconsistency between the different departments in the data acquisition, the inconsistency of the data format, the low level of data sharing between the parallel departments, and the embarrassing situation of the data separatism through the data management activities.

## **5 The countermeasures of government governance innovation in the big data age**

### **5.1 Establish data thinking, build a large data strategy system**

In the era of large data, the government must change the traditional mode of thinking in order to better promote government governance innovation. First, in November 2015, the Fifth Plenary Session of the Eighteenth Central Committee of the Communist Party of China adopted the “proposal of the CPC Central Committee on the formulation of the thirteenth five-year plan for national economic and social development”. To promote the open and shared data resources to implement the national large data strategy, ahead of the layout of the next generation of the Internet. Big data has risen to the national strategic level, the government should give full play to the role of large data applications and planning, with large data technology to strengthen national governance capacity, promote government governance innovation, to improve the government’s administrative performance. Second, the government is required to pay attention to the “fragmented” data, from the collection of sample data to the collection of all data conversion, from the attention to the causal relationship to the emphasis on the relationship between the transformation, learn to carry out administrative decisions based on data, to achieve an effective combination of government governance and large data technology. Again, the government should strengthen the awareness of the big data at all levels of leading cadres. to develop their strategic vision of large data. The establishment of the data concept, data collection, data application as the core content of the civil service training system, strengthen the leading cadres at all levels in the era of large data adaptability.

### **5.2 Fill large data legislation blank, and maintain data security**

The era of large data is an unprecedented era of data information open and shared, government data and citizen data through a large data platform for docking and real-time interaction, a wide range of data open and shared comes with the risk of government sensitive data and personal privacy violations. China’s legislation on personal data privacy is still lagging behind. With the continuous promotion and popularization of large data technology, the government should play a leading role in maintaining data security, filling the blank space of data legislation, establishing and perfecting data security system, introducing corresponding laws and regulations, stipulating the authority of organizations and individuals in data use, regulate data types and use purposes, the data capture and use of norms in normal and benign orbit.

### **5.3 Cultivate large data talent, provide large data intelligence support**

The deepening of government governance innovation can not be separated from the support of talents. At present, Chinese talent, the ability to introduce large data applications into government innovation is scarce resources. Big data is a complex discipline involving statistics, mathematics, computer science and sociology. The government needs to establish a well-established large data personnel training mechanism, to explore and cultivate a large data environment for the compound talents, the establishment of a qualified large data talent team. The government through the preferential policies, remuneration and other large-scale professional skills to employ high-level talent for the government to build large data platform services. The government should also encourage large-scale talent cultivation and competition through social participation, encourage the community to carry out practical and innovative research on large data, and establish talent evaluation and evaluation mechanism. to ensure that China’s large data development to provide adequate talent reserves.

### **5.4 Promote data open and eliminate information silos**

The government, as the largest collection of raw data, sums up a lot of information, and because

of the limitations of traditional thinking, a lot of data has not been developed. In the era of big data, how to make the data of the government play its use value, become the urgent need to solve the problem of government governance innovation. In the elimination of information island, the government through the realization of information technology between departments horizontal and vertical integration, between the various levels of government, the government at the same level between the establishment of a complete integration of all data center, database, government departments across the various levels of data development and sharing, in order to achieve real government collaboration.

## 6 Conclusions

The change of thinking and technological change brought by the development of big data will continue to promote the transformation of government governance idea and governance mode. In the era of big data, government innovation is reflected in the field of public service, social management and government performance management. Big data brings new opportunities and possibilities for government governance innovation, but we should also fully realize that large data play a huge role and contains many risks and challenges. The absence of the concept of data governance, the challenge of opening up data and protecting the privacy of citizens, the scarcity of large data talent, and the information silos raise the risk of government governance. This paper puts forward the countermeasures of government governance innovation: establish data thinking, build large data strategy system; fill large data legislation blank, maintain data security; cultivate large data talent, provide large data intelligence support; promote data open, eliminate information island. The government should follow the requirements of the times, using this technical tools to promote government governance innovation, at the same time, the government should also be aware of the duality of things and should take various measures to guard against possible challenges and risks in the era of large data.

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## Precise Identification of Low Family Income College Students and Analysis of Funding Models in Big Data Era —In the Case of University of Electronic Science and Technology

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**Abstract** Under the overall deployment of “targeted poverty alleviation” of central government, achieving targeted funding for low family income college students is of great significance. However, precise identification of low family income college students is a public challenge. How could colleges overcome challenges existing in the process of fellowship grade identification every year? This paper, by taking University of Electronic Science and Technology as an example, has discussed how to calculate difficulty indexes of students through establishing an independent study algorithm with a series of technologies. Under the background of big data, this paper has first stated the dilemma of colleges in identifying low family income students and further discussed the plan of University of Electronic Science and Technology on precise identification of low family income students with big data. By using low family income student identification method and through a series of data integration like data access, data storage, data cleaning and difficulty calculation, the authors have analyzed their economic conditions and therefore achieved precise identification of low family income students. In terms of grades of identified low family income students, the authors have come up with corresponding funding measures. This paper, by taking multi-source objective behavior records of students as samples, has provided decision support for scientific funding by means of big data mining technology.

**Key words** Big data, Low family income college student, Precise identification, Funding path

From 2012 to 2016, the total funding amount for students reaches as high as 556.443 billion yuan and the average annual growth rate is 12.96%; in 2016 the funding amount reaches as high as 142.128 billion yuan. During the 12th Five-Year-Plan period, the total economic alleviation amount for low family income students exceeded 600 billion yuan. Nevertheless, some problems remain. On one hand, it is difficult to identify difficulties<sup>[1]</sup>. False information and the easiness to issue low family income student certificate have resulted in severe false information about low family income students; meanwhile, poverty identification way is unreasonable, for example, voting by ballot and poverty marking method will result in difficult identification instead of identification according to actual economic conditions of students. On the other hand, it is difficult to cover students who are actually low family income. Problems like inferiority complex and strong self-esteem will result in that students are unwilling to make speeches publicly or disclose family information to other students. To sum up, it is very likely to result in the difficulty to cover low family income students.

### 1 Argument value

From perspective of reality, precise identification of funding objects and targeted funding for low family income students in colleges is a practical measure for carrying out “precise poverty alleviation” in colleges. Colleges summarize relevant information of students, including meal card consumption situation and family information of students as well as comments on the students from teachers. All of these data feature with certain objectivity. With big data analysis method, a “smart poverty alleviation system” for precisely identifying low family income students has been established with big data analysis method. It is a precise big data screening, identifying and locating system that integrates data collection, storage, analysis and data discovery for identifying funding objects in a timely, dynamic and precise way. Precise identification of low family income students is a relatively fair and objective positioning way. It fully integrates subjective comments of assessing staffs and objective analysis of big data and tries to achieve objective and fair evaluation. Meanwhile, it practices precise positioning and identification of low family income students in colleges and benefits real low family income

students. Featuring with dynamism and objectivity, this big database has advantages like “targeted poverty alleviation” and effective operation of poverty alleviation system. It supervises situations of college students with big data and makes a scientific analysis of family information data with daily one-card consumption information; then it screens for economically difficult students and give them funds<sup>[2]</sup>. Theoretically, funding low family income students in both spirit and material is not only a kind of practice education but also implementation of core values of socialism. In summary, education is not only presented as teaching of knowledge; more importantly, it should include funding work into the whole process of education. Meanwhile, considerable explorations on precise identification of and funding for low family income students under big data background in academic circle have been made. However, it is a topic with time significance after all, it is necessary to continue conduct studies no matter how many explorations are made.

## **2 Current dilemma in identifying low family income students in colleges**

### **2.1 The identification standard is difficult to determine**

China has a long history and 56 nations. Moreover, it is wide in territorial area and different from region to region in economy, politics and cultural development. Besides, regions vary from each other regarding standards in identifying poverty and there are various plans for identifying low family income students and students to be funded. Due to regional differences, The Guiding Opinion for identifying low family income students in colleges has lost its unified effect and most administrative departments have made different practice plans according to actual conditions. However, there is no a fixed standard for many colleges and they have set three grades (exceptionally low family income, low family income and generally low family income) according to family information (average annual income in primary) reported by the students and the minimum local subsistence levels; after that, the number of low family income students is determined according to the proportion of 20%-25%. These data results are then distributed to various colleges which then do screening and report actual numbers<sup>[3]</sup>. To reduce troubles and pass the buck, various colleges directly distribute proportions to all classes and ask class committees to determine and screen for low family income students. Such “pass the buck” model has two serious problems: the first is uncertain economic index and difficulty to confirm “average annual family income”. Meanwhile, there exist problems like false data reported by students and the issuing of false investigation certificate. Besides that, different places vary from each other in local economic development and it is difficult to determine low family income students from places with high income levels; second, subjective willingness of counselors of different colleges is likely to result in different proportions of low family income students for different classes and the absence of justice and equity.

### **2.2 Unavoidable impact from human factors in the process of identification**

The first step for the identification of low family income students in colleges is students taking the initiative to apply. In this process, however, corresponding problems will show up because some students are introverted and unwilling to publicize their family and personal information due to impact from traditional ideas; some students from rich families are keen on gaining petty advantages, so they will try hard to get the funding and push aside students who are really low family income. The second step is towns or community civil affair departments issuing poverty certificate or Survey Questionnaire of College Students and Families as a proof for identifying low family income students in colleges. However, units that issue the certificate consider the issuing a small favor that imposes no interest conflict with them, so they do not check carefully out of consideration that they are college students; consequently, they issue the poverty certificate without investigating their conditions. Because of that, it is difficult to distinguish the genuine and the fake. On the contrary, some families that are actually stricken by poverty are likely to be looked down by local departments<sup>[4]</sup>. Along with that these families have few social relations, they can not get relevant poverty certificate and that has deprived poverty certificate of its original force. The third step is democratic evaluation by teachers and students, which is the most critical and important step about whether a student can get the funding or not. Because counselors or class advisers of colleges are busy with teaching or administrative affairs in usual time, they know little about family conditions and daily consumption of students and never do any in-depth

investigation; as a result, students who are more active and willing to get the funding are much likely to be funded. Those students, including those who are outgoing, keep good relations with counselors and take the initiative to report family information. Meanwhile, due to small-group relation among students, student representatives have partial favor and that makes those who keep good relations with student representatives main objects of the funding.

### 2.3 Publicity and identification results are subject to subjective and objective conditions

According to The Guiding Opinion on standard for identifying low family income students, the result of identified low family income students should be publicized. That is a show of not only respect to the right to know of the society, but also to certain extent the disclosure and transparency of the identification. Due to the existence of publicity, many colleges have chosen to publicize the result for several days in classes, colleges and universities<sup>[5]</sup>. However, low family income college students are a vulnerable group, so the publicity will cause psychological harm to them, especially to students who have high self-esteem. Moreover, it will further affect their social relations and make them be looked down by other students; after all, coming from a poor family is not something to be proud of. For students who do not want their names to be publicized, they consider publicity a kind of insult to them and therefore disagree with the procedure for identifying low family income students. As with the confirmation of family economic conditions there are many channels in current information society, such as phone and email<sup>[6]</sup>. But on “poverty student certificate” issued by local departments, local departments do not leave any contact way as required out of fear that their information will be disclosed. Therefore, field visit is the most real and reliable. However, there are too many students who apply for poverty funding, so it is to a great extent difficult to practice and assess due to limited human, physical and financial resources.

## 3 Identification and funding model

### 3.1 Identification plan

In recent years, University of Electronic Science and Technology has constructed a targeted funding system with big data technology, which collects and analyzes more than 20 items of data that include family information and in-school consumption information of students. Through combining artificial evaluation and big data analysis, the system can precisely identify students from low income families and practice dynamic management. Through establishing online student credit investigation system profile and checking students’ fellowship application materials, the system can do a great job in funding. Through a series of big data technologies and establishing independent study algorithm system, it precisely calculates students’ poverty indexes and suggests poverty grades according to needs of the school, primarily including data access, data storage, data cleaning, poverty calculation and so on. The data model diagram is shown as following (see Figure 1):

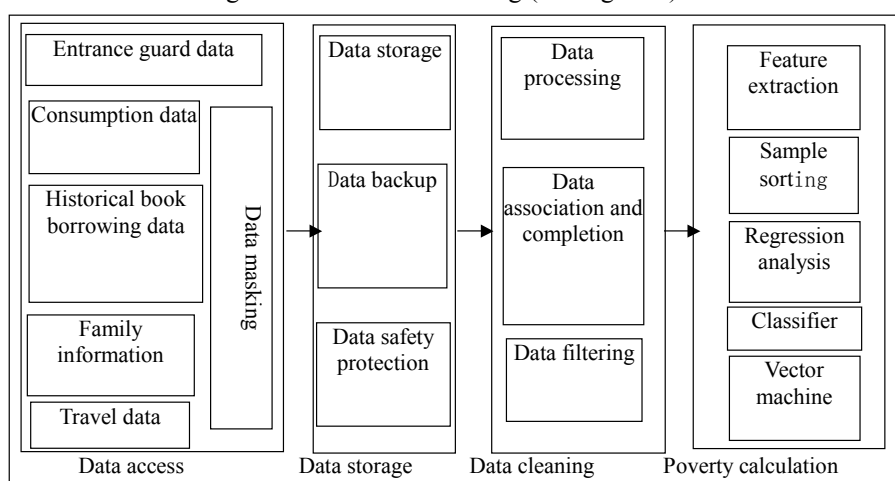


Figure 1 Funding model

### 3.1.1 Standard data access

The unified platform integrates data of various sources which primarily include following four types: data of various business systems like entrance data, consumption data and academic performance that are encrypted through independent research and development channel to guarantee stability and safety of data transmission; offline data like student worker tables, offline text data and pictures that are converted to structured data tables and non-structured data storage through data conversion; log data like student internet-surfing log that are converted to non-structured data storage through log data collector; internet data like social scientific research achievements that can be stored through program Crawler. The standard data access diagram is shown as following (see Figure 2):

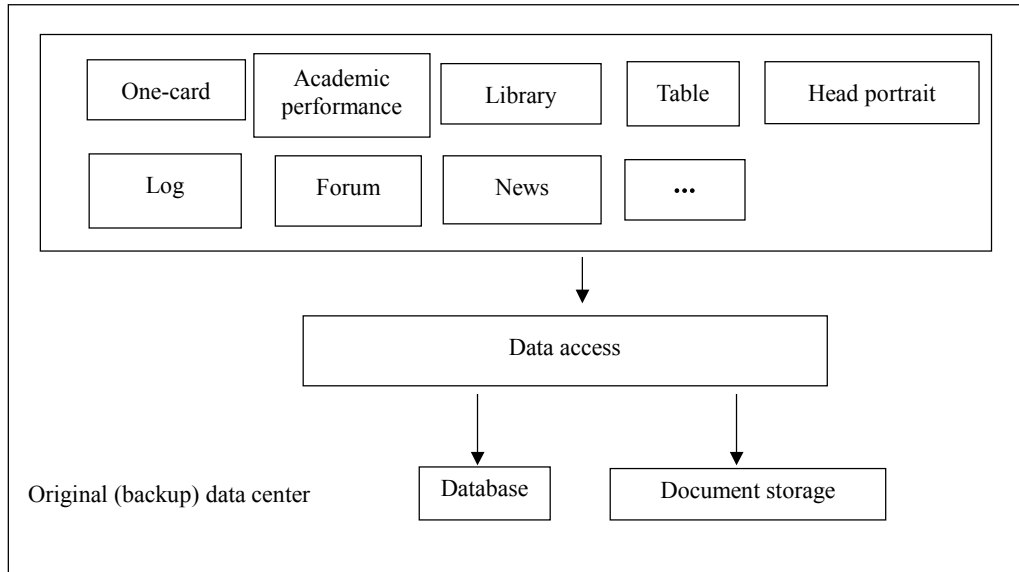


Figure 2 Standard data access

### 3.1.2 Unified data cleaning

The cleaning of data on the unified platform primarily includes following parts: rule check, that is, rule check of basic data, such as check of phone number format; data association that associates data of different business systems and integrates into an unified database; data completion that completes missing data, for example, students' academic performance is missing in some business systems that need academic performance data and teaching data are completed to the system; error checking, that is, checking of wrong data, such as inconsistency of same field in different business systems; redundancy removal, that is, removal of a lot of redundant data dispersed in different business systems; data filtering, that is, filter wrong or useless data and do not include them into the rule base; regex match, that is, have regex match of some data and extract original key information; data repetition judgement, that is, judge repetition of non-structured repeated data and remove repeated information; quality monitoring, that is, monitor data quality and inform relevant people in time. The unified data cleaning diagram is shown as following (see Figure 3):

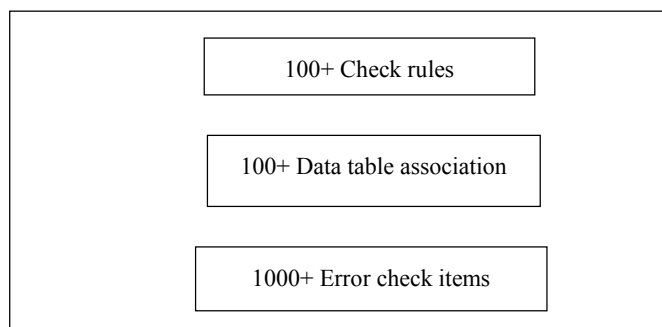
### 3.1.3 Unified data standard and the share

According to the education informatization data standard issued by the Ministry of Education and actual conditions of school application system nowadays, work out a plan of College Smart Campus Data Standard and carry out according to this plan to guarantee completeness, authority and consistency of campus data. The unified data standard and sharing picture is shown as following (see Figure 4):

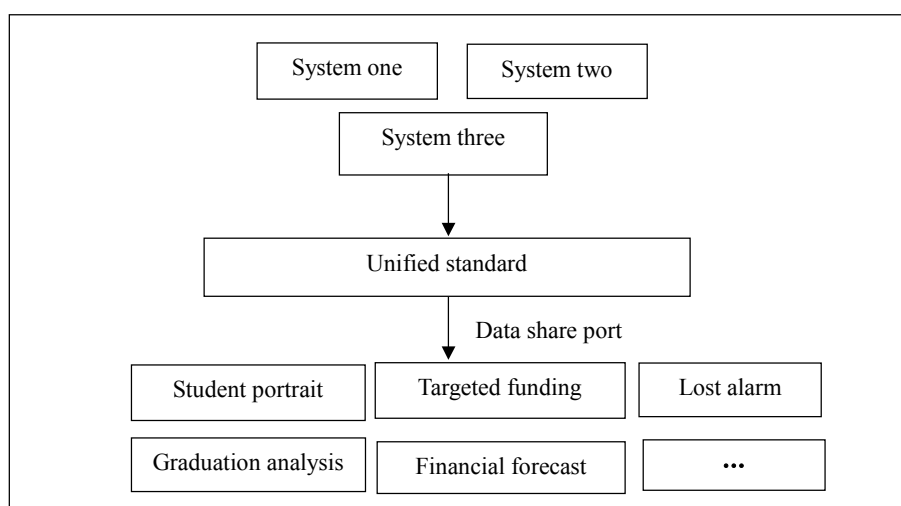
### 3.1.4 Integration and release of the application

The education unification platform has the ability to integrate various applications through various ways. For traditional applications (such as course selection system and personnel system) that require logging in, quick access is available through logging into an unified platform. For new

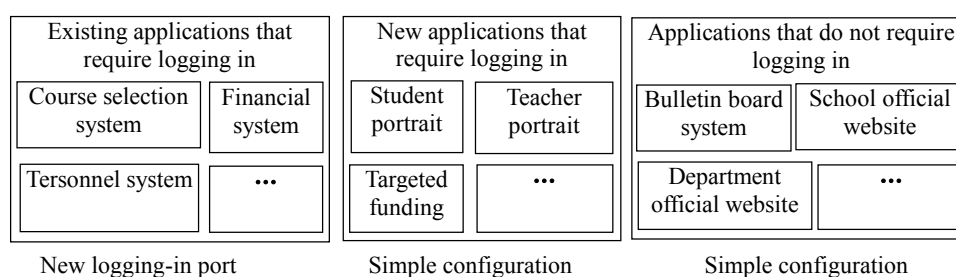
applications (such as student portrait and teacher portrait) that require logging in, access by having simple configuration within the system. For applications (such as bulletin board system and school official web) that do not require logging in, use them by having simple configuration within the system. The application integration and release diagram is shown as following (see Figure 5):



**Figure 3 Unified data cleaning**



**Figure 4 Unified data standard and the share**



**Figure 5 Integration and release of applications**

### 3.2 Low family income student identification algorithm

The traditional evaluation method is based on basic attributes of students, such as asking students to fill tables and confirming personal information through counselors or relevant teachers before achieving goals. The method we apply now is based on in-school consumption records of students. Basic attributes of students are static features which are not precise enough for discovering low family income students. The low family income student identification algorithm is an evaluation method that

bases on basic attributes of students. The analyzing method that bases on in-school consumption records of students primarily includes four aspects: multi-source data records, data extraction stage, data integration stage, application evaluation stage and students' multi-source behavior records VS students' economic conditions. Nowadays, abundant campus record data are applicable for describing sources of students. Educational psychology: students' multi-source behavior records reflect economic conditions of the students, such as one-card consumption, internet-browsing records and behavior traces.

### 3.3 Practice plan

After the algorithm is done, we combined the system with the work-study center system of the student affair department and our result with actual result. Besides that, we developed a system in the student affair department that can carry out the offline fellowship evaluation procedure online and achieve the goal online. Moreover, we will completely combine the result with the identification procedure so that teachers can partly apply the forecast result after seeing it. Here several goals can be achieved. First, we can manage the list of low family income students in a dynamic way to calculate, discover and inspect their economic conditions in real time.

After the system is combined with the algorithm, three types of early warnings will be made. First, students whose economic conditions are changed. Such changes often happen because of changes to economic conditions of the students and that requires relevant people to follow up closely and offer aids in time so as to prevent the students' conditions from getting worse. Second, students whose current economic conditions are inconsistent with last confirmation. When such situation happens, it often requires to adjust poverty grades of the students so as to adapt to their economic conditions and prevent certain students getting more or less fellowship. Third, low family income students who apply for poverty affirmation. For some students (may include many low family income students) who are unwilling to apply for fellowship in the way of making speech publicly out of strong self-esteem, special attention needs to be paid to<sup>[7]</sup>.

### 3.4 Application achievement

On one hand, University of Electronic Science and Technology has precisely identified 200 most low family income students in the school with big data targeted funding way and given them corresponding poverty alleviation funding in June 2016. On the other hand, targeted funding is highly recognized by Ministry of Education and China Central Television (CCTV). After the university completed its first low family income student identification with the targeted funding system, CCTV had a special report about achievements made on targeted funding. Meanwhile, the Ministry of Education also reported and highly praised relevant achievements made by the targeted funding system<sup>[8]</sup>. On one hand, identification of low family income students with big data does not require publicity of the identified low family income student name list, which has protected low family income students from getting hurt; on the other hand, it avoids false report of information and the use of quota for funding low family income students and enable students who get really low income to be funded. For the identified low family income students, they are not publicized and invisible funding is applied, which is a humanistic practicing way that has protected the students' self esteem from getting hurt<sup>[9]</sup>. Hence, it is a practice that should be highly advocated since it overcomes the dilemma of traditional method by enhancing advantages and avoiding disadvantages and creating more just results.

## 4 Conclusions

In conclusion, as the country constantly increases its investment into education, improving the precision for the identification of low family income students with big data thinking will certainly become an inevitable trend for the identification of low family income students. In this regard, the university has made precise identification of low family income students and carried out corresponding funding policies by means of big data, low family income student discovery method and a series of data integration like data access, data storage, data cleaning and poverty calculation. The implementation of targeted funding in colleges requires not only policy legislation but also technological "weapons". Hence, it is necessary to carry out targeted poverty alleviation idea based on big data to further promote the smooth implementation of low family income student identification and



funding, achieve scientific funding for low family income students and create educational fairness.

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## Public-Private Partnership (PPP) in Smart Education: The Case of Ghana

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**Abstract** Ghana still adopts the old system of teaching and learning even when the world is moving to a state full of technology. A report by the Ministry of Finance and Economic Planning indicates that the country is in critical challenges when it comes to infrastructure development and public service delivery not only in the education sector but all the various institution as a whole. These infrastructure development and public service delivery serves as the pillar for the counties economic growth (Ministry of Finance and Economic Planning, 2011 report) and there is the need to address such issue. Some researchers pinpoint to the fact that the best way to solve this problem is when there is collaboration between the government and other private companies, thus Public-Private Partnership (PPP). The Government of Ghana has placed a strong emphasis on the role of ICT in contributing to the country's educational system which was captured in the country's medium-term development plan in the Ghana Poverty Reduction Strategy Paper (GPRS I & II) and the Education Strategic Plan 2003-2015. The government alone don't have enough funds necessary to cater for the costs of the ICT project. Hence, there is the need for the government to collaborate with other private companies to bridge this gap. In 2008, the president of Ghana contracted which is one of the best communication companies in Ghana when it comes to assembling of electronic equipment's such as computers, phones etc. to provide mini laptops to some schools across Ghana. This was a good step towards teaching and learning. Furthermore, the government can again get into contact with Institute of Professional Management College (IPMC) which is the best IT Company when it comes to designing of software and programming. This IT Companies will design teaching and learning software's and programs to aid teaching and learning as done in countries like China, USA, India, South African and other countries. The benefits these private companies will get in both short and long run by rendering their service to the government includes; students and teachers will advertise these private companies product for them since it have been used by students and teachers. They will recommend their products to others to buy. The government will again give these private companies other contracts in other institutions since they are now tested and trusted. The students and teachers can come out with new technological ideas to help improve their products

**Key words** Public-Private Partnership (PPP), Smart education, Ghana, ICT

### 1 Introduction

In recent years, the combination of Public and Private sector have helped the growth of education in the whole world. There is a saying that education is the key to success and education also predicts the future growth of a countries economy as well as a countries well-being. A key area in the success of education in both developed and developing countries is the partnership between the Government and the Private sector. In this respect, Public Private Partnership (PPP) will continue to be the pillar for the continued success of education in the world.

As a results of this, the Government of Ghana has placed a strong emphasis on the role of ICT in contributing to the country's educational system to make it smarter, that's smart education. The country's medium-term development plan captured in the Ghana Poverty Reduction Strategy Paper (GPRS I&II) and the Education Strategic Plan 2003-2015 all suggest the use of ICT as a means of reaching out to the poor in Ghana. In 2004, Parliament passed into law Ghana's ICT for Accelerated Development (ICT4AD) policy, which is currently at various stages of implementation. This policy represents the vision of Ghana in the information age and addresses 14 priority focus areas or pillars

and all these policy frameworks is to ensure ICT development leading to smart education. All these initiatives have been put in place by the government of Ghana and needs some support from the private sectors and there is the need to address Public-Private Partnership (PPP) in smart education (Government of Ghana National Policy on Public Private Partnership, 2011<sup>[1]</sup>).

The paper investigates aspects of Public Private Partnership (PPP) in smart education, a case of Ghana and identifies a number of processes for Public-Private Partnership to be effective and the benefits that will arise from smart education. That is, detailed documentation (legal framework) need to be prepared at all phases of the PPP projects, there should also be a feasibility studies, procurements as well as setting up PPP contract management team. Smart education is gaining increasing acceptance in both developed and developing countries such as USA, China, Malaysia, etc. Making education smart will leads to effectiveness in learning, it will also serves as motivation to students, makes teaching simple, and reduce cost. Hence, incorporating Public Private Partnership in smart education will ensure the general well-being Ghana's education system which will directly shapes the economy as a whole as education serves as the pillar of every economy (Government of Ghana National Policy on Public Private Partnership, 2011<sup>[1]</sup>).

## 2 Definition of Public-Private Partnership and smart education

Most researchers have come out with some definitions of PPP but the one that interest me most is the definition by Taylor. According to him, Public Private Partnership (PPP) can be defined as a contract that a government makes with a private service provider to acquire a specified service of a defined quantity and quality at an agreed price for a specified period (Taylor, 2003). The services include education services (management, maintenance, and support services like transportation); operation services, such as pure management; and infrastructure (in what is often referred to as a private finance initiative) (LaRocque and Patrinos 2006<sup>[2]</sup>).

Moreover, in terms of defining smart education, Alberta (2013) came out to explain that smart education, a concept that describes learning in digital age, has gained increased attention and is a topic of growing concern both theoretically and empirically. Recently, technology has become an important element in almost every aspect of people's lives. It has been integrated into the educational process over and over again throughout the years and has given newer and better tools to help facilitate learning (Alberta, 2013<sup>[3]</sup>).

## 3 Public-Private Partnership in Ghana

An article published by the Ministry of Finance and Economic Planning (MF&EP) about Private Participation in Infrastructure and Services Delivery indicates that Ghana is currently facing some critical challenges when it comes to infrastructure development and public service delivery (both the education sector and other sectors as a whole) which serve as the pillar for the counties economic growth (Government of Ghana National Policy on Public Private Partnership, 2011<sup>[1]</sup>). Moreover, the report further came out that in other for Ghana to deal with her infrastructure deficit, there is the need to sustain it spending of at least USD 1.5 billion per annum over some period of years which is a huge sum of money to the country.

In other to solve this problem, it is the duty of the government to encourage the use of Public-Private Partnership as a means of bringing together the public resources and expertise to bridge the infrastructure gap which will in the long run deliver efficient public infrastructure and services in the education sector and other sectors in general. As a result of this, the Ministry of Finance and Economic Planning has developed the National Policy on Public-Private Partnership which will seek to provide a clear and consistent process for all aspects of Public-Private Partnership projects (Government of Ghana National Policy on Public Private Partnership, 2011<sup>[1]</sup>).

According to the report, the benefits that Ghana will get from Public-Private Partnership when it is properly done includes the accelerated delivery of needed infrastructure and public services on time and within budget, encouraging the private sector to provide innovative design, technology and financing structures, increased international and domestic investment, risk sharing by government with private sector partners, ensuring good quality public services and their wider availability, real financial

benefits reflected in reduction in the initial public capital outlay, and a better utilization and allocation of public funds, economic growth and increased and wider employment possibilities, technology transfer and capacity building as well as improved operation and maintenance of public infrastructure (Government of Ghana National Policy on Public Private Partnership, 2011<sup>[1]</sup>).

Furthermore, the report highlighted the roles and responsibilities that will be performed by various stakeholders involved in the act. Public-Private Partnership's allow each partner to concentrate on activities that best suit their skills. For the public sector this not only means planning and identifying infrastructure and public service needs and focusing on developing national and local sector-specific policies, but also overseeing these and enforcing the Public-Private Partnership agenda. For the private sector, the key is to deliver effectively the infrastructure and facilities required by the public sector and consumers at the project level. Usually, in a Public-Private Partnership arrangement, the private sector party provides the design, construction, operation, management, maintenance and financing for the partnership project, and is paid according to performance. Risks are identified and placed with the party best able to bear and manage them at lowest cost (Government of Ghana National Policy on Public Private Partnership, 2011<sup>[1]</sup>).

The report again stated the process of Public-Private Partnership involves a number of players from different sectors, representing a variety of interests, and thus the partnership needs to be formalized and processes need to be followed in a systematic and transparent way. Detailed documentation need to be prepared at all phases of the Public-Private Partnership project. It is important to note that Public-Private Partnership can take a long time to procure if these processes are not carefully followed. Public-Private Partnership projects shall be selected from sectors which have been identified within the National Infrastructure Plan (NIP) and have the potential for development under Public-Private Partnership. To improve credibility and transparency at all phases of project development, the input of both government and the private party shall be assessed in terms of their compliance with the legislation, regulations and the Public-Private Partnership process and its components, including the bidding process, local content and the formation of Special Purpose Vehicles (Government of Ghana National Policy on Public Private Partnership, 2011<sup>[1]</sup>).

Due to advanced technology, training is done through institutions in Africa, Europe and United States of America and so on, which has universalized education. It has to be admitted that Western and North American training remains dominant in the modern era. However, it is also important to acknowledge the influence that the Chinese education system is having on education in Africa. The Chinese training, mostly in Mandarin, which is a language used in China, is gaining ground in Africa because it now constitutes part of curricula of some institutions in the continent. A typical example is University of Ghana Language School. This translates to mean education in Africa is bound to be transformed so that it can be responsive to these emerging trends. According to Marginson, education is meant to promote global connectedness, which sums all global systems in education and research (Marginson, 2011<sup>[4]</sup>). This is despite the challenge of resistance that is been experienced in some parts of the continent. As pointed out by Fullick as cited by Leathwood and Francis, there is already a healthy resistance to participation from many who regard the education on offer as middle-class and alien (Leathwood and Francis, 2006<sup>[5]</sup>). Added to this blame is the one advanced by Owusu who stated that the increasing deterioration of intergenerational communication in Africa has been attributed to systems of education introduced by Western colonial system (Owusu, 1995<sup>[6]</sup>).

If this literature is true that Africa education is controlled by the Western culture, then the Western culture education is currently in the state full of technology to make education smart. This is achieved by the government bringing in the public sectors to support the education system to make it more technological or smart. However, there is the need for the African countries to do same by introducing private participation in their education system. Hence, there is the need for Public-Private Partnership

#### **4 The research methods**

The research method deploys only secondary material such as journal and newspaper articles, government of Ghana reports, World Bank reports as well as other countries reports on Public Private

Partnership in smart education.

## **5 Education International, World Bank and UNESCO reports on Public-Private Partnership in smart education**

A report by Education International in 2009 (Theme: Public Private Partnerships in Education) indicated that the educational system as a whole are in serious crisis and would the Public-Private Partnership serves as an opportunity to make the educational system the best. Despite the fact that the concept started in Western countries, the WEF asserts that, some of the strongest levels of involvement in Public-Private Partnerships are seen in Latin America and the Middle East, where business alliances and other Public-Private Partnerships models are particularly active (WEF, 2005<sup>[7]</sup>). The expansion of Public-Private Partnership has paved the way for recommendations that developing countries might embark on these ventures to improve educational access and quality in their school sector (Patrinós, 2005 and Fennell, 2007<sup>[8]</sup>).

Indeed, the literature promoting Public-Private Partnership puts strong emphasis on the achievement of access to smart education for all, one of the Millennium Development Goals (MDGs). A country's performance in the global economy is seriously endangered by the often limited finances available to educational systems. Constraints on public budgets and human resources for education mean that governments need to find cost-effective ways of drawing on the private and non-profit sectors for delivery of services and getting the best performance out of publicly paid providers (World Bank, 1998<sup>[9]</sup>).

Furthermore, the World Bank has been particularly active in promoting Public-Private Partnership in developing countries, and is at the center of the Public-Private Partnership discourse in industrialized countries as well. The World Bank has been involved in many projects that have aimed either to promote Public-Private Partnership or to create an environment for the involvement of private actors in smart education. The Bank involvement includes a wide range of countries such as: Chile, Burkina Faso, Indonesia, El Salvador, Comoros, Cameroon and Ethiopia. The Bank has been very active both in promoting some types of Public-Private Partnership as in the cases of Tunisia, Lebanon, Mexico, and Argentina but also directly establishing the institutional environment for Public-Private Partnership, as in the cases of Indonesia, Cameroon and Ethiopia. Another important aspect of the World Bank projects has been the involvement of NGOs in delivering smart education, as in the cases of Senegal, Ghana, Burkina Faso, Chad, Guinea, Niger and the Gambia. The role of the Bank and the IFC is generally both financial and technical as they provide assistance for the set-up of Public-Private Partnership involving NGOs (World Bank, 1998<sup>[9]</sup>).

Moreover, UNESCO and UNICEF have shown support for Public-Private Partnership, dedicating specific websites to the subject. UNESCO's International Institute for Education Planning (IIEP) has begun a study on Public-Private Partnership in smart education, which is intended to prepare for training programs to Education Ministries in member countries (UNESCO, 2007<sup>[10]</sup>). It is important to note the increased networking between UNESCO, the World Economic Forum (WEF), USAID and major corporations such as Microsoft, Intel and Cisco.

## **6 Microsoft innovative schools program in smart education, a private company in support of the government (the case of Microsoft)**

The Innovative Schools project is part of the Microsoft Partners-in-Learning Initiative (PiL) launched in 2004.

Following four pilot projects in Singapore, Taiwan P.R. China, the UK, and the US, this Public-Private Partnership scheme was extended to 12 locations, including three schools in Singapore and seven in Hong Kong P. R. China. A local program manager, the Microsoft team, and a working group mentor work closely with the selected schools to formulate a blueprint employing the 6 'i' development processes introspection, investigation, inclusion, innovation, implementation, and insight developed in the School of the future project. The objectives are to partner with governments, schools, teachers, and technology partners to assist primary or secondary schools in strategic planning and furthering innovation in learning and knowledge discovery, and to equip students with the right skills

to meet the demands of a knowledge-based economy. Microsoft provides not direct funding but access to technology solutions, human capital in terms of technology expertise, and knowledge in resources planning, curriculum development, and research findings from other projects such as School of the Future and BackPack. NET. The schools raise their own funding for building the infrastructure and acquiring the appropriate equipment, software, and technologies. After two years, evaluations at the school and program level are conducted by an independent third party research organization. (Microsoft, 2009<sup>[11]</sup>).

## 7 Intec partnership to promote ICT to enhance smart education, a private company in support of the government (the case of Intec)

Intec is a private IT company in Mongolia providing direct services to schools and private companies. It also serves as a project partner in many public sector projects financed by international donor agencies. Intec has partnered with the Ministry of Education, Culture and Science (MECS) of Mongolia to pilot the Aptech Plus IT Training for Secondary School program. The pilot will provide the MECS feedback about whether to formally adopt Aptech Plus content in its secondary schools. In both long and short run will positively enhance the teaching and learning in Mongolia amongst secondary school students (The Intec website is at <http://www.itconsulting.mn/index.htm><sup>[12]</sup>).

## 8 Analyses

It is important to note that there is a direct relationship between ICT and smart education. That is, when ICT projects are duly implemented it will make education smarter, therefore leading to smart education. This section dealt with current ICT initiatives and Projects through Public-Private Partnership initiatives in enhancing Smart Education in Ghana.

**Table 1 Current ICT initiatives and projects implemented through public private partnership initiatives to ensure smart education**

<p><b>Project:</b> Nepad E-Schools – supporting six schools in six regions with ICT infrastructure  <b>Organization(s):</b> Ministry of Education  <b>Funding sources:</b> HP, Microsoft, Oracle, and Cisco  <b>Results:</b> Walewale Senior High School, Acherensua Senior High School, Ola Girls Senior High School, St Augustine’s Senior High School, Wa Senior High School and Akomadan Senior High School benefitted from the first phase of the NEPAD e-school Initiative in a bid to improve the quality of teaching and learning by the use of ICT.  <b>Source:</b> (<a href="http://www.hp.com/hpinfo/newsroom/press_kits/2005/wsis/ov_nepad.pdf">www.hp.com/hpinfo/newsroom/press_kits/2005/wsis/ov_nepad.pdf</a><sup>[13]</sup>)</p>
<p><b>Project:</b> GeSCI – to expand the deployment of ICTs in schools in Ghana and to promote the effective use of these ICTs to achieve Ghana’s educational and community development objectives.  <b>Organization(s):</b> Ministry of Education, Youth and Sports  <b>Funding sources:</b> UNICT Task Force  <b>Results:</b> Expanded the deployment of ICTs in schools in Ghana which have promoted the effective use of these ICTs to achieve Ghana’s educational and community development objectives.  <b>Source:</b> (<a href="http://www.gesci.org/gesci/publisher/index.jsp?aID=229&amp;nID=111&amp;pID=107">www.gesci.org/gesci/publisher/index.jsp?aID=229&amp;nID=111&amp;pID=107</a><sup>[14]</sup>)</p>
<p><b>Project:</b> Intel-ELearning Centre (Accra girls) – pilot project to establish Africa’s first WiMAX connected school.  <b>Organization(s):</b> Accra Girls’ Secondary School  <b>Funding sources:</b> Intel  <b>Results:</b> Built a full e-Learning centre, hardware, software, Internet connectivity and teacher training for Accra Girls Senior High School.  <b>Source:</b> (<a href="http://www.intel.com/pressroom/kits/worldahead/wa_backgrounder.pdf">www.intel.com/pressroom/kits/worldahead/wa_backgrounder.pdf</a><sup>[15]</sup>)</p>
<p><b>Project:</b> HP Digital Community Centre (KNUST) – high-speed ICT infrastructure at KNUST and for community learning and technology centers (CLTCs)  <b>Organization(s):</b> KNUST  <b>Funding sources:</b> HP  <b>Results:</b> Built an HP Digital Community Centre in KNUST to ensure high-speed ICT infrastructure at KNUST and for community learning and technology centers (CLTCs).  <b>Source:</b> (<a href="http://h41111.www4.hp.com/globalcitizenship/uk/en/e-inclusion/project/project_kumasi.html">http://h41111.www4.hp.com/globalcitizenship/uk/en/e-inclusion/project/project_kumasi.html</a><sup>[16]</sup>)</p>

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**Project:** Catch IT – fostering the development of ICT clubs throughout Ghana helps to prepare the youth for ICT related jobs

**Organization(s):** African Youth Initiative (AYF)/One Village Foundation (OVF)

**Funding sources:** University of Education, Winneba, AYF partners, International Young Professionals Foundation.

**Results:** Fostering the development of ICT clubs throughout Ghana helps to prepare the youth for ICT related jobs.

**Source:** ([www.onevillagefoundation.org/ovf/projects.html](http://www.onevillagefoundation.org/ovf/projects.html)<sup>[17]</sup>)

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**Project:** e-Education package for schools – offers affordable financing at competitive rates for qualifying educational institutions towards broadband Internet access via VSAT anywhere in Ghana

**Organization(s):** Accelon, Standard Trust Bank, ICT Education Support Africa Foundation

**Funding sources:** Accelon

**Results:** Provided e-Education package for schools by which they offered affordable financing at competitive rates for qualifying educational institutions towards broadband Internet access via VSAT anywhere in Ghana.

**Source:** ([www.accelonafrika.com/ghana/aboutus.html](http://www.accelonafrika.com/ghana/aboutus.html)<sup>[18]</sup>)

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Table 1, explains that there is a direct relationship between ICT and Smart Education. That's implementing more ICT projects in schools will lead smart education. The Education sector has received much supports from both private and public sectors through Public-Private Partnerships. Non-Governmental Organisations (NGO's) such as UNESCO, World Bank, African Youth Initiative (AYF), One Village Foundation (OVF), Accelon, Standard Trust Bank and the government of Ghana herself have put up various ICT initiatives through Public-Private Partnerships to enhance smart education in the education sector. Through Public-Private Partnerships, the government of Ghana is able to seek support from Accelon Standard Trust Bank an ICT Education Support Africa Foundation by financing e-Education package for schools which offers affordable financing at competitive rates for qualifying educational institutions towards broadband Internet access via VSAT anywhere in Ghana. Moreover, Intel has introduced Intel-Elearning Centre for Accra girls Senior High School, a pilot project to establish Africa's first WiMAX connected school. Again, Nepad E-Schools has supported six schools in six regions with ICT infrastructure which is financed by HP, Microsoft, Oracle, and Cisco. These supports were not only financing aspects but also provided teaching and learning soft wares, hardware, internet mechanisms, computers and other equipment's needed for learning. All these supports from both the government of Ghana and these private companies has ensured a great boost of Ghana's education sector.

Education International (EI), World Bank and UNESCO reports on Public-Private Participation in education reported that the partnership between the government and the private companies when incorporated into education will make education will make it smarter. It is obvious to say that when Ghana is able to implement Public-Private Partnership policies in the education sector, the current state of students' poor performance will be dealt with. The case studies of the Microsoft Partners-in-Learning Initiative (PiL) is to partner with governments, schools, teachers, and technology partners to assist primary or secondary schools in strategic planning and furthering innovation in learning and knowledge discovery, and to equip students with the right skills to meet the demands of a knowledge-based economy.

## 9 Conclusions

The current education system in the whole world is moving to more advanced and technological level, that's smart education. Most countries such as China, United States of America, Singapore, Malaysia, amongst others have adopted the smart education system. To be able to embark on smart education, the government cannot rely on her resources alone but through the help of private companies. Hence, the need for Public-Private Partnership (PPP). Through Public-Private Partnership the government of Ghana is able to get some needed infrastructure from private companies as well as NGO's to strengthen it ICT sector to ensure smart education. Nepad E-Schools supported six schools in six regions with ICT infrastructure. These schools were Walewale Senior High School, Acherensua Senior High School, Ola Girls Senior High School, St Augustine's Senior High School, Wa Senior

High School and Akomadan Senior High School all benefitted from the first phase of the NEPAD e-school Initiative in a bid to improve the quality of teaching and learning by the use of ICT. Furthermore, GeSCI has expanded the deployment of ICTs in schools in Ghana to promote the effective use of these ICTs to achieve Ghana's educational and community development objectives. Moreover, Intel-ELearning Centre have built a full e-Learning centre, hardware, software, internet connectivity and teacher training for Accra Girls Senior High School as a pilot project to establish Africa's first WiMAX connected school. Notwithstanding, HP company have built a Digital Community Centre for Kwame Nkrumah University of Science and Technology (KNUST) to ensure a high-speed ICT infrastructure at KNUST and for community learning and technology centers (CLTCs).

Education is the key to success and the growth of every economy relies much on how smart that countries education has become. This will in the long run bring out good students with technical knowhow for the future generation and good leaders of Ghana. The supports that the government of Ghana has received from private companies such as HP, Microsoft, Oracle, Cisco, World Bank, Intel, African Youth Initiative (AYF)/One Village Foundation (OVF), Accelon, Standard Trust Bank, ICT Education Support Africa Foundation, and UNICT Task Force is not enough to improve the quality of her education system to make it smart. Hence there is the need for other supports from other private companies both locally and globally to make Ghana's education system smarter. The only solution to ensure smart education in Ghana is through Public-Private Partnership and is a question of general concern.

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## A Study on the Influencing Factors of Public Neighborhood Behavior Based on Mixed Research Design

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**Abstract** This study is to explore the influencing factors of public proximity behavior and reveal the generation process of Nimby behavior. Firstly, the Qualitative Meta-analysis method is used to construct the influencing factor analysis framework of public Nimby behavior. On this basis, the hypothesis is put forward, and then the research data are collected by questionnaire. The regression analysis method is used to carry out the hypothesis test. The results show that the factors influencing the public Nimby behavior are environmental factors, public trust, government behavior and attitude, public demand satisfaction, negative externalities of the Nimby facilities, risk perception, social impact, Nimby emotion, public internal characteristics, Nimby attitude and perceived cost of protest. The existence of the Nimby behavior exists in the main line, that is: environmental factors→public trust and government behavior and attitude→public demand satisfaction→risk cognition→Nimby emotion→Nimby attitude→Nimby behavior, and the remaining factors exist as a branch, in which the negative externalities, social effects and perceived cost of the Nimby facilities are respectively applied to risk perception, Nimby emotion and Nimby behavior. Public internal characteristics have an impact on the attitude of neighbors.

**Key words** Mixed research design, Qualitative element analysis, Nimby behavior, Influencing factors, Action relationship

### I Introduction

With the continuous development of society, lots of hazards occur gradually. Human society is facing with problems, such as unprecedented pollution, new industrial illness, hazards, global warming and irreversible climate change. The population of china has made up over 20% of the world, and the number of population changes much faster than any country in the world, so the modern social risks of china are sharp. In today's society, various social conflicts often occur, and Nimby (not in my back yard) conflict is a kind of typical modern social conflict caused by uneven risk distribution and obvious uncertain dangers. Therefore, resolving Nimby conflicts has become necessary for the stable development of modern society.

In recent years, scholars at home and abroad have paid high attention on Nimby study. They mainly discuss the connotation, characteristics, forming causes and strategies these four aspects of Nimby. According to the existing literatures, we have found there are three deficiencies on the existing researches. First, there are few researches about the influential factors of Nimby based on our own country's social cultural environment. Lots of existing researches just copy the experience of other countries but neglect different national conditions. In addition, they mainly focus on forming causes and strategies, while researches on how Nimby occurs among residents are few and the effects of influential factors for behaviors haven't been clearly discussed, which increases the difficulty of constructing sound and systematical strategies to prevent conflicts. Second, the existing researches on Nimby lack comprehensive study views. Not only the researches on Nimby are few, but they all study from the same prospective, which can't reveal the accurate influential factors of Nimby from all aspects and make people understand the causing process of these behaviors. Third, all domestic literatures and documents adopt single research method and mainly focus on qualitative researches without quantitative analysis, which restricts theoretical development in certain extent and causes the shortages of theoretical evidence. Therefore, it is necessary to use qualitative methods and quantitative methods to find out the theoretical factors that influence public Nimby and test the function relations between factors.

## **2 The construction of analytical framework of influential factors of public Nimby behaviors**

### **2.1 Qualitative meta-analysis**

Qualitative Meta-analysis was presented in Stern's comprehensive analysis of seven qualitative research literatures on nursing (Stern and Harris, 1985<sup>[1]</sup>). In this paper, qualitative meta-analysis method is selected. There are three main reasons: first, this paper is aimed at constructing the analytical framework of influential factors of public Nimby behaviors. The emphasis of qualitative meta-analysis is theoretical construction to give a more comprehensive and complicated description on some phenomenon; second, quantitative meta-analysis needs more literatures to analyze; through literature search, the author has found there are few literatures on Nimby which cannot satisfy the demands of quantitative analysis for literatures. However, there are more qualitative research literatures related to the Nimby events, which creates the conditions for qualitative analysis of the large number of research results in this field.; third, qualitative meta-analysis is based on the existing research literatures to make a comprehensive analysis. It absorbs different researching views from the original literatures into analyzing process to break the restriction of views, so that the influential factors on Nimby behavior can be discussed completely and accurately. After selecting the research methods, this research takes the qualitative meta-analysis process concluded by Timulak (Timulak, 2009<sup>[2]</sup>)

### **2.2 Data sources**

For the Nimby problem, the scholar Zhu Wang-guang suggests people should have a further research on Nimby based on their own social background and political background, and analyze the function mechanism from different influential factors on Nimby so that the theoretical systems in our country can be improved and the public can get to know Nimby, which can ease Nimby conflicts better (Zhu Sun-guang, Yang Jie, Zou Li-ping, Qiao Meng-feng, Tian Yu, Xu Hong-ze, et al, 2015<sup>[3]</sup>). According to these, we believe that constructing china's influential factors model of public Nimby behaviors should be discussed under background of the society, economy and politics in china. Hence, this study has selected those literatures on Nimby in our country as data to analyze. In the end, 66 articles for qualitative meta-analysis from periodical literatures have been applied, and those literatures come from CSSCI database.

### **2.3 Literature analysis**

This paper follows the three-step method proposed by Li Hai and Wei Hong-guo which based on Glaser's coding program to do qualitative meta-analysis (Li Hai, Zhang Mian and LI Bo, 2009<sup>[4]</sup>; Wei Hong-guo and Li Hai, 2015<sup>[5]</sup>). First of all, first, extract the factors related to the following topics from 66 articles: the factors that affect the decision-making of public in the face of Nimby facilities; the reasons for the conflict / movement / protest; the prevention / dissection of the public Nimby action, and finally get 501 words. Then, the encoding operation is performed. This article invites professors in relevant fields to guide the author to study coding analysis and pre-analysis. When the results of the pre-analysis are ideal, the coders operate independently according to their own ideas. The core of the coding process is to summarize the same or similar words with the same abstract concept. In this study, 53 abstract concepts were obtained by coding. Finally, the factors that influence the public's Nimby behavior are classified.

### **2.4 Analysis framework of influencing factors of public Nimby behavior**

In this paper, based on the 501 words and phrases from qualitative meta-analysis, we sum up a total of 53 factors, 24 families and 13 categories. The factors' average proportion of the total 501 words and phrases is 7.692%. According to the classification method of Wei Hong-guo (Wei Hong-guo and Li Hai, 2015<sup>[5]</sup>), the factor of which proportion is bigger than 7.692% is regarded as the public factor which affects the public's neighbor's behavior, and the factor of which proportion is smaller than 7.692% is regarded as additional factor. The public factors are: government behavior and attitude, risk cognition, public demand satisfaction and public trust; additional factors are: negative externalities of Nimby facilities, proximity, neighbors avoidance, proximity, perceived cost of struggle, environmental factors, social impact, public intrinsic characteristics. The above factors will be explained below.

(1) The first category is the environmental factor. In the qualitative meta-analysis of this paper, the environmental factor contains four factors: the economic environment, the social environment, the

legal environment and the institutional environment. Economic environment refers to the level of economic development of the city where the facilities are located; the social environment means that the citizen's consciousness rises and the autonomy strengthens, and the civil society rises gradually as the public opposes the collusion of officials and businesses, corruption or the interest chain; the legal environment refers to the existing legal provisions on project planning and decision-making, public participation and so on, which regulates the behavior of the government and provides public support for government decision-making; the institutional environment includes petition system, social hearing system, expert consultation system, public interest expression mechanism, public participation mechanism, third party mediation mechanism and so on. These systems affect the behavior of the government. At the same time, a good system will also allow the public to perceive the government's reliability, experts' reliability, third-party institutions' reliability, etc., to enhance the community's public trust.

(2) The second category is the government behavior and attitude, consisting of the government's attitude, the government's behavior measures, government decision-making and information disclosure, a total of 11 families included. Government behavior and attitude include government behavior and government attitude. Government behavior mainly refers to the government's decision-making, the disclosure of information, the governance of the project and the response to public demands. The attitude of the government not only reflects the government's attitude towards the public, such as the recognition of public opinion, public participation and public interest considerations, also reflects the government's emphasis on social stability and qualitative understanding of the project. According to the connotation of government behavior and attitude and based on the data of qualitative meta-analysis, this paper holds that government behavior and attitude affect the degree of public trust and public demand.

(3) The third category is public trust. From the five factors that include public trust in the government, public trust in the building party, public trust in the project and related information, public trust in third parties (experts, public institutions, etc.), public trust in decision making, it can be seen that the public trust in this article is based on the public perspective. According to the results of the qualitative meta-analysis of the literature, it can be found that when the public trust is higher, the public is more trusting the behavior of the government and more difficult to produce a sense of infringement from the construction of the neighboring facilities. Furthermore, their needs are more likely to be met.

(4) The fourth category is the satisfaction of the public demand, which includes the satisfaction of the environmental protection demands, the satisfaction of the public demand, the satisfaction of the fair demand, the satisfaction of the demand for benefits, the satisfaction of information needs and the satisfaction of public participation. It reflects the important content of the public's attention when planning and constructing of the Nimby facilities. These needs are based on the public's own basic rights (survival rights, environmental rights, property rights, etc.). Obviously, if the degree of public demand satisfaction is low, then the public's awareness of the risk to the project is not alleviated, but exacerbated the public's risk awareness, and even prompted the public to have a strong opposition and formed Nimby attitude.

(5) The fifth category is the negative externalities of the Nimby facilities. This paper considers that the negative externalities of the Nimby facilities are an objective property of the Nimby facilities that will or probably will cause damage to the environment, life safety, property, etc., and rises the public's risk perception of facilities.

(6) The sixth category is the Nimby distance. The Nimby distance is the distance between the public and the Nimby facility. From the domestic occurrence of the conflict incident, conflicts occur in areas where the facilities are located, and because of living closer to the facility, residents feel a greater risk of loss of interest and form rebellious attitude.

(7) The seventh category is risk perception. Risk perception is subjective and non-logical, reflecting the public awareness of risk and awareness of prevention, as well as the inconsistency between public and experts' risk perception. In addition, Slovic point out that public perception of risk is based on risk ignorance, fear and controllability (Slovic P, 2014<sup>[6]</sup>), reflecting public concern and

fear of risk. Thus, risk perception, fear and risk worry together reflect the public's risk perception, and risk awareness affects the public's emotion and attitude.

(8) The eighth category is the social influence, including subjective norms, media influence, social learning and rumors affecting, among which subjective norms include the influence of opinion leaders factor and interpersonal effects factor. Social influence reflects the influence of people, rumors and media reports. When doing qualitative meta-analysis, we find that the social impact mainly affects the public's Nimby attitude.

(9) The ninth category is a Nimby emotion, reflecting the public's negative emotional towards the Nimby facilities. Through qualitative meta-analysis, this paper found that for the Nimby facilities, the public will not have a strong opposition at the outset. In fact, public opposition or resistance is often due to the fact that their demands are difficult to digest, coupled with the combined effects of social impact and risk perception.

(10) The tenth category is the public internal characteristics, referring to the public's knowledge and social capacity, as well as the values internalized in the public which includes two factors: the public knowledge and ability and the public values. Good public internal characteristics can weaken the public's Nimby.

(11) The eleventh category is the Nimby attitude. Nimby attitude, corresponding to Nimby behavior, refer to the public's objection to the construction of Nimby facilities, which can be said to be a propellant for Nimby behavior. Nimby attitude are influenced by the distance, risk perception, public demand satisfaction, Nimby emotion, population variables, and public internal characteristics.

(12) The twelfth category is the perceived cost of protest. In the process of qualitative meta-analysis, this paper discovers that the public, in deciding whether or not to adopt a Nimby behavior, will consider that if a corresponding act is taken, whether his own payment and the possible penalty are less than the likely gain, that is, measure the cost of the protest and the benefits. Thus, the residents' perceived cost of protest affects their behavior.

Based on the above analysis, this paper regards the twelve categories as influencing factors of public Nimby behavior, which reflects the reasons for the public's Nimby behavior in china's localized context. On this basis, considering the main relationship between the factors and the direction of the Nimby behavior, we construct a framework for influencing factors of public Nimby behavior (Figure 1). The study of domestic public Nimby behavior can be analyzed from this analysis framework.

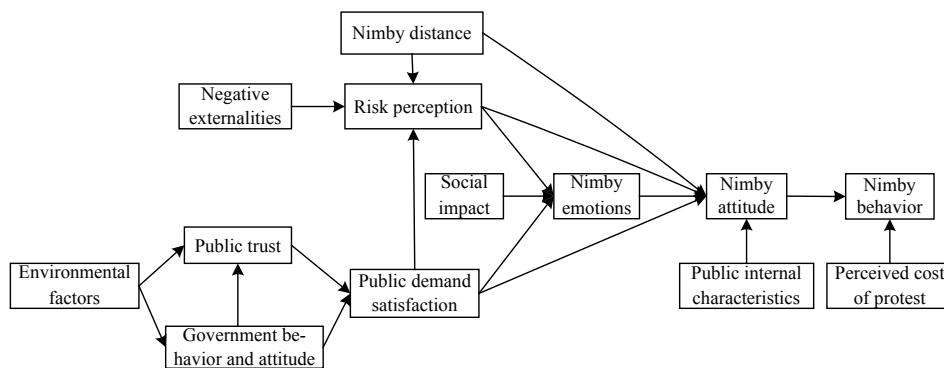


Figure 1 Framework for influencing factors of public Nimby behavior

### 3 Quantitative studies on the influencing factors of public neighboring behavior

#### 3.1 Research assumptions

Based on the analysis of the previous section, the assumptions are proposed: h1: environmental factors positively affect government behavior and attitude; h2: environmental factors positively affect public trust; h3: government behavior and attitude positively affect public trust; h4: government behavior and attitude positively affect public demand satisfaction; h5: public demand positively impact on public demand satisfaction; h6: public demand satisfaction negatively impact public perception of

risk; h7: public demand satisfaction negatively impact on public's Nimby emotion; h8: public demand satisfaction negatively impact on the public's Nimby altitude; h9: negative externalities of proximity facilities positively affect public risk perception; h10: Nimby distance negatively impact on public perception of risk; h11: Nimby distance negative affects public Nimby attitude; h12: public risk perception positively affects public sentiment; h13: public's risk perception positively affects the public's Nimby altitude; h14: social impact negatively affects public's Nimby emotion; h15: Nimby emotion positively affect public's Nimby altitude; h16: public internal characteristics negatively impact public's Nimby altitude; h17: public's Nimby attitude positively affect public's Nimby behavior; h18: public's perception cost of protest negatively affects public's Nimby attitude.

### 3.2 Data collection

In this paper, the questionnaire is used to collect the data. The questionnaire is divided into two parts. The first part is the basic information survey, which consists of seven items, including gender, age, education, occupation, monthly income and political appearance. The second part is the measurement of 12 research variables, in which the neighborhood behavior is set to two categories of variables, including two options: to protest and not to protest; the operation of the Nimby distance, based on the research results of the scholar Zhang Le (Zhang Le and Tong Xing, 2014<sup>[7]</sup>), is designed as an ordered classification variable, which contains four options (1 km or less, 1-20 km, 20- 40 km, 40 km or more); the operation of the remaining variables is designed on the basis of the previous literature study, and combined with the purpose of this study and the previous definition of variables, all using the Likert five-point scale to measure.

The survey object is the public who has experienced the Nimby conflict, the residents who know the Nimby facilities, experts and scholars, students and media workers, and the questionnaire was distributed to them online. Finally, a total of 561 questionnaires were collected, including 528 valid questionnaires and the effective rate was 94.12%. The descriptive statistical analysis of the basic situation of 528 respondents shows that the female respondents are more than men; the age is mainly concentrated in the 18-29 year-old, accounting for 83% of the total; education is mainly undergraduate (33.5%), master's degree and above (62%); the top three occupation are the students, employees and civil servants (or public institutions staff) and the proportion was 63.6%, 18.2%, 14.8% respectively.

### 3.3 Reliability and validity test

Cronbach's alpha coefficient method was used to measure the reliability of the questionnaire. The  $\alpha$  coefficients of each variable satisfy the criterion of  $\alpha$  value greater than 0.6, which means that the questionnaire has good reliability. Then the validity of the questionnaire was measured by KMO and Bartlett's sphericity measurement. The KMO measure of the questionnaire sample data is 0.854, which is greater than the acceptance criterion of the KMO value of 0.70, and the Sig. Value of Bartlett's sphericity test is equal to 0.000. Therefore, all the variables of this study have good validity and are suitable for the next step.

### 3.4 Regression analysis

In this paper, the regression analysis method is used to test the hypothesis. In the selection of regression analysis method, we choose different analysis methods according to the type of dependent variable or independent variables. When the Nimby behavior is analyzed as a dependent variable, binary logistic regression analysis was used as the method of estimating and predicting; when the Nimby attitude and risk cognition were analyzed as dependent variables, the optimal scale regression analysis method was used because of the classification variables; when the government behavior and attitude were analyzed as dependent variables, the linear regression analysis method is selected; when Nimby emotion, public demand satisfaction, and public trust were analyzed as dependent variables, multiple linear regression analysis was used.

(1) Nimby behavior taken as the dependent variable and the Nimby attitude and the perceived cost of protest as the independent variables, the binary regression analysis is carried out by SPSS 19.0 software. The results show that the significant value of the Nimby attitude is 0.000, the regression coefficient  $b$  is 6.336; the significance value of the perceived cost of protest is 0.003, and the regression coefficient  $b$  is -0.756. their Sig. Values are less than 0.05, indicating that the Nimby altitude significantly has a positive impact on the Nimby behavior, and the perceived cost of protest

significantly has a negative impact on the Nimby behavior and assumed that h17, h18 holds. In addition, from the exp (b) value such a corollary can be derived: when the Nimby attitude increases by one unit, the probability of occurrence of public Nimby behavior is 564.724 times that of the previous; when the perceived cost of protest increases by one unit, the probability of occurrence of public Nimby behavior is 0.47 times that of the previous increase. It can be seen that the effect of the Nimby attitude is much stronger than the perceived cost of protest.

(2) The best-scale regression analysis of the attitude and its influencing factors was carried out. Except for public internal characteristics and Nimby emotion of which the significance value is 0.003 and 0.000 respectively, the significance probability values of several other variables are greater than 0.05, indicating that only public internal characteristics and Nimby emotion have a significant effect on the Nimby attitude. Therefore it can be judged that h16 and h15 are assumed to be fully passed while h13, h8 and h11 are not verified.

(3) Linear regression analysis was conducted with the Nimby emotion as the dependent variable. The significant values of social impact and risk perception of are less than 0.05, indicating that their the effect on the Nimby emotion is significant. The significant value of public demand satisfaction is greater than 0.05, indicating that the relationship with Nimby emotion is not significant. Therefore, hypothesis h14 and h12 are passed but not for h7.

(4) The regression analysis of risk cognition as the dependent variable shows that the Sig. Values of the negative externalities of Nimby facilities and public demand satisfaction both are 0.000, which satisfy the acceptance criterion of less than 0.05, and the Sig. Value of Nimby distance is equal to 0.458 which does not meet the requirement that the significance value is less than 0.05. thus, it is assumed that h6 and h9 are satisfied but h10 is not established.

(5) Taking the public demand satisfaction as a dependent variable for linear regression analysis, the significance coefficient of public trust is 0.000 and the non-standardized regression coefficient is 0.466, the significance coefficient of government behavior and attitude is 0.000 and the non-standardized regression coefficient is 0.293, indicating that the two factors have a significant positive effect on the public demand satisfaction. Therefore, h4 and h5 are verified. The Sig. Values of environmental factors and government behavior and attitude are 0.000, their non-standardized regression coefficients were 0.329 and 0.400, indicating that they have significant positive impact on public trust. Based on this, the hypothesis h2 and h3 are true.

(6) Regression analysis take government behavior and attitude as a dependent variable. Since there is only one independent variable, environmental factors, the tolerance and variable are equal to 1.000, so there is no collinearity problem. In addition, the Sig. Value of environmental factors is 0.000 and non-standardized regression coefficient is 0.595, indicating that environmental factors positively affect government behavior and attitude. Thus, the hypothesis that environmental factors have a significant positive impact on government behavior and attitude is passed.

### **3.5 Influencing factors model of public Nimby behavior**

In the hypothesis test, it is important to note that the two hypotheses about the distance of the Nimby distance are not validated. This paper argues that this may be related to the increasing diversity of Nimby facilities. For example, with the construction of large-scale chemical projects such as px, the scope of its impact is no longer just the region near the project, even the region tens of kilometers away is still been negatively affected. So the role of distance factor is no longer so significant. In addition, scholars have examined the “Nimby hypothesis” of the Nimby facilities, and they find that there is no relationship between distance and objection, even the residents who live near facilities holds positive views (Michaud K, Carlisle J E and Smith E,2008<sup>[8]</sup>; Jones C R and Eiser J R,2009<sup>[9]</sup>). In conclusion, there are 10 influencing factors: negative externalities of Nimby facilities, Nimby emotion, Nimby attitude, perceived cost of protest, government behavior and attitude, environmental factors, social impact, risk cognition, public demand satisfaction, public trust, public internal characteristics, which act directly or indirectly on the public's proximity. From the results of the hypothesis test, we remove the hypotheses that are not passed, optimize the model and construct the influencing factors model of public Nimby behavior (Figure 2).

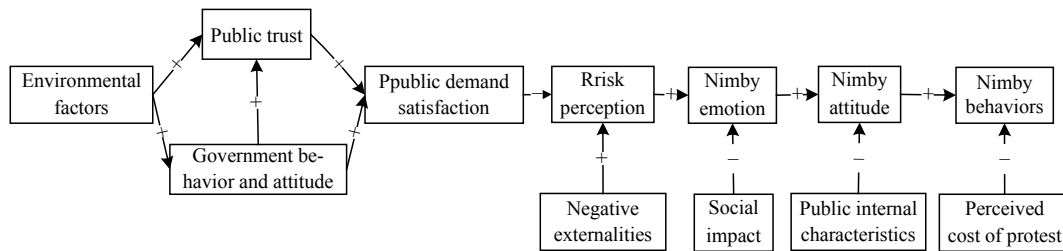


Figure 2 Influencing factors model of public Nimby behavior

## 4 Discussion

According to the result of qualitative meta-analysis above, government behavior and attitude, public trust, public satisfaction degree and risk perception account for a large part, and they are the public factors that influence public Nimby. Based on the analysis above, the causing process of Nimby behaviors will be demonstrated briefly: when the environment factors are better, public trust and government behavior and attitude will be better, meanwhile the public will have higher satisfaction, and the risk perception of the public will be lower. Lower risk perception is hard to generate the feelings of Nimby, and the public Nimby behaviors are hard to occur. In this process, the negative externality of Nimby facilities has positive effects on risk perception; social influence has positive effects on Nimby feelings; the internal characteristics of the public have positive effects on the attitude of Nimby; the perception of struggling cost has negative effects the behaviors of Nimby.

## 5 Conclusions

### 5.1 Strategies on preventing public Nimby behaviors

First, create good environment, and improve related laws and policies. For example, lay down laws that guarantee the public can participate; improve the rules about project safety standards; make policies and rules about selecting resident representative and so on; establish or standardize related systems, such as letters and visits system, disclosure system of information, the third party mediation mechanism, interest-expressing mechanism, multiple negotiation mechanism and major projects disclosure mechanism and so on.

Second, standardize government behavior and attitude, and strengthen public trust. Governments need to improve their own risk management ability, and highlight their risk assessment on projects; besides, governments should value residents' perception, and try their best to reach the balance between governmental perception and residents' perception; what's more, the decisive process should be transparent, and increase the trust of the public for decisive process and results; governments should deliver information on the project of Nimby timely, normatively, objectively and fairly.

Third, reducing the negative externality of Nimby facilities and meeting residents' demands reasonably. Companies should raise their technical standards and management level, and governments should supervise companies' technologies, management level, so that they can ensure the production of those projects satisfy our country's standards; meanwhile, they should arrange benefits compensation well, and make up reasonable economic compensation scheme and resettlement measures and so on.

Forth, ease the feelings of residents on Nimby and weakening their attitude. Governments can set an opinion leader of their own or have a good communication with other opinion leaders to comfort the feelings or perceptions of opinion leaders, and then they can give residents positive guidance with the help of opinions leaders; furthermore, governments should correct the information that have been spread by media, and make them report the truth as well as give residents positive guidance; in addition, the public should increase their own perception through social learning and other cases.

Fifth, increase the protest cost of Nimby reasonably. As for violence and resistance these irrational behaviors, governments should make sever ruling and punishment systems; besides, governments should deal with related companies and departments, and ask them to lay down some rules for taking part in social activities of employees. Governments should publish some related regulations, for



example, those residents with irrational behaviors of Nimby should be reduced compensation standards to make them realize that the benefits of irrational struggle will be lower.

### 5.2 Research innovation and deficiencies

This paper roots on china's local environment with mixed research method. In the part of qualitative research, qualitative meta-analysis has been used; in the part of quantitative research, questionnaire survey and statistical analysis method have been applied. It not only avoids the restriction of qualitative research that cannot test, but makes up the visual fragmentation of quantitative research, so that it can construct china's influential factors model on public Nimby behaviors and reveal the process that causes those behaviors; meanwhile, it establishes some strategies that prevent Nimby behaviors and has deepened the research contents. However, this thesis still has some deficiencies: the typical sample data should be raised; structural equation model haven't been applied to test. These deficiencies need to improve.

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## Research on the Chaos and Governance of High-Level Talents Flow in Chinese Institutions of Higher Learning\*

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**Abstract** The high-level talents flow in Chinese institutions of higher learning is the inevitable result of the market economy development, and the inevitable requirement to the growth of talents themselves, and the prerequisite foundation of maintaining academic vitality. However, there are many abnormal phenomena in the current high-level talents flow, such as professional job-hopping flow, spouse-ensconced flow, children-education-targeted flow, professional-title spatial flow, regional development flow and so on. Therefore, the governance of high-level talents flow should be carried out from four aspects: speeding up the reform of higher education system, strengthening government policy guidance and personnel cultivation, promoting the reform of talent development system and building information sharing platform for teachers in universities and colleges.

**Key words** High-level talents, Talents flow, Governance, Institution of higher learning

### 1 Introduction

Talent is the primary resource for economic and social development, therefore the competition of the national comprehensive strength is essentially the competition of talents, especially high-level talents, and the competition among universities is no exception. Since the release of *Overall Plans for the World's Leading Universities and First-Class Disciplines* (State Council [ 2015 ] No.64) by the State Council and the *Implementation Measures of Overall Plans for the World's Leading Universities and First-Class Disciplines (provisional)* (Teaching Research [ 2017 ] No. 2) jointly issued by Ministry of Education, Ministry of Finance and the National Development and Reform Commission, the new round of high-level talents flow in Chinese universities has been in full swing and the media called it a pattern of "poaching talents" and "grabbing talents". Normal, reasonable and orderly high-level talents flow in institutions of higher learning is not only the inevitable result in the development of market economy, the inevitable requirement of talent development and improvement, but also the premise of maintaining academic vitality. But in order to attract, grab and poach talents, some institutions of higher learning clearly mark the salary for the "talents with halo" or "talents with honorary titles" and compete to bid, even take illegal approach like "hiring talents without personnel files, registered permanent residence and flow procedures" or building other personnel files to attract and introduce full-time talents. This is an extremely bad orientation for the talents flow, which not only causes the vicious competition of the high-level talents among institutions of higher learning, but also disrupt and undermine the normal talent market order and market norms, so the high-level talents flow chaos governance has become an issue of this era.

### 2 Analysis on the chaos of high-level talents flow in institution of higher learning

Summed up the real situation of high-level talent flow in Chinese institutions of higher learning, the chaos can be summarized as the following five points.

#### 2.1 Salary-driven: Job-hopping flow

Colleges and Universities are also not a "pure land", as there are lots of people seeking fame and wealth. Some institutions of higher learning introduce policies including generous "payment", covering start-up research expenditures, and attractive housing subsidies or housing to attract and poach highly talented teachers or professors, which results in salary-driven trend among those talents

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and job-hopping flow come into play. The tide of “high-paying poaching”, especially after the start of national “Double First-rate” construction, is not only happening in the institutions of higher learning of developed areas, but also in that of the central and western regions. It is possible that highly-talented teachers and professors work in southeast or southwest, or gradually and finally they only work for whom pay them highest. For example, Zhang Long (pseudonym) has hopped jobs for three times after he was granted as Yangtze River scholar at the age of 40 when he worked an university of northeast in China. Since that, he has worked in different universities every three or five years and each time he could earn research funds and settling allowance and others, which brought him large amounts of income. He is a typical “professional job-hopping professor” (Yuan Ru-ting, Yan Rui, 2017<sup>[1]</sup>). A doctoral professor who works in the author’s university got huge number of settling-in allowance and research cost as well as a house (collective property right) with more than 140 square meters when he was introduced to the university. But at the end of his tenure, he jumped to another university in Guizhou province and that university gave him a lot of money to settle down and sponsored his research launch, but also gave him a permanent-used house and allow him to buy a rent house in school with low price. So he has earned a lot of money for household and research launch fee, also got three sets of houses since he changed workplaces within less than five years. This kind of talents flow of job-hopping style is one of the chaos of high-level talents flow in institutions of higher learning, and it is the epitome of negative effect resulted by “poaching talents war” and the inevitable outcome of vicious talents competition.

### **2.2 Job guarantee in public institutions: Spouse-ensconced flow**

The second chaotic phenomena of high-level talents flow in Chinese institutions of higher learning is “spouse-ensconced flow”, which manifests particularly evident among the doctor groups in the colleges and universities of central and western regions. As we all know, it is very difficult for the eastern regions and the provincial universities to solve the jobs of those highly talented employee’s spouses(as they fail to the conditions for the introduction of talents), which provides a comparative advantage for the introduction of high-level talents to institutions of higher learning in the central and western regions because the latter can help those talents to solve jobs for their spouse, thus arrange their spouse in some public institutions and serve for government. For example, in order to find a top university which has higher platform and also solve his wife’s work, a Ph. D student Li Fei (pseudonym) who’s born in Hunan and graduated from a well-known university in southern chose a “211 project” university located in western region, but his wife just worked as a personnel agency rather than had permanent position in a public institution; therefore Li Fei just worked at that university for three years, exactly until his service expires, then he went to work at another university in Guizhou Province which belongs to western region of China, because one of the biggest lures is that this university can solve his wife’s job and settle her down in public utility. At present, there are not just a few spouse-ensconced flow type in high-level talents flow in Chinese institutions of higher learning, and there is a kind of changeable spouse-ensconced flow, thus some high-level talents change their own workplace for job position conditions of their spouse. For example, a professor Dr in author’s university resigned with requirements for the transformation of the spouses, thus changing the job from full-time tutor to teacher position.

### **2.3 College entrance examination advantages: Children-education-targeted flow**

The third chaos of high-level talents in Chinese universities and colleges is “flow for children”, that is, the problem of children’s education is one of the most important things for every Chinese family. An indisputable fact is that under the current college entrance examination system in China, there is a large regional difference between the provinces, universities and between urban and rural areas during the admissions process, and there is a large regional difference in Chinese higher education. Consequently, there’s a special phenomenon “college entrance examination immigrants”, which is the concentrated reflection of the contradictions generated by uneven allocation of resources for higher education and unbalanced basic education development and other issues. It is under this college entrance examination system that high-level talents in some institutions of higher learning which are located in Midwest regions or have backward educational resources choose to flow for children’s education. For example, a professor Dr in author’s university has worked more than 20

years, also served as the middle-class position. In 2013 he resigned together with his wife( who's associate professor from a deputy department director level) from an university of Guangxi province which lies in western region in order to have more competitive advantages in terms of college entrance examination (the main reason) for their child, and the previous university lost two high title teachers because of this. The special phenomenon of "college entrance examination immigrants" reflects the "loopholes" from college entrance exam education system which leads to the irregular high-level talents flow in institutions of higher learning.

#### **2.4 Job title temptation: Spatial flow**

Job title signifies teachers lifeblood, scale to achieve self-value, cornerstone of material life security, confirm to their ability as well as spiritual comfort for them. So the job title brings great magic and temptation for teachers, which is also indirectly contributed to the high-level talents disorder flow. For example, in the author's University, an associate professor and doctor Mr. Huang (middle level cadres) flew away because of title appraisal. One of the basic conditions of applying for professor title is having assumed the post of any senior professional titles over 5 years, but at that time this teacher still had half a year left to satisfy the requirement above, therefore the school refused his apply for professor title with the reason that he didn't meet the requirement. Then the teacher resigned his job and work in another university in Guizhou Province and was hired as official high professor title. The job title provides innate advantages for those institutions of higher learning which have right to appraise principal and high titles when they are ready to poach talents, but it's a "silent pain" for those universities and colleges without that right, so only carrying out reform, innovation and improvement on title appraisal system, and building scientific, fair and reasonable title evaluation mechanism can be conducive to the rational flow of high-level talents in institutions of higher learning to avoid unreasonable space for the flow of talents.

#### **2.5 Development platform: Regional flow**

Water flows downwards while man struggles upwards, which is a natural law. World historical practice shows that where is the political, economic, cultural and technology center, where is the talents pool center. Reasonable flow of talents is normal, and the reasons for the flow are complex and diverse, including both remuneration and welfare factors, but also family factors and so on. But for high-level talents in institutions of higher learning, the development platform or the development space is also an essentially important factor, especially in the declare and establishment of national or key scientific research projects and publications of academic papers, etc. To some extent it distorted the value of high-level talents flow. A principal Mr Xia in author's university once talked about the pains of introducing talents for second-tier university. He said they wanted to bring in doctor of computer science major who finally chose a vocational and technical college in provincial city rather than stayed away from the provincial capital to work in an all-day undergraduate university. It shows that the development platform or development space in the regions that institutions of higher learning locate is an important leverage to attract highly-talented employees, which is one of the factors that causes abnormal flow of high-level talents.

### **3 Governance strategy for high-level talent flow chaos in institutions of higher learning**

To sum up, the causes of high-level talent flow in institutions of higher learning are complicated and special, but it is realized that high-level talents flow is a new normal, and it should be treated correctly and faced bravely. We cannot block and prevent the patterns of talents flow but "start from every detail, dredge the vessels of talents management mechanism and make it dynamic to achieve the virtuous circle of 'aerobic flow'" (Xu Jian-mei, 2017<sup>[2]</sup>). Some scholars put forward the management of high-level talent disorder flow can learn from the sportsman's "transfer system" (Zhong Mao-chu, 2014<sup>[3]</sup>), but "transfer system" will monetize, hierarchize and entertain college teachers' academic ability, scientific research and knowledge transmission. And "transfer system" can not reflect the college teachers' important responsibilities and special mission for cultivating students' good personality, and cannot inherit the value orientation of "truth, goodness, beauty". Therefore, it is necessary to make market play a decisive role in the allocation of human resources and make

government policies exert correct guidance and cultivation. At the same time, high-level talents themselves should establish correct values, take on their responsibility as well as strengthen industrial self-discipline and professional self-discipline.

### **3.1 Accelerate the reform of higher education system and mechanism, and create an ecological environment for attracting, cultivating and retaining high-level talents**

The root of high-level talent flow chaos lies in the lag of the reform in higher education system and mechanism, which is mainly reflected by the following three aspects: First, there's still a long way for higher education to achieve de-administrative reform. Whether it is the previous "985" and "211" projects or the "Double First-rate" construction at present, the main body of assessment center is always education management department. One of the assessment indicators is the number of highly qualified professors and scholars with prominent titles in colleges or some subjects, so universities and colleges pay special attention to declare the "Changjiang Scholars Reward Program", "Million Talents Plan", "Thousand Talents Plan" and other talent projects and attach great importance to poach high-level talents, which is not only about government subsidies and funds, but also related to the university rankings, academic strengths and academic reputation, and then can attract outstanding students, high-level teachers and strive for more research projects to get more government subsidies and funds. This is a typical "Matthew effect". Second, although college entrance examination system has been reformed in some trails, higher authorities still has no clear timetable. Uneven distribution of educational resources will inevitably produce "college entrance examination immigrants" phenomenon or dissimilation flow of high-level talents ( a Ph. D tutor in author's university stayed abroad for a long time because of his children's education, but his permanent establishment was in the domestic institutions of higher learning). Third, bureaucratism is still entrenched in some universities as an official post means resources, projects, ultimately means money, so it gives rise to the deficiency of research and academic atmosphere, which is another reason that some high-level talents are forced to "skip from job".

From above it is understood that the fundamental strategy for chaos of high-level talents flow in institutions of higher learning is to accelerate the pace of reform in higher education system and mechanism, to solve the problem of over-concentration of the power from competent education department, to strengthen the autonomy of institutions of higher learning to run schools abiding by law, to get rid of institutions of higher learning bureaucratic habits, to create a good ecological environment for attracting, cultivating and retaining talents, and truly realize that they can employ the pay treatment, career development, human relationship and feelings and academic atmosphere and so on to attract, cultivate and retain high-level talents.

### **3.2 Enhance government's policy to guide talents cultivation, also reform and innovate the evaluation mechanism of institutions of higher learning**

"The most important development of Public Choice Theory is perhaps the failure of government strategy, and this theory doubts government's capacity to respond to market malfunction, which concludes that the Government's strategy to the defective market may actually make the situation worse" ( Randy T. Simmons, 2017<sup>[4]</sup>). But Paul Samuelson directly revealed that in an interview, "Nowadays nothing can replace the market to organize a complex, large-scale economy. The problem is that the market is unintentional, without mind, and it does not think. It does not scruple anything. So I believe that the mixed economy needs government's policy to correct some of the economic deficiencies brought by the market" (Gao Xiao-yong, Wang Ding-ding, 2005<sup>[5]</sup>). This tells us from the theoretical level that high-level talents flow must exert market's decisive role in the allocation of market resources, while the government should play a guiding role and nurturing role, but the non-leading role and the main role. In recent years, our country has also enacted relevant policies to strengthen the correct guidance of reasonable flow of high-level talents and talents training (Table 1), and achieved some success.

**Table 1 List of representative policies texts on high-level talents flow in institutions of higher learning in recent years**

NO.	Name of Policy	Document-issuing organs and document number	Main ideas of the policy
1	National Medium and Long-term Talent Planning and Development Program (2010-2020)	The CPC Central Committee and the State Council (2010) No.6	1. Open channels for talents flow, and establish talents flow allocation mechanism in the aspects of macro regulation and control of government departments, fair competition of market main body, intermediary organizations providing services as well as independent job choosing. 2. Further break the systematic barriers of talents flow, and make policies and plans to exert market's basic role in allocating talents resource.
2	Some Suggestions on Strengthening and Regulating the Introduction of Talents in Colleges and Universities	The General Office of Ministry of Education (2013) No.7	1. Promote the rational flow of talents and effective allocation, support high-level talents to flow to the central and western institutions of higher learning, and eastern institutions of higher learning cannot recruit "Changjiang scholars" towards central and western institutions of higher learning. 2. Prohibit the illegal behaviors of "hiring talents without personnel files, registered residence and flow procedures" or building other personnel files to attract and introduce full-time talents.
3	Suggestions on Improving the Work of Employment and Entrepreneurship in the New Circumstances	The State Councils (state (2015) No.23)	Strengthen the construction of human resources market. Improve the talents flow system among party and government organs, enterprises and institutions, and all kinds of fields in society.
4	The 13th Five - Year Plan for the National Economic and Social Development of the People's Republic of China	On March 16 in 2016, the Fourth Session of the Twelfth National People's Congress approved it	Establish and improve the mechanism of talents flow, improve the social horizontal and vertical flow, and promote the order and free talents flow in different units and different regions.
5	Suggestions on Deepening the Reform of Personnel Development System	The CPC Central Committee CPC (2016) No. 9	1. To give full play to the decisive role of the market in the allocation of human resources and better play the role of government to improve talent horizontal and vertical flow. 2. Get rid of talent flow obstacles. Break the constraints of household registration, regions, identity, education background, personnel relations, etc., and promote the moderate flow and effective allocation of human resources.
6	Several Suggestions on Implementing Policy to Increase Knowledge-oriented Values	General Office of the CPC Central Committee the State Council (2016) No.35	1. Allow researchers to engage in part-time job to obtain legal income. 2.Allow college and university teachers to engage in multi-place teaching to obtain legal income.
7	A Notice on Adhering to Correct Guidance to Promote the Reasonable and Orderly Flow of High-level Talents in Colleges and Universities	The General Office of Ministry of Education (The Ministry of Education (2016) No.1)	1. The high-level talents flow in institutions of higher learning should comply with and serve for the basic task of morality education and the overall situation of reform and development of higher education; Do not encourage the eastern universities to introduce talents from the middle, west and northeast regions.2.Rationally determine the compensation of high-level talents, and steer the high-level personnel engage in long-term stability services.

Source: Consolidated according to national policy texts.

While strengthening the government policy to properly guide and enhancing the cultivation of talents, we should intensify efforts to reform and improve the evaluation mechanism of institutions of higher learning. The main reason of high-level talents flow chaos in government, such as the “professional job-hopping professor”, is the “alienation” of evaluation index system. In the process of “Double First-rate” construction, the evaluation index system to colleges and disciplines should be as scientific, reasonable and comprehensive as possible, rather than be engaged in “one-size-fits-all” policy. In particular, the absolute standard of evaluation cannot be determined by the number of so-called “talents with highest honors” such as “academicians” (of the Chinese Academy of Sciences and Chinese Academy of Engineering), “Changjiang Scholars”, “National Outstanding Youths” and “Thousand Talents Plan experts”, otherwise some institutions of higher learning will pin their hopes or take a shortcut to find “mercenaries-like” talent team to respond to evaluation. It’s impossible to completely eradicate high-level talents’ speculation, so it is necessary to reform and innovate the assessment standard of institutions of higher learning, thus not only evaluate the quantities of highly-talented people and high-quality scientific research, but also to assess the number of high-level talents cultivated by these institutions of higher learning, the quality of cultivated students and accumulation, precipitation and heritage of school disciplines.

### **3.3 Push forward the reform of talent growth system in institutions of higher learning, and make the best use of only the best use**

On March, 2016, the Central Committee of the Communist Party of China (CPC) issued the *Suggestions on Deepening Reform of the Institutional Mechanism for Talent Development*. In the suggestion, the “high-level talents” have been emphasized many times and explored as well as reformed, for example, “to explore allocation methods for agreement salary of high-level talents”, “to make greater efforts to implement special support program of the national high-level talents (national ‘million talents plan’), improve the supporting policy and innovative supporting methods”, “to explore high-level talents and direct employ measures for urgent-needed talents”, “to establish priority household registration system for high-level and shortage talents”, “further enhance to carry out introduction of talents from abroad (national ‘Thousand Talents Plan’), to open the door with following no set form, and gather global human resources” and “improve the tax preferential policies related to encourage and attract high-level talents”, etc. Its focus is to get rid of the constraints to ideological and systematic barriers of talents development, to break the flow barriers for talent flows, to break the constraints about household registration, regions, identity, education background, personnel relations and so on to improve reasonable flow of talents resource and effective allocation, which helps to create a situation that making the best use of only the best use.

High-level talents flow chaos and a variety of practical problems caused by it force the reform of talents development mechanism and innovation, especially in the high-level talent management system, training support mechanism and talent evaluation incentive mechanism and so on. In the aspect of talent management, we mainly carry out reform and innovation in the areas of job evaluation and salary distribution, which is conducive to stimulating the reform and innovation in terms of those talents’ scientific research motive and potential. While in the aspect of personnel training support mechanism, we should focus on the young people and innovation team to optimize the system environment for their growth and standing out in competition. In terms of evaluation incentive mechanism, classification evaluation should be adhered, and scientific, social and market-oriented talent evaluation system should be established, and the respect to knowledge and innovation should be strengthened to fully embody the distribution orientation of intellectual labor value. Talent commendation system needs to be modified to create a favorable atmosphere of praising academic research. The reform and innovation of talent development mechanisms make high-level talents dignified to carry out academic research in any institutions of higher learning and any positions and any living areas. There is nothing to fear about survival, nothing to worry about, and ultimately to achieve academic pursuit and life value of life high-level talents, which is also the mechanism guarantee of insuring reasonable flow of high-level talents.

### 3.4 Construct teachers' information sharing platform in institutions of higher learning and strengthen accountability mechanisms of high-level talents

One of the important factors leading to the alienation of high-level talents is that there is no information sharing platform for teachers in institutions of higher learning, so institutions of higher learning cannot accurately verify the work experience and information of those teachers introduced at very first time. If the information sharing platform is built, employing units will be able to assess and pre-judge the professional integrity of these high-level talents introduced by them, while refusing talent self-restrains. A director in human resource department of a "985 project" university revealed: "Before our school introduce talents, there are two categories people that we never hire: the people who have changed jobs more than twice from their resume and who have done too many times of part-time jobs" (Yuan Ru-ting, Yan Rui, 2017<sup>[6]</sup>). In 2017, the Ministry of Education issued the "the notice on adhering to right guide to promote reasonable and orderly flow high-level talents of the notice" which clearly stressed that "talents flow in universities and colleges must serve for the fundamental task of morality work and overall situation of the reform and development of higher education", so the high-level talents among college teachers should set example for students in terms of concentrated scientific research, students cultivation, and being indifferent to fame and wealth, being honest and keeping words and take social responsibility and value guidance for students' good personality and quality.

At the same time, "talents flow in institutions of higher learning should both consider the country's development strategy and the needs of the market; should neither bound talents for lifetime in accordance with the personnel management model of planned economy nor ignore public functions and responsibilities of institutions of higher learning to completely follow market rules"(Zhang Chong, 2017<sup>[7]</sup>). May 2017, college talents work alliance was started, and it was initiated by 12 universities including Peking University and Tsinghua University, and was jointly signed by 75 institutions of higher learning directly affiliated under the Ministry of Education. It embodied that institutions of higher learning implemented the main responsibility for talents development, which is beneficial to building inter-university talent information and sharing platform and creating trustworthy incentives and dishonesty disciplinary mechanism to form the macro punish pattern of "little dishonesty brings restrictions everywhere". They also opened communication mechanism for talents' work to prevent the illegal introduction talented workers, to prevent relying on high Pay to bid for talents. It's executed to enhance rational flow of high-level talents and strengthen the high-level talents' self-discipline that means teaching people true knowledge and self-conduction and guiding them to learn keeping their promise and being honest, which created a sound talents growth environment.

## 4 Comments

At present, there's no unified and authorized definition to "high-level talents" no matter in theoretical circles, government departments or institutions of higher learning. The "high-level talents" in this thesis mainly refers to associate professor or higher title with master's degree, or people who have doctoral degree, or someone who have no high degree or no high job title but have made excellent achievement or significant contributions in the field of research and teaching including cultural scholars, folk artists, entrepreneurs and inventors and so on.

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## Research on Social Risk Identification and Control Strategies of Real Estate in China Based on Industry Chain

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**Abstract** Behind the prosperous real estate market of China are risks and crises which bring losses to individuals, enterprises and society and thus lead to social instability. Therefore, it is supposed to effectively identify real estate social risks and adopt targeted control strategies. This paper identifies risk points through four stages (stage of land acquisition, stage of construction, stage of promotion and sales and stage of real estate management) on the industry chain of real estate, starts with three paths including land acquisition in the early stage, transaction in the middle stage and real estate maintenance in the later stage and constructs basic indexes for the analysis and evaluation of real estate market risks. Through empirical analysis and evaluation on the social risks of real estate in China, this paper finds that the social risks of real estate in China have continuously fluctuated in recent five years and have been affected by many aspects including the macroscopic regulation and control of the government, the fluctuation of the financial market, market operation and operation state of real estate enterprises. Finally, this paper starts from the perspective of public governance and proposes the suggestions of macroscopic regulation and control on preventing real estate social risks.

**Key words** Real estate, Social risks, Industry chain

Looking back at the development history of China's real estate industry, we can see that it started to develop rapidly since the 1980s; housing system carried out a reform in the 1990s; consumer goods quickly shifted to investment goods since 2002; the real estate industry entered the period of complete adjustment in 2008; regulatory policies reasonably guided housing consumption, resolutely curbed speculative and investment purchase of houses and strengthened risk prevention and market supervision in 2010; till 2016, real estate policy experienced the process from being loose to being continuously tight in hot cities. The trend of the real estate market is obviously beyond expectations due to its sensitivity and complexity. The irrational rise of real estate price will further increase market and social risks. In this context, the government should correctly identify and deal with social risks brought by real estate industry chain, actively transform government functions, improve the ability of the government in social governance and further perfect the government's regulatory policies of the real estate market.

### 1 Literature review

Risk refers to losses which may be caused while crisis means the confirmation of losses. If risks are not curbed in time, it will lead to crises eventually (Zhang Hai-bo, 2007<sup>[1]</sup>). Risks are not certain. It is necessary to think about and understand in an integrated train of thought and master the basic methods of solving risks so as to minimize the degree of risks (Roger, J, Brown, 2005<sup>[2]</sup>). We can also adopt prospective methods to analyze and evaluate the market risks of real estate. Like stocks and bonds, real estate can adopt the modeling method of modern time series to predict and quantify this kind of risks (William C. Wheaton, 2001<sup>[3]</sup>). The thought of risk identification should follow the logical train of "identify the source of risks→analyze transmission effect→alarm the degree of risks→prevent risks" to analyze the social risks caused by real estate (Ding Song and Shen Qi-yu, 2011<sup>[4]</sup>). Methods of identifying real estate risks mainly contain Scenarios Analysis, Brainstorming, Delphi Method, Screening—Monitoring—Diagnostic Techniques, Fault Tree Analysis and Market Investigations (Shen Yue, Li Ji-guo, Wang fei, 2015<sup>[5]</sup>). As for real estate developers, risks include social risks, technical management risks, policy and law risks, economic risks and natural environment risks (Si Yu-hai and Qin Han, 2010<sup>[6]</sup>). The relevant risks of the real estate industry are one of the most important components of social risks and easily trigger continuous related social risks (Liu

Shuang-liang and Yang Zhi-yun, 2010<sup>[7]</sup>). The government can pay attention to reducing the supervision cost on the rent-establishing behavior of local governments when making the macro-control policies of real estate (Xu Jiang, 2007<sup>[8]</sup>).

In view of the current research situation, research on the relevant social risks of real estate mostly focuses on the investment risks, industrial risks and project risks of real estate. We should pay attention to the market risks of real estate and the supply and demand contradiction of real estate brought by introducing a series of regulatory policies related to real estate and hidden dangers brought to the whole society. This paper will adopt the method of combining qualitative and quantitative analysis to study the social risks on the industry chain of real estate from the perspective of public social governance.

## 2 Identification of real estate social risk

Social risks on the industry chain of real estate are a foundation for the government to manage social risks. To control the social risks of real estate, it is necessary to identify the social risks caused by different stages on the industry chain of real estate. According to the specific characteristics of real estate industry chain, real estate industry chain is divided into four stages, namely stage of land acquisition, stage of construction, stage of promotion and sales and stage of real estate management. The social risks on the industry chain of real estate are illustrated as follows (see Figure 1):

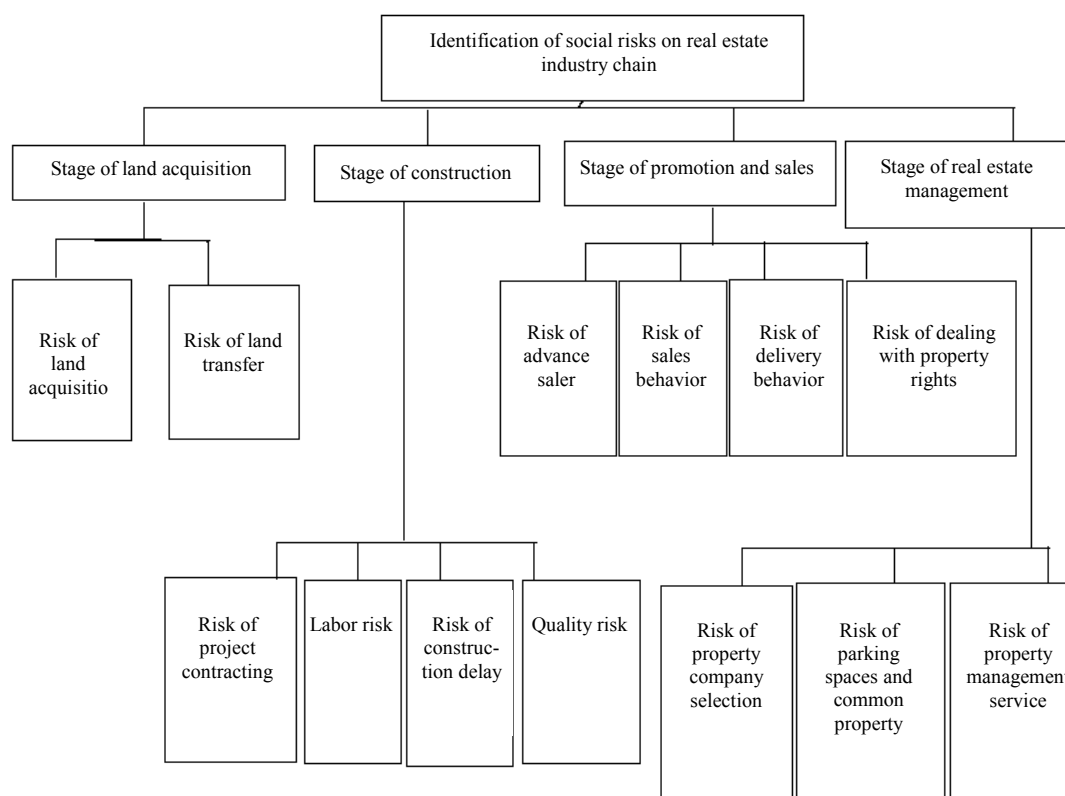


Figure 1 Identification of social risks on real estate industry chain

## 3 Evaluation path and index construction of real estate social risks

Only by controlling social risks at each stage of real estate industry chain and evaluating different degrees of risks, can the government make more reasonable control strategies of real estate and provide strong evidence for further implementing macro-control policies.

### 3.1 Basic path

According to the above-mentioned four stages of social risks on real estate industry chain, the basic path begins with land acquisition in the early stage, construction in the middle stage and sales in the later stage in chronological order.

### 3.2 Index construction

To analyze and evaluate the social risks of real estate in China, it is necessary to combine with time clue, pay attention to authenticity, perspectiveness, sensitivity, pertinence and systematicness of indexes and take two basic units of measurement including price and area as entry points to construct evaluation indexes for the social risks of real estate in China.

Five most representative indexes are formulated as follows in accordance with the above-mentioned basic path and principle of analyzing and evaluating the market risks of real estate in China and based on the data of real estate projects in the statistical database of National Bureau of Statistics from 2005 to 2015:

#### (1) Index of land acquisition in the early stage

Land acquisition is directly proportional to the total amount of real estate investment. GDP reflects the economic growth of China. The ratio of land purchased area of real estate to GDP can be selected to visually reflect the scale of real estate investment and its promotion coefficient of national economic growth.

#### (2) Index of construction in the middle stage

The ratio of house floor area under construction to house floor area completed in real estate development is selected to evaluate the scale and completion quality of real estate development in the middle stage. In addition, commercial house floor area completed and the growth number of urban population are selected to analyze related risks.

#### (3) Index of sales and maintenance in the later stage

At the stage of sales, two indexes are selected, namely the ratio of commercial house sales area to commercial house floor area completed and the ratio of commercial house sales amount to real estate development investment amount.

## 4 Empirical analysis on social risk evaluation of real estate in China

### 4.1 Data source

To ensure the authenticity and effectiveness of research results, the index data adopted in this paper comes from National Data Center of website of National Bureau of Statistics <http://data.stats.gov.cn/>. Retrieval time is from 2005 to 2015. Related data reports are retrieved according to keywords so as to download and analyze the data of related indexes<sup>[9]</sup>.

### 4.2 Analysis method

Risk evaluation indexes determined in the third part are taken as an index system of evaluation and prediction. The method of combining qualitative and quantitative analysis is adopted and “average  $\pm$  standard deviation” is used to remove abnormal values to be a standard and describe its degree of dispersion in a normal distribution curve of random error. In a word, it is to set a confidence interval for every index, including upper and lower normal limits and alarm line, so as to find where risks are more accurately<sup>[10]</sup>. To be specific, [average  $\pm$  1\*standard deviation] is the normal fluctuation interval of indexes. [Average  $-$  2\*standard deviation] and [average  $+$  1\*standard deviation] are the operation intervals of indexes which are slightly hot or cold. [Less than average  $-$  2\*standard deviation or more than average  $+$  2\*standard deviation] is the operation interval of indexes which is too hot or too cold.

### 4.3 Empirical analysis

#### (1) Analysis of ratio of land purchased area of real estate development enterprises to GDP

According to statistics, real estate development investment and land development land have sustainably increased since 1992. The development of real estate also saw a trend of overheating. The government also issued a series of regulatory policies accordingly. In this case, the real estate market gradually cooled and tended to be stable. It can be seen that land development area owns the sensitivity of measuring the heat of real estate and foreseeing the risks of real estate. Land development area contains the land purchased area of land agents and other land development areas, like the planning

land of the government.

**Table 1 Analysis on ratio of land purchased space of real estate developing enterprises and GDP**

Year	Land purchase		GDP		Ratio (%)	Upper normal limit (%)	Lower normal limit (%)	Upper hot limit (%)	Lower cold limit (%)
	Area (10,000 m <sup>2</sup> )	Growth (%)	Numerical (100 million)	Growth (%)					
2005	38253.7	-3.85	187318.9	15.74	20.42	15.34	5.35	20.33	0.36
2006	36573.6	-4.39	219438.5	17.15	16.67	15.34	5.35	20.33	0.36
2007	40245.9	10.04	270232.3	23.15	14.89	15.34	5.35	20.33	0.36
2008	39353.4	-2.22	319515.5	18.24	12.32	15.34	5.35	20.33	0.36
2009	31909.5	-18.92	349081.4	9.25	9.14	15.34	5.35	20.33	0.36
2010	39953.1	25.21	413030.3	18.32	9.67	15.34	5.35	20.33	0.36
2011	44327.4	10.95	489300.6	18.47	9.06	15.34	5.35	20.33	0.36
2012	35666.8	-19.54	540367.4	10.44	6.60	15.34	5.35	20.33	0.36
2013	38814.4	8.82	595244.4	10.16	6.52	15.34	5.35	20.33	0.36
2014	33383.0	-13.99	643974.0	8.19	5.18	15.34	5.35	20.33	0.36
2015	22810.8	-31.67	685505.8	6.45	3.33	15.34	5.35	20.33	0.36

It is a main index which reflects the economic contributions of real estate and consumption of land resources. From the data of the last decade from 2005 to 2015, the consumption of real estate land resources exceeded upper hot limit in 2005 and was over upper normal limit in 2006. The real estate market was overheated in these two years. The ratio of land purchase to GDP decreased year by year from 2007. In recent 2014 to 2015, the ratio was below lower normal limit, which showed a trend of being slightly cold.

(2) Analysis of ratio of house floor area under construction to house floor area completed in real estate development

Under normal situations, the floor area under construction is 3-5 times the floor area completed in Chinese real estate industry. The floor area under construction predicts the supply amount of houses in later 1-2 years. Insufficient floor area will lead to shortage of house supply; excessive floor area will cause enlargement of supply amount and resource waste in the future. Data analysis results indicate that, during 10 years from 2005 to 2015, except for the low house supply amount within 2005-2006, the ratios of house floor area under construction to the house floor area completed were within the normal scope in other years.

**Table 2 Analysis of ratio of house floor area under construction to house floor area completed in real estate development**

Year	House under construction		House completed		Ratio (%)	Upper normal limit (%)	Lower normal limit (%)	Upper hot limit (%)	Lower cold limit (%)
	Area (10,000 m <sup>2</sup> )	Growth (%)	Area (10,000 m <sup>2</sup> )	Growth (%)					
2005	431123.0	14.51	227588.7	9.94	189.43	360.65	226.11	427.92	158.84
2006	462677.0	7.32	212542.2	-6.61	217.69	360.65	226.11	427.92	158.84
2007	548542.0	18.56	238425.3	12.18	230.07	360.65	226.11	427.92	158.84
2008	632261.0	15.26	260307.0	9.18	242.89	360.65	226.11	427.92	158.84
2009	754189.4	19.28	302116.5	16.06	249.64	360.65	226.11	427.92	158.84
2010	844056.9	11.92	278564.5	-7.80	303.00	360.65	226.11	427.92	158.84
2011	1035518.9	22.68	329073.3	18.13	314.68	360.65	226.11	427.92	158.84
2012	1167238.4	12.72	335503.6	1.95	347.91	360.65	226.11	427.92	158.84
2013	1336287.6	14.48	349895.8	4.29	381.91	360.65	226.11	427.92	158.84
2014	1355559.7	1.44	355068.4	1.48	381.77	360.65	226.11	427.92	158.84
2015	1292371.7	-4.66	350973.1	-1.15	368.23	360.65	226.11	427.92	158.84

(3) Analysis of ratio of commercial house floor area completed to growth number of urban population

The index is proposed on the basis of the general background that China is carrying forward

urbanization development. At present, Chinese real estate development is influenced by urbanization development to a certain extent. The lower ratio of commercial house floor area under construction to growth number of urban population will lead to supply-demand imbalance and continuous rise of house prices, due to which more social instable factors will emerge and hidden social risks will be generated.

**Table 3 Analysis of ratio of commercial house floor area completed to growth number of urban population**

Year	Commercial house floor area under construction (10,000 m <sup>2</sup> )	Growth number of urban population (10,000 citizens)	Ratio (m <sup>2</sup> /citizen)	Upper normal limit (%)	Lower normal limit (%)	Upper hot limit (%)	Lower cold limit (%)
2005	43682.9	1929	22.65	38.77	23.53	46.38	15.91
2006	45471.8	2076	21.90	38.77	23.53	46.38	15.91
2007	49831.3	2345	21.25	38.77	23.53	46.38	15.91
2008	54334.1	1770	30.70	38.77	23.53	46.38	15.91
2009	59628.7	2109	28.27	38.77	23.53	46.38	15.91
2010	63443.1	2466	25.73	38.77	23.53	46.38	15.91
2011	74319.1	2101	35.37	38.77	23.53	46.38	15.91
2012	79043.2	2103	37.59	38.77	23.53	46.38	15.91
2013	78740.6	1929	40.82	38.77	23.53	46.38	15.91
2014	80868.3	1805	44.80	38.77	23.53	46.38	15.91
2015	73777.4	2200	33.54	38.77	23.53	46.38	15.91

(4) Analysis of ratio of commercial house sales area to commercial house floor area under construction

Commercial house sales area would reflect the prosperity degree of real estate market most directly. The ratio of sales area to floor area completed could reflect the real supply amount of houses as well as future trends of real estate market from the perspective of relative numbers; profits earned by real estate development enterprises and funds at the disposal of development enterprises could only reflect earnings of the enterprises, whereas the sales amount of commercial houses and the real estate development and investment amount could reflect investment and output benefits of the whole real estate industry more comprehensively. We can find an interesting phenomenon after observing the ratios of commercial house sales areas to commercial house floor areas completed from 2005 to 2015. According to data of the index in last year, we can find that the commercial house floor areas completed exceeded the sales areas in the past, which also accords with the common sense in traditional concepts that commercial houses should be sold after construction. However, data within 2005-2015 manifested opposite results. During the 10 years, all the sales areas exceeded the floor areas completed to large extents, wherein the former exceeded the latter by nearly one multiple. Why did this happen? Observing the real estate market in recent years, we can easily find that the sales manner of “house coupon” sales, namely financing sales as well as the subsequent construction, is very popular and attracts many purchasers tempted by low prices and holding the speculation purpose. However, the approach which violates the normal real estate construction also brings a lot of risks. A lot of legal disputes between developers and purchasers caused by “unfinished buildings” in the market are very typical cases.

**Table 4 Analysis of ratio of commercial house sales area to commercial house floor area under construction**

Year	Commercial house sales		Commercial house completed		Ratio (%)	Upper normal limit (%)	Lower normal limit (%)	Upper hot limit (%)	Lower cold limit (%)
	Area (10,000 m <sup>2</sup> )	Growth (%)	Area (10,000m <sup>2</sup> )	Growth (%)					
2005	55486.2	45.13	43682.9	25.97	127.02	165.11	133.23	181.05	117.29
2006	61857.1	11.48	45471.8	4.10	136.03	165.11	133.23	181.05	117.29
2007	77354.7	25.05	49831.3	9.59	155.23	165.11	133.23	181.05	117.29

Year	Commercial house sales		Commercial house completed		Ratio (%)	Upper normal limit (%)	Lower normal limit (%)	Upper hot limit (%)	Lower cold limit (%)
	Area (10,000 m <sup>2</sup> )	Growth (%)	Area (10,000m <sup>2</sup> )	Growth (%)					
2008	65969.8	-14.72	54334.1	9.04	121.42	165.11	133.23	181.05	117.29
2009	94755.0	43.63	59628.7	9.74	158.91	165.11	133.23	181.05	117.29
2010	104764.7	10.56	63443.1	6.40	165.13	165.11	133.23	181.05	117.29
2011	109366.8	4.39	74319.1	17.14	147.16	165.11	133.23	181.05	117.29
2012	111303.7	1.77	79043.2	6.36	140.81	165.11	133.23	181.05	117.29
2013	130550.6	17.29	78740.6	-0.38	165.80	165.11	133.23	181.05	117.29
2014	120648.5	-7.58	80868.3	2.70	149.19	165.11	133.23	181.05	117.29
2015	128495.0	6.50	73777.4	-8.77	174.17	165.11	133.23	181.05	117.29

(5) Analysis of ratio of commercial house sales amount to real estate development and investment amount

The index is mainly used to measure the return on investment of real estate market. In principle, benefits could be earned only when the ratio of real estate sales amount and real estate development and investment amount exceeds 1. However, results of statistical analysis indicate that the ratio was lower than 1 in 2008, which might be caused by global financial crisis in 2008. However, within 5 years from 2011 to 2015, the ratios were lower than 1, indicating that the overall benefits were not very high in the real estate market during recent years. It might be correlated with excessive house vacancy rate and decrease of decrease in commencement and completion areas, which would directly influence the real estate investment scale in the future. Sag of the real estate market will exert huge effects on economic development. Hence, under the overall economic descending, a serious of hidden risks will be generated.

**Table 5 Analysis of ratio of commercial house sales amount to real estate development and investment amount**

Year	Commercial house sales		Real estate development		Ratio (%)	Upper normal limit (%)	Lower normal limit (%)	Upper hot limit (%)	Lower cold limit (%)
	Amount (×0.1 billion yuan)	Growth (%)	Investment (×0.1 billion yuan)	Growth (%)					
2005	17576.1	69.40	15909.3	20.91	110.48	113.66	86.04	127.46	72.24
2006	20826.0	18.49	19422.9	22.09	107.22	113.66	86.04	127.46	72.24
2007	29889.1	43.52	25288.8	30.20	118.19	113.66	86.04	127.46	72.24
2008	25068.2	-16.13	31203.2	23.39	80.34	113.66	86.04	127.46	72.24
2009	44355.2	76.94	36241.8	16.15	122.39	113.66	86.04	127.46	72.24
2010	52721.2	18.86	48259.4	33.16	109.25	113.66	86.04	127.46	72.24
2011	58588.9	11.13	61796.9	28.05	94.81	113.66	86.04	127.46	72.24
2012	64455.8	10.01	71803.8	16.19	89.77	113.66	86.04	127.46	72.24
2013	81428.3	26.33	86013.4	19.79	94.67	113.66	86.04	127.46	72.24
2014	76292.4	-6.31	95035.6	10.49	80.28	113.66	86.04	127.46	72.24
2015	87280.8	14.40	95978.9	0.99	90.94	113.66	86.04	127.46	72.24

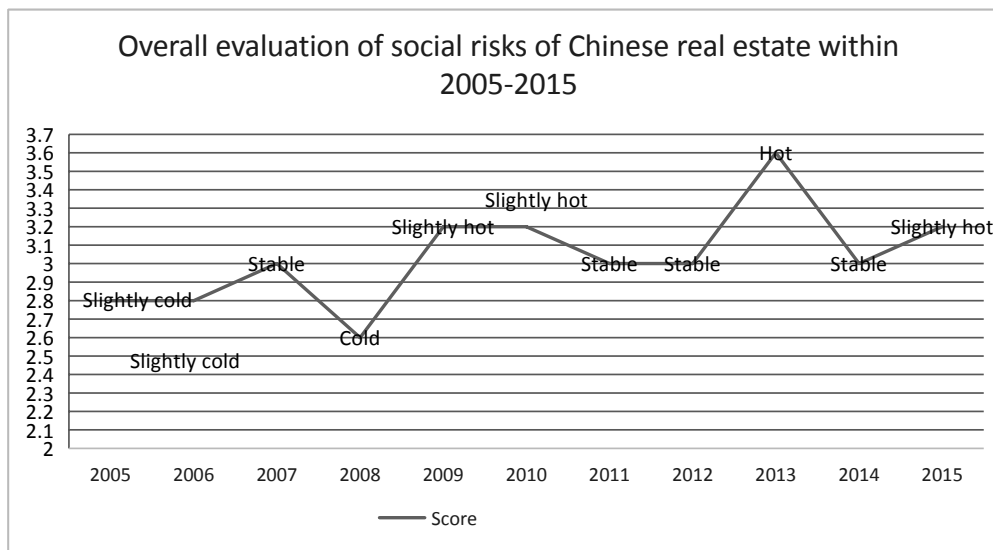
#### 4.4 Overall analysis

After determination of evaluation criteria of different risk indexes as well as evaluation and analysis of various index data, the overall running of Chinese real estate is further evaluated as a whole. At first, risk index criteria are standardized at first. As stipulated, various risk indexes stay at overheated, slightly heat, stable, slightly cold and super-cold states, which are corresponding to exponents 5, 4, 3, 2 and 1, respectively. Hence, corresponding scores and risk evaluation are given.

**Table 6 Corresponding scores and risk evaluation**

Year	1	2	3	4	5	Score	Risk evaluation
2005	5	2	2	2	3	2.8	Slightly cold
2006	4	2	2	3	3	2.8	Slightly cold

Year	1	2	3	4	5	Score	Risk evaluation
2007	3	3	2	3	4	3	Stable
2008	3	3	3	2	2	2.6	Cold
2009	3	3	3	3	4	3.2	Slightly hot
2010	3	3	3	4	3	3.2	Slightly hot
2011	3	3	3	3	3	3	Stable
2012	3	3	3	3	3	3	Stable
2013	3	4	4	4	3	3.6	Hot
2014	2	4	4	3	2	3	Stable
2015	2	4	3	4	3	3.2	Slightly hot



**Figure 2 Overall evaluation of social risks**

According to above analysis, approximate trends of social risks of Chinese real estate manifested since 2005 can be found, as follows: Since 2002, house residences have been transformed from consumer goods to investment goods; market scale is expanded greatly; before 2008, Chinese real estate always stayed at a relative stable state with gradual growth. Under the general environment of global financial crisis in 2008, Chinese real estate industry also suffered from economic downturn. From 2009 to 2013, the Chinese real estate market became increasingly hotter. In 2010, the government issued regulatory policies to guide house consumption rational, enhance prevention of real estate risks and market supervision, and restrain real estate speculation and speculative house purchase. However, regulation effects were not ideal. The real estate heat was continued, reaching a small peak in 2013. The excessively hot market led to risk early warning. Till 2015, the real estate market was not cooled down, tending to a stable and continuously hot state. Irrational increase of real estate prices further intensified market and social risks. At present, the Chinese Bureau of Statistics has not released the latest data in 2016, but based on performance of the real estate market in this year, we can still find the real estate market's transformation from loose policies to continuous constraining in key cities. It is thus clear that throughout the real estate activities, occurrence of real estate risks is influenced by multiple aspects including macroscopic government regulation and control, financial market fluctuation, market operation and operating conditions of real estate enterprises.

## 5 Suggestions for macroscopic regulation and control of real estate social risks at different stages

### 5.1 Stage of land acquisition

At the stage of land acquisition, it is necessary to establish related organizations, joint session of



demolition and resettlement household representatives and supervision system of settlement house construction, wherein demolition schemes shall contain a pre-arranged planning for expiration of demolition and resettlement. It is necessary to weaken “land finance” of local governments fundamentally, deepen structural reform of supply side, open up new financial sources and promote local governments to formulate and implement regulation and control policies for smooth and healthy development of real estate industry with enough courage and confidence. Meanwhile, the abovementioned “policy of repelling central enterprises which do not take real estate as the main business from the real estate business” issued by State-owned Assets Supervision and Administration Commission of State Council (namely “bill for quit from real estate”) shall be implemented strictly. The state-owned enterprises which do not take real estate as the main business are forced to quit real estate business. State-owned enterprises with real estate as the main business are supported to work on development and construction of residents’ indemnificatory houses. In this way, awkward situation that local governments “compete with people for benefits” could be shaken off gradually; and correct positions of governments and state-owned enterprises in the real estate field could be determined.

### **5.2 Stage of construction**

At the stage of construction, governments shall play a role in supervision and inspection, find projects deviated from land use plans in time, and conduct supervision and assessment of safety and quality work of construction sites. It is necessary to perfect construction operations, safety demonstration, and supervision laws and regulations related to the real estate industry; and correct violation operations in time. Law enforcement effort of labor supervision should be enhanced; prominent problems existing in labor employment shall be corrected and solved in time; and non-normative problems in labor dispatching and employment shall be solved. Operability and pertinence of provisions concerning the labor contract law and implementation regulations of labor contract law shall be enhanced. Governments must further perfect construction of law and regulation systems, and formulate a series of systems which facilitate establishment of a general contracting pattern with a rational structure, explicit layers and ordered competition. In this way, contradictions between correlative profit operators can be solved better, and thus social risks caused by contract disputes can be avoided.

### **5.3 Stage of promotion and sales**

Presale of commercial houses for residence use shall be canceled gradually. In real life, social risks in the real estate industry chain break out intensively in the sales delivery link. These risks are then spread to collective, community or even regional social risks. Under the general environment of economic downturn, capital chain break of development enterprises is overlaid by the presale system of commercial houses for residence use, so social risks at the sales delivery stage of real estate are especially prominent. Hence, in view of gradual maturity of the commercial house market, it is necessary to satisfy the demand for supply side reform of Chinese commercial houses for residence use and gradually cancel the presale of commercial houses for residence use. In this way, quality disputes, delivery default and property right lack and other social risks caused by presale of commercial houses for residence use as well as social risks at the subsequent real estate management stage could be prevented and solved fundamentally.

### **5.4 Stage of real estate management**

At the stage of real estate management, processes in the *Real Estate Management Regulations*, such as holding of house owner meetings, and establishment of house owner committee, shall be improved, simplified and perfected; responsibilities, obligations and so forth of developers involved in these processes shall be strengthened. It is necessary to research and formulate residence laws with Chinese characteristics, confirm the living right to become a basic right of public people, assign corresponding laws for construction and distribution of indemnificatory houses and low-rent houses, refine provisions concerning house property rights and transfer in the property law, standardize house leading behaviors and perfect real estate management of residences. It is essential to establish dedicated organizations for client services and management, conduct labor division coordination, formulate service standards and perfect the client complaint mechanism. With regard to disputes between real estate management and house owners, street neighborhood committees shall make timely

intervention for contradiction negotiation so as to prevent social risks generated from contradiction deterioration.

## 6 Conclusions

There are all kinds of risks and crises in the development process of the real estate industry. However, the government's regulation and control of the real estate market still remains to be improved in many aspects. Meanwhile, the government fails to fully realize social risks based on industry chain. This paper adopts the method of combining qualitative and quantitative analysis and constructs evaluation indexes for the analysis and measurement of social risks on the industry chain of real estate in China. Through analyzing and evaluating 5 risk evaluation indexes one by one, this paper finds severe fluctuations in social risks on the industry chain of real estate in China from 2005 to 2015. The social risks of real estate exist objectively and can be identified by analysis rather than be avoided completely. With the development of the real estate market and faced with new social risks, we should pay constant attention to the development trend of real estate and propose new and more effective coping strategies from the perspective of public governance.

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## Study on the Improvement of the Governance Mechanism of Cyber Security—Based on the Precaution and Control of Internet Virus \*

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**Abstract** With the rapid development of the internet, the malicious code is also developing, and the hacker attacks are increasing rampantly. All these problems not only have affected the normal cyber security and the operation of cyberspace, but also have endangered people's life and property safety. Naturally, it is the government that should take the responsibility of network security governance. Therefore, how to achieve certain effects and achieve the ideal target is an urgent issue waiting to be solved in the area of government's daily network governance. This paper, based on the network virus prevention and control, and the cyberspace safety governance and existing problems, put forward the solutions and suggestions of related cyber security governance mechanism, in order to promote the orderly and healthy development of the cyberspace.

**Key words** Network security governance, Network emergency management, Governance mechanism, Solutions

### 1 Introduction

On May 12, 2017, The network virus *Wanna Decryptor*, a kind of ransomware, broke out in Britain and soon swept across the globe, which caused many countries to suffer from a large-scale network attack. Through the embedded virus, the hackers force the victims to pay the ransom by encrypting and locking the files in the computer, leading to system paralysis. Even, the virus has caused a booking cancel in some hospitals, and malfunction of telephones, leading to the fact that the patients can not get the immediate treatment. In the age of Internet of things, most of our daily tools are networked and highly intelligent, once infected by virus, they will directly threaten people's personal safety. The cyberspace has the characteristics such as virtualization, openness, digitization, multinationalization, rich in resources and time and space compressibility. Its wide spread, rapid proliferation makes the difficulty to eliminate the virus multiply. With the rapid development of internet technology, the malicious code is evolving and hacking attacks are rampant, and the viruses have presented the characteristics of modularization and aggressiveness. This not only has affected the safe and normal operation of cyberspace, but also has endangered people's life and property security. Meanwhile, it is testing the leadership and working ability of our government. Therefore, it is of practical significance to protect the Internet space safety effectively to strengthen the prevention and control of cyberspace virus. Network security governance refers to the course of the government and other multiple governance subjects to work together and collaborate to promote and realize public interests under the interdependent circumstance. Network security governance is an important work in government administration area. So, to strengthen the construction of relevant mechanisms and promote the safe and orderly operation of cyberspace, the main body should be our government.

### 2 The effectiveness analysis of the construction of cyberspace governance mechanism

On April 26, 2016, Xi Jin-ping, the General Secretary pointed out in "the speech about cyber security and informatization forum": "We will strengthen the cyberspace governance according to the

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law with an attitude of responsibility for our society and people”. Cyberspace is a matter of social development and national security<sup>[1]</sup>, and to effectively maintain and realize cyber security is a great concern about each individual’s interests. According to the current situation and progress of the cyber practice in China, the main manifestations are: the continuous improvement of the rule of law, the continuous improvement of the participation mechanism and the gradual establishment of the review mechanism.

### **2.1 The constant improvement of the legal mechanism of cyber security governance**

The rule of law is the most realistic basis for social governance, and the cornerstone for social operation. “governing the network by law” is the primary starting point for cyber security governance. Cyberspace is now gradually connected with people’s spiritual and material life. Especially with the rapid development of internet technology, it is of increasing importance to strengthen related system construction.

The fifth plenary session of the 18<sup>th</sup> CPC central committee and the 13th five-year plan clearly stated that our government will take cyber security development as a major strategic move. To make an immediate response, the local governments at all levels, enterprises and institutions have formulated the relevant rules for implementation with concentration on working for the standardization and systemization of cyberspace. On June 1, 2017, China officially implemented the law of the People’s Republic of China on cyber security, which is of great significance as the basic legal basis of cyberspace governance. The article of seventy-nine rules in seven chapters, made detailed designs from the following aspects: guarantee the safety of the network products and services, ensure the safety of network operation and network data. It presents the characteristics of the intensity of governing, the comprehensiveness of methods, and the sternness of organization. The gradually improving legal system on network security governance and governance capability have provided related guarantee for China’s participation in the global network security governance. Based on the strategic move on constructing a network power, the party and the state take the necessity and urgency of network security legislation into consideration not only for the sake of industry upgrading and economic development, but also for the sake of public welfare, human rights and the sovereignty of the state.

### **2.2 The participation mechanism of cyber security governance is improving continuously**

*The national cyberspace security strategy*, released on December 27, 2016, has advanced the construction and improvement of the cyber security governance system to the national strategic level. It put forward to strengthen the network information technology application and development of space governance, build a polycentric governance pattern with the government, enterprises and Internet users as the main body, and it regarded this plan of action as a national level. With the continuous advancement of the modernization strategy of national governance system and governance capability, the participation mechanism of network security governance is also in continuous improvement. We should adhere to the principle of collaboration of government guidance and the joint participation of enterprises and society, under the positive role of the market mechanism, to study some key issues and difficulties in cyberspace. Meanwhile, we should make use of the function of laws, technology, administration, self-discipline and social education to form and strengthen the active defensive ability of national network security, International influence ability of cyberspace and communication ability of network culture. From the existing network security participation mechanism, the subject of network security governance presents the diversification tendency. The subject of governance and the object is increasingly wide and complex. On the one hand, for some scientific research enterprise, the government has taken out some preferential policies, such as tax-cut, and bid for service purchasing, to encourage science and technology industries to provide technology support for cyber security; on the other hand, the government often carry out public education with the aid of media and network, calling for public participation in the cyber security governance, and forming cultural atmosphere of co-governance and co-construction on cyber security.

### **2.3 The gradual establishment of the review and punishment mechanism of cyber security governance**

The review and punishment mechanism is a front-end technical work of cyber security governance. The high level of informatization and networking of has brought a new mode of

production and a way of life. no matter in domestic or foreign countries, the governance mechanism is relatively lag. And the construction of the governance mechanism needs constant improvement. The construction of cyberspace governance mechanism usually includes three parts: the construction of organization, the construction of the laws and regulations, and the construction of the review system.<sup>[2]</sup> It shows in two aspects: one is that domestically, from the standpoint of the government, although the flow of data and information occurs in the virtual cyberspace<sup>[3]</sup>, the physical network and infrastructure it depends on is still in the jurisdiction of national sovereignty. With its legitimated rights, the government should strengthen network data monitoring, network risk check, network risk control, and network bad behavior disposition. Therefore, the government has made out sets of regulations on the review and punishment on cyber security mechanism in terms of institutional arrangement, mechanism construction and legal provisions. Second, internationally, the governance of cyberspace is extremely transnational, which determines the transmission of virus in cyberspace is characterized by its concealment and transboundary. The international law points out that cybercrime, cyber-attacks and the spread of cyber virus are important threats to human beings, and all the countries should work together to strengthen multilateral cooperation in cyberspace and enhance the cultural network atmosphere, and strengthen the review of the security and legality of international data transmission. However, for seeking the international competitiveness and dominant role in cyber space, each country prefers to take some data resources as the objects of protection. In turn, the resource development of data may cause a more fierce competition of cyberspace governance.<sup>[4]</sup>All these factors have contributed to the construction of the review mechanism of the cyberspace governance both domestically and internationally.

### **3 The analysis on the existing problems of cyber security governance**

To build a perfect cyber security governance mechanism, the government should enhance their coordination and disposal ability to deal with the emergency of network security management.

#### **3.1 The traditional governance mode is relatively unitary**

The government is the governing body of a country and society. However, the shortcomings of traditional government and the interests of great powers make the cyberspace governance still have a long way to go. The traditional government governance mode has two main characteristics: Firstly, the mode of government operation mainly adopts strict standardization procedure. The vertical command chain system and standardized service lead to a lag between the measures-taking and newly-emerging problems in cyber security governance. Secondly, the government presents a high degree of centralization, a bloated body and a overstaffed tendency, which always presents a weird growth circle, leading to the failure and inefficiency of the government's security governance. Therefore, it is of necessity to make a quick response and change on the traditional social administration mode under a complicated situation. This requires that the purpose, object, subject, means and center of gravity of governance be shifted. The traditional pyramid organizational structure will gradually be replaced by flat and flexible organization structure, and the defects of the original order need to be settled down immediately. Now, cyber security governance has become a new area of national governance and social activities, which has also posed a corresponding challenge for traditional state sovereignty. The governance of network security is a process of a complicated political game. From the international perspective, the cyber security governance is a process of a complex competitive game between developed and developing countries in the fields of network sovereignty, network security and key technological resources. Domestically, the cyber security governance is a process of mutual game between government, private organization and social public.

#### **3.2 The increasing threats to cyber security governance**

The virus has been a human nightmare since its birth in 1988. There are signs showing that the number and variety of Internet viruses is growing rapidly. In recent years, the number of new malicious code is exploding, and malicious code presents three significant characteristics: specialization, modularization and networked "operating mode". The network hackers try to obtain huge profits by website embedded Trojan and network vulnerability attack<sup>[5]</sup>. According to the report of computer virus and cyber security of China in 2008, with the modularity, specialization and the "operation"

mode of the virus<sup>[6]</sup>, the governance threat of cyberspace is increasingly threatening. And the malicious code has undergone many changes in the form of technology, propagation and performance. They are developing in an intelligent, diversified and integrated direction, which is more extremely destructive. The secret of commercial value and political significance is more likely to be the target of hacking. For example, one day in July 2010, an estimated 8,000 working centrifuges at Iran's Bushehr nuclear power plant suddenly suffered from a large-scale malfunction. There were a massive loss of computer data and thousands of devices were damaged physically. All these factors have posed real challenges on the conscience of cyberspace.

### **3.3 The intensifying complexity of the environment of the cyber security governance**

With the rapid development of computer and network communication technology, computer communication network has become an important part in people's daily life of study and work. But the computer and network communication technology also has its negative effects, such as Internet crime, Internet pornography, Internet rumors, network virus and so on. Among them, the malicious code (viruses) has become one of the most unsafe factors. In the age of globalization, sovereign states have become more interconnected and the gap among them decreased. The multi-point concurrent and high-speed flow of information in cyberspace have further aggravated the complexity and uncertainty of social governance environment.<sup>[7]</sup> Under this trend, the possibility of viruses spreading across countries and areas is on the rise. In view of the cyberspace governance idea, as early as 2001, R Pastor-Satires and A Vespignani presented the first virus spreading model based on scale-free networks. By utilizing the method of statistical physics<sup>[8]</sup>, it was proved that when the network scale increased indefinitely, virus will not be able to be destroyed.<sup>[9-10]</sup> The governance of viruses in cyberspace has become a new normal government affair. In the 21st century, although the digital gap between developing countries and developed countries has been gradually expanding unceasingly, at the same time, the level of cyberspace governance in developing countries has improved as the science and technology developed. However, the efficiency of developing countries in cyberspace governance is far lower than that in developed countries. Under this circumstance, the developing countries have posed the doubt of the global Internet governance system. The cyberspace governance is the government's responsibility as a responsible government should take, and it should become the government's normal work.

### **3.4 The weak consciousness of social organizations and the public**

The public is an important subject and object of network security governance, as well as the subject and the object of supervision in terms of cyber activities. In order to build a benign network environment, people's consciousness of participation and prevention is one of the indispensable conditions for good governance in cyberspace. The spread of many viruses is often caused by Internet participants' clicking on vicious web pages and receiving special instructions, therefore, the spread of Internet viruses is closely related to citizen's online behavior. In China, enterprises and non-profit organizations still have a weak consciousness and ability of public service. The network security management is still in its infancy, which objectively requires the government's dominance or key roles in the cooperation governance process.<sup>[11]</sup> For the majority of domestic citizens, the government network regulation mainly means the activity to guide and avoid the misbehavior of self-discipline. It has been proved that the online activities and creative achievements of Chinese netizens obtained in network have effectively promoted social civilization and progress.

## **4 The detailed analysis of the countermeasures of cyber security governance mechanism**

In the highly complex and uncertain environment, social problems exposed by network security governance are becoming more and more prominent. As an important part of public security, the cyberspace is a virtual space different from the real society. Instead of being disconnected from the real world, it is closely related to the real space. To improve the cyber security governance mechanism, steps must be carried out from the following aspects.

### **4.1 Continue to strengthen the strategic layout of cyber security**

Cyberspace is a shared spiritual home for millions of people. Governments must deepen the

strategic layout of network security, and introduce a new service mode, constantly updating themselves while gaining new experience, enhancing their learning ability, cooperation ability, and embarking on new management mechanism construction. The government should actively guide the independent industries and the national industries to develop in cyberspace, strengthen the research and investment of network technologies, work hard to overcome the technological obstacles in cyberspace, and improve its ability in the area of cyberspace. Faced with the rapid development of cyberspace, a mature and modernized country requires the collaboration of a powerful government and the general public. A high level of institutionalization and socialization is the Gospel of modern countries and citizens. Therefore, confronting the common dilemma of the current network governance, our government should adjust its target, promote institutional innovation and order reconstruction, transform the unilateral governance to co-governance, strive for the highest efficiency of cyberspace governance, and expand the participation of citizens in network in an orderly way. In this way, we can maintain the country's long-term stability and social harmony through cyberspace.

#### **4.2 Build a multi-agent and cooperative cyber security governance mechanism**

Considering new governance challenges faced by the Internet technology, the Internet research and development technology team, science and technology enterprises and other non-governmental governance bodies will play an increasingly important role in those space areas such as cloud security, rapid data flow, and Internet security. The essential requirement of cyberspace governance is that the government should transform from centralized management into multiple governance. On the one hand, thanks to the cyberspace governance, the government has created a favorable legal environment where the conflicts of interests between the Internet subjects are coordinated. On the other hand, the government has fully guaranteed the right of network agents to enjoy secure network, and cooperated with network agents in dealing with some new problems in cyberspace. "Participation, interaction, cooperation and service" is the essence of cyberspace governance. When conducting governing activities, the government can join hands with enterprises, citizens and social organizations concerned to improve the effectiveness of collaborative governance in cyberspace activities. The government can vigorously guide enterprises to wipe out the new virus that appears in cyberspace, fully explore the advantages of big data and artificial intelligence, strengthen the review, monitoring and tracking of network data transmission and propose models as solutions to problems in practical social life. The government can conduct a wide range of guidance, publicity and education to the public, so that the public can form a good habit of using the Internet.

#### **4.3 Improve the international communication and cooperation mechanism in cyberspace governance**

Cyberspace obtains certain virtuality and transnationality, which decides the cyberspace behavior has certain concealment and unboundedness. In the space of Internet development, each sovereign state is a community of shared interests. In cyberspace governance, it is necessary to achieve connectivity, co-governance and group prevention, which also constitutes one of the important strategies of cyberspace governance. In December 2015, Xi Jin-ping said at the world Internet conference: "The international community should strengthen dialogue and cooperation on the basis of mutual respect and trust, and promote the reform of the Internet global governance system so as to jointly build a peaceful, secure, open and cooperative cyberspace, and establish a multilateral, democratic and transparent global Internet governance system."<sup>[12]</sup> The transmission of virus in cyberspace is highly concealed and transboundary, which decided the cyberspace governance is highly transnational. Therefore, the international community needs to strengthen the interaction and cooperation on the international level in the aspects of the concepts, methods and legal construction, and jointly fight the makers of network virus so as to create conditions for the formation of a good cyberspace operation environment.

## **5 Conclusions**

The cyberspace is a common spiritual home for millions of people around the world. The construction of cyber security governance is not only concerns the normal and safe operation of our network, but also relates to people's life and property safety. Meanwhile, it poses corresponding tests for the leadership and working ability of the government. Therefore, it is of practical significance to

strengthen the prevention and control of cyberspace virus and ensure its security. The safe governance of cyberspace has made some progress in the construction of legal system, the construction of participation mechanism and the construction of the review mechanism. However, there are still some problems existing in the governance mode, governance threat, governance environment and the public awareness. Based on the existing problems, the cyberspace governance should continue to deepen the strategic layout of the cyber security governance, build a multi-agent collaboration network security platform, and improve the cyber security governance of international communication and cooperation. In order to better cope with the challenges brought by the development of cyberspace. We should establish a network collaborative governance mechanism with the government, enterprises and netizens as its main body.

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## Research on Relevance between Political Trust and Network Group Event in China

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**Abstract** With popularity of the Internet, network group event has become a new form of crisis government facing in the network era. Although network group event occurs online, it is easy to lead into network public opinion crisis without powerful guidance. What's even worse, it may develop into real group event, causing a series of social problems and doing harm on social stability and safety. High rate of network group event occurrence uncovers low level of government credibility. With fermentation, network group event may endanger political trust. This paper intends to explore relevance between political trust and network group event and how to reconstruct political trust after network group event.

**Key words** Political trust, Government, Network group event, Participation behavior

### 1 Introduction

Political trust is the cornerstone of political stability and an important prerequisite for good political life<sup>[1]</sup>. With popularity of the Internet, network group event has become a new form of crisis government facing in the era of Internet<sup>[2]</sup>. Without guidance, network group event is easy to lead into network public opinion crisis, which could possibly turn into real group event, causing a series of social problems and doing harm to social stability and safety<sup>[3]</sup>. For example, rumors on the Internet about the event of Taifu Middle School of Luxian County in Sichuan Province which occurred in April, 2017 result with a very negative impact. After the event, an article "How the Voice of Authority can be Powerful" is published in People's Daily, exploring how local government should respond to network group event in order to enhance credibility of the government. With rapid occurrence and wide spread, negative impact of network group event can't be underestimated. It is shown that attitude and behavior of people is influenced by their level of political trust. In this sense, this paper is to explore relevance between political trust and network group event by literature research and questionnaire survey.

### 2 Literature review and research question

#### 2.1 Definition of political trust

The concept of political trust was first proposed by Miller in 1974. Initially, it refers to public confidence in the government. Gradually it expands to public confidence in the entire country administrative area, including central government, local government, political system, legislature, judiciary, army and leaders. At present, there is no unified concept for political trust. By literature reading, Li Yan-zhong and Hu Rong's viewpoints are selected, which define political trust as public confidence, attribution and evaluation on the government or the political system within the expectation<sup>[4]</sup>.

#### 2.2 Measurement of political trust

Due to the fact that there is no unified concept of political trust, research on political trust in China mainly uses self-made scale, for example, Wang Xiang-min studies on young students' current identification of the political system from three aspects (political value; abstraction and specific government trust; value, system and integrity identification)<sup>[5]</sup>; He Zhuang and his colleagues draw up political trust scale for primary and secondary school teachers in Guizhou Province<sup>[6]</sup>; Liu Ji-shan explores political trust of college students from two aspects (government performance, officials integrity<sup>[7]</sup>). This paper uses the political trust scale compiled by Zeng Yu-chen as a measurement tool. The scale has three dimensions and 20 items. Among them, "government trust" dimension has 6 items; "value identity" dimension has 6 items; and "system and integrity identity" dimension has 8 item. Each item uses 5 points forward scoring method for measurement.

### 2.3 Definition of network group event

Network group event refers to act that violate national laws, regulations, and rules; that disrupt social order; that endanger public safety; that violate personal safety of citizens and safety of public and private property<sup>[8]</sup>.

In a broad sense, network group event refers to influential event with large amount of participation in the discussion on the network. In the narrow sense, network group event refers to influential event in which netizens make use of the network to make public opinion, interfere with the network order and further affect the social stability based on common purpose or benefit in certain social background<sup>[9]</sup>. This paper refers to the research of Yang Jiu-hua and others, and defines network group event as behavior of response, discussion, trial, indulgence and attack based on group event information such as contradiction between people and government, corruption and social injustice<sup>[9]</sup>. At present, there are some theoretical explanations on network group event, such as network combustion theory, compensatory theory, psychological perception theory, etc..

### 2.4 Measurement of network group event participation behavior

This paper selects network group event participation scale table developed by Yao Wen-sheng. The scale has four dimensions and 21 items, Among them, “response expression” dimension has 7 items; “network trial” dimension has 5 items; “network Indulgence and attack” dimension has 5 items; and “active discussion” dimension has 4 items. Each item uses 5 points forward scoring method for measurement.

### 2.5 Correlational research on political trust and network group event participation behavior

At present, studies have shown that people’s political trust is related with their attitudes and behaviors to some extent. Study of Zeng Yuan-zhen shows that value identity dimension of college students political trust has negative predictive effect on their negative behavior<sup>[10]</sup>. Studies of Wang Qiang shows that college students’ trust in mass media is better than that in government, with more willingness to turn to media<sup>[11]</sup>. In this sense, it can be inferred that decline of trust in government is one of the reasons why more and more network group events have occurred in recent years.

## 3 Research question

Studies have shown that political trust is closely related with network group event. In order to have a better understanding of it, and to provide reference to network group event management in future, this paper plans to carry on empirical research on relationship between political trust and network group participation behavior.

On the basis of previous studies, the following research hypotheses are put forward:

Hypothesis 1: People’s political trust varies in demographic variables, such as profession, grade, and political figure;

Hypothesis 2: People’s political trust is positively related to their participation behavior.

## 4 Research method

### 4.1 Participant

Students of one college in Chengdu City of Sichuan Province are taken as the participants, in which 176 students were randomly selected with stratified sampling method. Through the form of network questionnaires issued and recovered. There were 135 valid questionnaires, and the effective rate of the questionnaire was 76.7%. The demographic information of the subjects is shown in Table 1.

### 4.2 Research tool

#### 4.2.1 The college students’ political trust questionnaire

This paper uses college students’ political trust questionnaire compiled by Zeng Yuan-zhen<sup>[10]</sup>, which has 3 dimensions and 20 items. Among them, “government trust” dimension has 6 items; “value identity” dimension has 6 items; “system and integrity identity” dimension has 8 items. Each item uses 5 points forward scoring for measurement.

#### 4.2.2 Network group participation behavior questionnaire

This paper uses network group participation behavior questionnaire compiled by Yao Wen-sheng<sup>[8]</sup>, which has four dimensions and 21 items. Among them, “response expression” dimension has

7 items; “network trial” dimension has 5 items; “network indulgence and attack” dimension has 5 items; and “active discussion” dimension has 4 items. Each item uses 5 points forward scoring for measurement.

**Table 1 Demographic characteristics of participant**

Demographic variables		number (N=135)
Gender	Men	49(36.3%)
	Female	86(63.7%)
Grade	First grade	40(29.6%)
	Second grade	23(17.0%)
	Third grade	12(8.9%)
	Fourth grade	21(15.6%)
	Master or above	39(28.9%)
Subject	Liberal art	61(45.2%)
	Science and technology	70(51.9%)
	Arts and sports	4(3.0%)
Politics status	Member of communist party of china (including probationary party member)	33(24.4%)
	League member	87 (64.4%)
	Democratic party	0
	The mass	15 (11.1%)
Be a student cadre during college	Yes	80 (59.3%)
	No	55 (40.7%)

### 4.3 Research program

Questionnaires are issued and recovered by network.SPSS 22.0 is used for statistical analysis of sample datas. Firstly, the sample datas are analysed by descriptive statistics and difference test; secondly, political trust and network group event participation behavior are analysed by correlation analysis.

## 5 Result and conclusion

Through data analysis and processing, it is found that average score of college students’ political trust is 3.83; Average score of “government trust” dimension is 3.75; Average score of “value identity” dimension is 4.24; and average score of “system and integrity identity” dimension is 3.57. Among them, “value identity” dimension reaches the highest score, which is higher than 4 points, which means that “value identity” dimension is the most concentrated expression of political trust. The three dimensions and the total questionnaire all reach beyond the median 3 points. What’s more, after the independent sample T test, it is found that political trust of college students is of pretty high level, which is shown in Table 2.

**Table 2 Total and dimensional score of political trust in China**

	Participant number	Mean value	Standard difference	Item number
Government trust	135	3.75	0.59	6
Value identity	135	4.24	0.58	6
System and Integrity identity	135	3.57	0.66	8
Total	135	3.83	0.56	20

In order to test differences in demographic variables of political trust of college students, this paper carries out corresponding variance analysis and independent sample T test. It is showed that political status has influence on political trust for college students. In comparison, in gender, professional, grade, political status of parents, and student leader experience have no influence on political trust. Total and dimensional score of college students with different political status is shown in Table 3.

**Table 3 Variance analysis of political trust and political status of college students in China**

	Member of communist party of china (including probationary party member )(N=33)		League member (N=87)		The mass (N=15)		F	P
	M	SD	M	SD	M	SD		
Government trust	3.95	0.43	3.72	0.58	0.51	0.79	3.450	0.35
Value identity	4.47	0.44	4.21	0.59	3.87	0.62	6.347**	0.02
System and Integrity identity	3.70	0.60	3.58	0.63	3.23	0.89	2.743	0.68
Total	4.01	0.45	3.81	0.54	3.50	0.72	4.518**	0.013

\* p<0.1; \*\* p<0.05; \*\*\* p<0.01

It is shown in Table 3, there is significant difference in total score and dimensional score of value identity among three dimensions of political status. Therefore, total score and dimensional score of value identity are tested by LSD.

It is shown in Table 4 that dimensional score of value identity of member of Communist Party of China (including the preparatory) is higher than that of League member and the mass; both total score and dimensional score of value identity of the political trust of league member is higher than those of the mass. To sum up, score of political trust of member of Communist Party of China is the highest, followed by league member and the mass. It is concluded that political status of college students has influence on their political trust.

**Table 4 LSD Test of political status difference**

	F	P	LSD
Value identity	6.347**	0.02	1>2(p=0.024),1>4(p=0.01) 2>4(p=0.028)
Total	4.518**	0.013	1>4(p=0.003),2>4(p=0.044)

Note: 1= Member of communist party of china (including probationary party member ); 2=League member ; 4=The mass

In order to explore influence of political trust on network group event, their relevance is tested as follows. In this paper, relevance among three dimensions of political trust and four dimensions of network group event are tested, as shown in Table 5.

**Table 5 Research on relevance between political trust and network group event of college students in China**

	Response expression	Network trial	Network indulgence and attack	Active discussion	Network group event
Government trust	0.122**	0.139*	0.075	0.29**	0.102*
Value identity	0.076	0.078	-0.16**	0.34	0.069
System and Integrity	0.121	0.08	0.25	0.177*	0.144*
Total	0.211**	0.190	0.145	0.216**	0.245**

\* p<0.1; \*\* p<0.05; \*\*\* p<0.01

It is shown in Table 5, significant positive relevance exists between government trust dimension and response expression dimension (r=0.122), between government trust dimension and network trial dimension(r=0.139), between government trust dimension and active discussion dimension(r=0.29) and between government trust dimension and network group event (r=0.102); significant negative relevance exists between value identity dimension and network indulgence and attack dimension (r=-0.16) without any relevance with other dimensions; significant positive relevance exists between system and integrity dimension and active discussion dimension(r=0.177); positive relevance exists

between political trust and network group event. In general, the higher the level of College Students' political trust is, the more their network group event is, which is significantly shown in response expression dimension and active discussion dimension. To be noticed, the higher level of value identity is, the less network indulgence and attack is.

## 6 Conclusions

Through the data analysis and processing, it is found that level of political trust of college students is high, who have different political appearance, including Communist Party member, Communist Youth League and the masses, whose political trust level declines in order.

In terms of political trust of college students, the "value identity" dimension reaches the highest score; and "government trust" dimension and "system and integrity identity" dimension take the second place. A significant positive correlation between political trust of college students and network group event participation behavior is shown in "response expression" dimension and "active discussion" dimension. To be mentioned a significant negative correlation between "value identity" dimension of political trust and "network indulgence and attack" dimension is shown in the results.

In this paper, sample size is small, and most of the participants are from an engineering university. In this sense, homogeneity is high, with limitations in the selection of participants.

What's more, correlation analysis in this paper doesn't directly shows causal relationship between political trust and network group event participation behavior. In this sense, further study is needed to be carried on.

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## Research of Incentive and Constraint Effect of Chinese Civil Servant Salary System on Grassroots Civil Servants

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**Abstract** Chinese civil servant force has always been in the structure of “pyramid”, that is, 60% of them are grassroots and 90% of them are under department grade; moreover, a lot of grassroots civil servants are vice department level after working several decades. Though Chinese civil servant salary system has been improved and completed constantly, problems like inadequate incentive and constraint effect remain. Hence, this paper, by taking Chinese grassroots civil servants as objects of study, has measured the incentive and constraint effect of Chinese civil servant salary system on grassroots civil servants by means of questionnaire survey and statistical analysis. Moreover, this paper has concluded factors that affect incentive and constraint effect on Chinese grassroots civil servants in Chinese civil servant salary system according to result of the measurement. The study shows that: the incentive and constraint effect of Chinese civil servant salary system on grassroots civil servants is weak in general and the overall satisfaction of grassroots civil servants about the salary system is low; there is no obvious relation among the degree of hardworking, work performance and salary levels of grassroots civil servants and its incentive and constraint effect is relative low; education level, seniority and position level of grassroots civil servants are positively related to salary level, which proves again that Chinese civil servant salary system is oriented by position level and has weak incentive and constraint effect on grassroots civil servants.

**Key words** Chinese civil servants, Grassroots, Incentive effect, Constraint effect

### 1 Research background

During 2004 and 2015, the number of people who applied for Chinese civil servant posts increased from 120 thousand to 1.05 million and the acceptance rate increased from 15:1 to 47.2:1; though the number of applicants and final acceptance rate declined in 2016, the trend that the public like civil servant posts remain irresistible. Undoubtedly, people like civil servant posts because of the high social status, decent work and favorable social welfares, even a lot of hidden incomes. Obviously, Chinese civil servant team has always in the structure of “pyramid”, that is, 60% of them are grassroots and 90% of them are under department level; meanwhile, a lot of grassroots civil servants are vice department level after working for several decades. Hu Ying-lian, vice professor of China National School of Administration, used to say that the promotion rate of Chinese civil servants from section members to mid-governmental officials is only 4.4% and that from mid-governmental officials to bureau level is as low as 1%. Therefore, they are not only low in salary and difficult in promotion, but also working under great pressure and great workload, which has resulted in job burnout and passive work attitude among a lot of excellent grassroots civil servants. On the other hand, salary system, as an important part of human resource management of Chinese Public Health Department, has always been a hot topic in people’s life and its incentive and constraint degree will directly affect hard-working degree and job satisfaction of Chinese civil servants. In 2015 General Office of the State Council announced *Opinions on Establishing Civil Servant Position and Level Parallel System in Authorities under County Level* which clearly stipulates a civil servant position and level parallel salary system in authorities under county level. The implementation of this system has broken the “ceiling” for the promotion of civil servants under county level and to certain degree motivated grassroots civil servants. Nevertheless, the policy is not carried out as smoothly as imaged and many aspects do not fall into place; consequently, salary system oriented by positions remains the mainstream and the promotion channel for grassroots civil servants remains difficult. Considering that, this paper, through conducting a questionnaire survey about grassroots civil servants, will try to answer following research questions: (1) how is the incentive and constraint effect of Chinese civil servant salary system on grassroots civil

servants? (2) which factors are having incentive and constraint effect on Chinese grassroots civil servants in Chinese civil servant salary system? (3) how to further complete Chinese civil servant salary system so as to improve incentive and constraint effect of grassroots civil servants as well as their working enthusiasm and job satisfaction ?

## 2 Theoretical hypotheses and measurement models

Literature study reveals that first-grade indexes that assess salary incentive and constraint effect are: salary satisfaction, willingness for hard working and turnover tendency. In Chinese civil servant salary system, the primary incentive and constraint index is salary level. Hence, to explain the incentive and constraint effect of Chinese civil servant salary system on grassroots civil servants, we have applied two ways: one is directly measuring salary growth caused by salary satisfaction and hard-working degree of grassroots civil servants as well as influence of work performance on monthly income so as to subjectively reflect the incentive and constraint effect of Chinese civil servant salary system on grassroots civil servants; the another one is establishing a theoretical analysis framework about incentive and constraint factors of Chinese civil servant salary system on grassroots civil servants upon literature study since the “hard-working degree” that reflects “incentive and constraint effect” can not be measured effectively. Our theoretical analysis reveals that salary level of grassroots civil servants is closely related to education level, position level and seniority, which proves by contradiction that there is no obvious correlation between salary level of grassroots civil servants and their hard-working degree and work performance. That indicates weak incentive and constraint effect of salary system on grassroots civil servants. Hence, we have chosen education level, position level and seniority as independent variables and monthly income of grassroots civil servants as dependent variable for constructing following theoretical hypothesis model:

$$\text{salarylevel}_i = \alpha_1 + \beta_1 \text{educationlevel}_i + \beta_2 \text{positionlevel}_i + \beta_3 \text{seniority}_i + \beta C_i + \varepsilon_i$$

Here, salarylevel means salary level of civil servants and C relevant control variables like region, gender and marital status;  $\alpha$  means constant term and  $\varepsilon$  error term.

## 3 Research method

To solve above-mentioned research problems, this paper has measured incentive and constraint effect of civil servant salary system on grassroots civil servants and influencing factors through structured questionnaire survey. In the way of measure dependent variable and factors that affect incentive and constraint affection, corresponding questions are set up according to variables of theoretical model established in the second section. Due to limited length of this paper, they are not elaborated here. After the first draft of the questionnaire was ready, the author gave it out to experts of relevant fields. Then draft two was attained through amendment according to opinions of the experts. Finally, a pre-survey was conducted among 60 MPA students. After that, the author further completed the questionnaire according to the feedback and opinions and come up with the final version of Questionnaire on Salary State of Grassroots Civil Servants in China.

When the questionnaire was formally given out, we applied a sampling strategy that combines purposive sample, convenience sample and snowball sample. Primary reasons for that include: first, due to the difficulty of attaining name list of all civil servants and the sensitivity of the issue “salary of civil servants”, it is quite impractical to sample by basing on all grassroots civil servants in China and expect all selected respondents to completely cooperate in filling the questionnaire; second, if the survey targets at only grassroots civil servants of certain local government, the high degree of homogeneity regarding area and salary system for civil servants in a same government is not conducive to the discussion about impact of regional and system differences on incentive and constraint effect of grassroots civil servants. Hence, using purposive sample to make sure the samples cover civil servants in middle, eastern and western China; besides, convenience sample enables to find a number of grassroots civil servants as respondents and make them fill the questionnaire anonymously so as to guarantee good responsiveness of the questionnaire; finally, snowball sample encourages the first group of respondents to continue spreading the questionnaire so as to increase the sample scale. In the end, the questionnaire survey was conducted from May 12 to June 30 of 2017 until no any new

questionnaire was filled; in total 351 questionnaires are collected and 321 of them are effective ones, that is, the recovery rate is as high as 91%. Though this survey is not conducted completely in the way of random sampling, it covers the middle, eastern and western China areas (22 provinces in total) and involves 43 departments as an exploratory research due to the lack of empirical studies on salaries of Chinese grassroots civil servants. To sum up, it has provided firsthand data for discussing incentive and constraint effect of Chinese civil servant salary system on grassroots civil servants in different areas and departments, which quite meets original research intention of the author.

#### 4 Result of empirical analysis

##### 4.1 Analysis of incentive and constraint effect of Chinese salary system on grassroots civil servants

It is discovered through data analysis with STATA that: (1) the proportion of Chinese grassroots civil servants have very high satisfaction degree of salary is 0.31%, that have quite high degree of satisfaction is 5.92%, that have average satisfaction degree is 38.63%, that have quite low degree of satisfaction is 33.02% and that have very low satisfaction degree is 22.12%. Generally speaking, Chinese grassroots civil servants have low salary satisfaction and more than 90% of them have lower-middle satisfaction about salary, as shown in Figure 1:

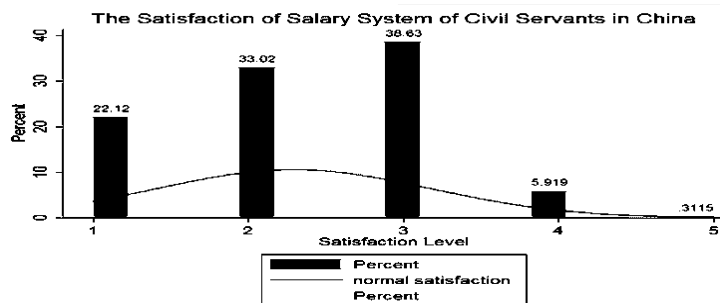


Figure 1 The satisfaction of salary system of civil servant in China(percent, %)

Note: 1=very low; 2=quite low; 3=average; 4=quite high; 5=very high

(2) If hard-working degree of grassroots civil servants doubles, 85.36% grassroots civil servants believe there is no obvious change to their monthly income, shown as Figure 2:

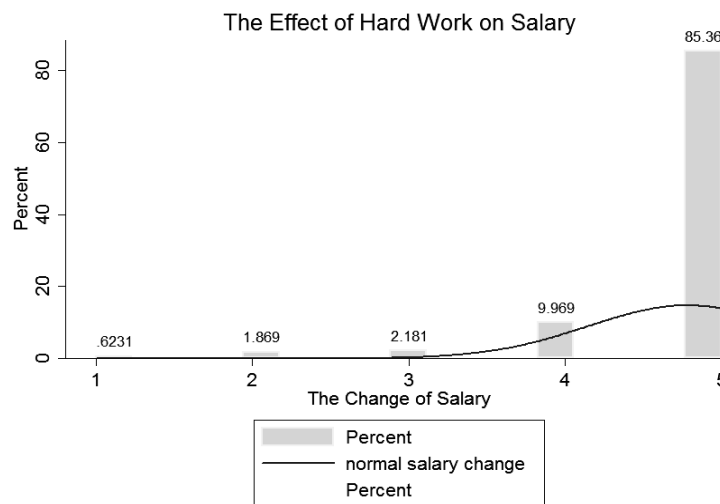


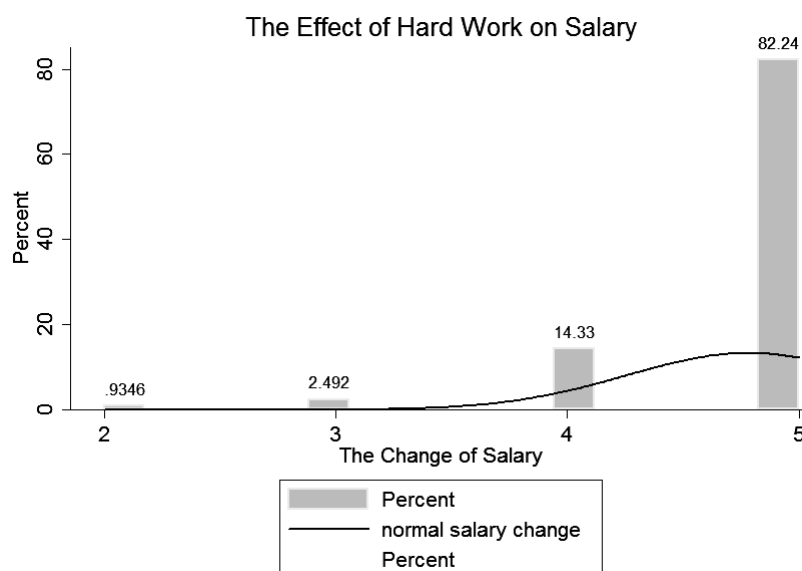
Figure 2 The effect of hard work on salary(percent, %)

Note: 5=no change; 4=increase a little; 3=increase by half of original income; 2=double; 1=increase by more than one time

(3) If hard-working degree of grassroots civil servants decreases by half, 82.24% grassroots civil



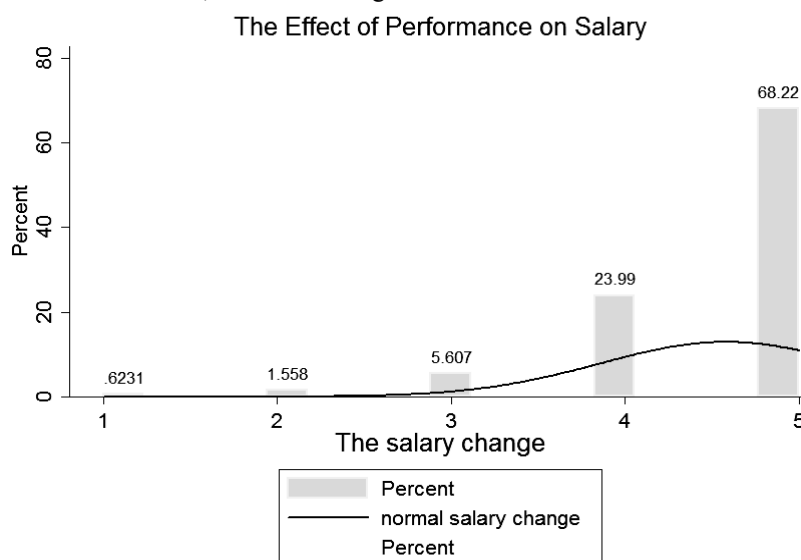
servants believe there will be no obvious change their monthly income; no grassroots civil servant believes their income will decrease to less than half of their original income if their hard-working degree decreases by half. as shown in Figure 3:



**Figure 3 The effect of hard work on salary(percent, %)**

Note: 5=no change; 4=decrease a little; 3=decrease by about one third; 2=decrease by half; 1=decrease to less than half of original income

(4) If work performance of grassroots civil servants doubles, 68.22% grassroots civil servants believe there will be no obvious change to their monthly income and 23.99% of them believe there will be little increase to their salaries, as shown in Figure 4:

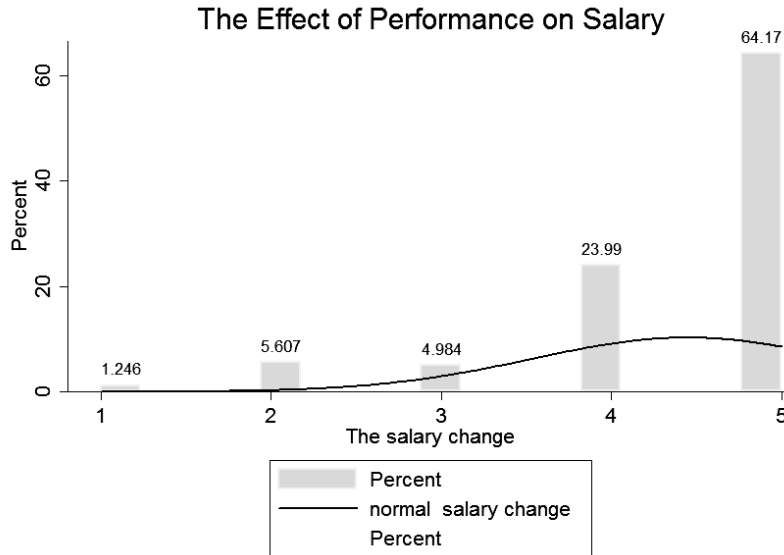


**Figure 4 The effect of performance on salary(percent, %)**

Note: 5=no change; 4=increase a little; 3=increase by half of original income; 2=double; 1=increase by more than one time

(5) If work performance of grassroots civil servants decreases by half, 64.17% grassroots civil

servants believe there will be no obvious change to their monthly incomes, 23.99% of them believe there will be little decrease to salary, 5.0% of them believe their salaries will decrease by about one third and 5.61% of them believe their salaries will decrease by half, as shown in Figure 5:



**Figure 5 The effect of performance on salary(percent, %)**

Note: 5=no change; 4=decrease a little; 3=decrease by about one third; 2=decrease by half; 1=decrease to less than half of original income.

Above data analysis shows that: Chinese grassroots civil servants have low satisfaction with the salary system; no matter their hard-working degree increases or decreases, there will be no change to their monthly incomes; no matter their work performance doubles or decreases, there will be no obvious change to their monthly salaries. That means the incentive and constraint effect of Chinese civil servant salary system on grassroots civil servants is weak and there is no obvious relation between salary change of grassroots civil servants and their hard-working degree and work performance.

#### **4.2 Analysis of factors that affect incentive and constraint effect of Chinese civil servant salary system on grassroots civil servants**

According to the 321 collected effective questionnaires and combining with above-mentioned theoretical hypotheses, we have chosen education level, position level and seniority of grassroots civil servants as independent variables and monthly income level of grassroots civil servants as dependent variable for making ologit regression by processing data with STATA. The regression result is shown as following Figure 6.

The result shows that: monthly salary level of Chinese grassroots civil servants is positively related to their education level, seniority and position level. That means education level, seniority and position level of Chinese grassroots civil servants will have direct impact on their monthly salary level; improvement of education level, long seniority and promotion of position level will help increase monthly incomes of Chinese grassroots civil servants. The typical influence of seniority and position level on grassroots civil servants verifies again the position-oriented salary structure for civil servants in China as well as its weak incentive effect on grassroots civil servants. On the other hand, the above-mentioned low satisfaction of grassroots civil servants about salary system and the less-obvious impact of hard-working degree and work performance on salary levels of grassroots civil servants indicate weak incentive and constraint effect of Chinese civil servant salary system on grassroots civil servants.

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Ordered logistic regression      Number of obs =      321
                                LR chi2(3) =         67.99
                                Prob > chi2 =       0.0000
Log likelihood = -577.79144     Pseudo R2 =         0.0556
    
```

wagelevel	Coef.	Std. Err.	z	P> z	[95% Conf. Interval]
education	.688057	.1916705	3.59	0.000	.3123897 1.063724
seniority	.1477272	.0889973	1.66	0.097	-.0267043 .3221586
dutylevel	.6961872	.1412147	4.93	0.000	.4194115 .9729629

Figure 6 The regression result of incentive and constraint effect on grassroots civil servant

## 5 Conclusion and policy suggestion

It is discovered through study that: monthly salary level of Chinese grassroots civil servants is positively related to their education level, seniority and position level and Chinese grassroots civil servants have a low degree of satisfaction with Chinese civil servant salary system in general; no matter their hard-working degree increases or decreases, there is no change to their monthly salary incomes; no matter their work performance doubles or decreases, there is no obvious change to their monthly salary incomes. That means hard-working degree and work performance of Chinese grassroots civil servants have no obvious impact on their salary incomes. Generally speaking, Chinese civil servant salary system is oriented by seniority and position level and has weak incentive and constraint effect on grassroots civil servants.

Considering above research result, this paper has come up with following suggestions. First, complete China's performance assessment and comment system. China can change the situation of determining positions and levels with seniority, introduce in a new performance evaluation standard and method, increase the elasticity of position promotion and change from seniority-based promotion channel to ability evaluation-based promotion model so as to stimulate work enthusiasm of Chinese grassroots civil servants and improve administrative efficiency. Second, complete Chinese civil servant salary investigation system. we can establish a Chinese civil servant salary investigation system and a civil servant salary investigation department to follow salary trends of various enterprises, public institutions and industries in real time. Finally, attach importance to work performance, introduce in work performance into work evaluation and increase proportion of work performance so that grassroots civil servants can increase their incomes through hard working and those who do not work hard will have a decrease in income. In other words, the current state of "constant" salary and "only-rise and no-fall" position will be changed.

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## Reconstruction of Government Audit System in Big Data Era—Take the Reform of Tianjin Audit System as an Example \*

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**Abstract** As a system for supervising government power, the aim of government audit system is to promote the realization of good governance and healthy operation of the economic environment, so as to protect people's interest. With the complexity and informationization of the audit data, the requirements from the government and public have also increased. On the basis of clarifying the current audit institution environment and the problems of the traditional audit, this paper analyses and summarizes the practical experience of the real-time audit network reform conducted by Tianjin Audit Bureau, and puts forward countermeasures to the reconstruction of government audit system in big data era, from macro and micro level, consisting of the aspects such as audit idea, work flow, and the platform construction.

**Key words** Government audit system, Big data, Reform of the administrative system, Real-time audit network

### 1 Introduction

After several decades of development and progress, Chinese national audit system has entered a new development stage, which not only improved the audit quality, but also tightly combined the audit work and administrative management together to improve public management (Yang He-yan, 2009<sup>[1]</sup>). Despite the achievements, the reform of Chinese economic system and political system in the recent years requests government to constantly improve the methods and approaches of audit system. Therefore, in order to efficiently fulfill government responsibility of achieving modernization in governance capacity, government audit system is needed to reconstruct and treated as one of the government administration's top priorities.

### 2 Analysis of traditional audit method

With the economic globalization and information-based characteristic, the fund scale and the amount of data become more and more massive, which leads to higher requirements of the audit system from government and the public (Karapetrovic, Stanislav, and Walter Willborn, 2001<sup>[2]</sup>). Since the traditional audit supervision has many problems, such as incomplete coverage, segmentation from department, sector and industry, "fragmented management", there appears the phenomenon called "Information Island" (Lowensohn S., Johnson L. E., Elder R. J. and Davies S. P., 2007<sup>[3]</sup>). Therefore, the depth of the power supervision is not enough, and the data collection and update become difficult problems. Moreover, the contradiction between the heavy audit task and lack of audit power become severe.

Influencing and restricting by conventional wisdom and low level of audit information construction, the audited units often take protecting information security, difficult to collect chaotic complex and large amount of data as excuses, so that they could remain inactive to provide data for the audit authorities (Yoon, Kyunghee, Lucas Hoogduin, and Zhang Li, 2015<sup>[4]</sup>). In addition, the traditional audit is mainly implemented by project audit and manual investigation. This audit method is conducted by post-audit, which can only find problems after incidents and may restrict the function of audit supervision.

At present, the connotation and extension of audit work gradually expand. Compared with the past audit method that audit staff analyzed the information provided by the audited units, nowadays network can fully cover the municipal and district audit institutions, and the data is no longer apart from the audit system. Therefore, data and information become part of the system, so that audit staff can take the initiative to conduct audit work. Reform of the audit system is imperative.

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### 3 Approaches of the reform of Tianjin real-time audit network

In the big data era, Tianjin Audit Bureau brings the data collected from government sectors, enterprises, local financial organizations, and major governmental investigation programs into a network. This pattern achieves a broader audit area and a higher audit quality and efficiency compared with traditional audit pattern. This case illustrates a networked real-time audit pattern constructed by Tianjin Audit Bureau.

#### 3.1 The process of the reform of Tianjin real-time audit network

The reform of Tianjin audit network started at 2013. The goal was to clarify the work process and implement job responsibilities. The process of the reform can be divided into three phases. The first phase is to establish regulations. Tianjin Audit Bureau has introduced series regulations of management practices, such as “network real-time audit operations” and “method of network real-time audit operations supervision” (Jin Fa, 2015<sup>[5]</sup>). One the one hand, these regulations was set up for deal with “information island” phenomenon, and build “three lines” for the real-time network audit model, consisting of project audit, no project audit and real-time monitoring. Through combining information from government departments, institutions, state-owned enterprises, local financial institutions and government major investment projects and public funds of the financial, financial and related business into the audit supervision, this model aim to achieve real-time audit in the city. On the other hand, Tianjin Audit Bureau uses application of network data technically, in order to implement supervision of financial funds and public funds, and strive to focus on practical problems, such as the audit comprehensive coverage, shortage of audit task and power, low audit efficiency, difficult data collection and update. Therefore, this well organized regulation system can ensure the effect of real-time audit network system.

The second phase is to set up a clear workflow. Firstly, a data collection program is prepared by the working sectors, which combines the characteristics of the network unit information system. The data collection plan is compiled according to the requirements of the data acquisition scheme. The working sectors are responsible for sending data collection notice and the electronic data confidentiality agreement to the network unit. After receiving the notice and agreement, the network units then responsible for written commitment to the authenticity and completeness of the electronic data provided, and submit the data strictly accordance with the requirements of the data collection notice. Finally, working sectors need to clean, convert, sort and verify electronic data collected from network units. Moreover, the notification of networked real-time audit supervision for network units is also given by working sector, which indicate the formal implementation of the audit supervision.

Secondly, there enters an automatic warning subsystem. The auditors use the early warning model to screen the data quickly and can automatically identify the audit risk points. Then, they use the audit analysis platform and combine the audit professional judgment, in order to write the query statements and conduct in-depth analysis for focusing the audit doubt specifically. The working sectors are involved to make comprehensive judgment of the focused audit doubts, and push the suspicion information to relevant working sectors to deal with.

Finally, the audit doubt is to be implemented and continued to track. After receiving the suspicion, working sectors need to issued a verification notice related the problems found to the network units. This notice will require network units to verify problems in three ways, consisting of verifying by themselves, direct verifying by auditors, and if necessary, going to the scene for verification. If audit staff verifies the problem, the notice on rectification of networked real-time audit supervision will be issued to network units. The situation of rectification and implementation will be needed to track through the network data, involving transferring the violation of law and discipline violations into the project audit procedures according to the law.

The third phase is to comprehensively spreading the network. After the initial establishment of real-time audit process, the audit network is begun to spread out. With the use of big data and technical methods, the auditors can find the common trend of the problem of systematic research through data comparison and analysis. Combining on-site bank account inquiries, the authenticity of invoice verification, and other means to find funds into the individual accounts, encroachment of state-owned assets, false invoices to take bank funds, forged fake medical records fraudulent demolition funds and other cases clues, the founded problems can be transferred to the relevant departments to deal with.

It can be indicated that Tianjin Audit Bureau established an anti-corruption cooperation mechanism with the municipal inspection agencies, the Municipal Commission for Discipline Inspection and public security sectors, and other departments. Moreover, it established a linkage verification mechanism with management departments, and established an information query mechanism with banks and other public sectors. This large-scale, cross-system, multi-level data concentrated system completely changed the past audit method. Therefore, the present audit system can not only use large data for computer audit, but also for macroeconomic analysis and comprehensive research. Furthermore, it can not only audit a single unit, but also conduct batch audit according to the need. It also increases the focus on the field of supervision, enhances the use of audit results, and promotes the construction of anti-corruption discipline.

### **3.2 Contents of the real-time audit network**

Tianjin real-time audit network mainly includes four aspects. Firstly, it builds a complete network. Tianjin Audit Bureau focuses on audit tasks, audit objects, audit content, the huge changes in the audit environment, the construction of large data under the background of the audit supervision “a network.” Through construction of the audit supervision and command center, network real-time audit center and audit data center, this network includes audit and supervision of integrated management system. It also covers urban areas and counties, which can collect data from different sectors, industries and systems. Therefore, this network brings all the network units into real-time monitoring of vision, which achieves the full coverage of city’s audit objects.

Secondly, it uses big data and cooperates with different public sectors to monitor problems. Tianjin Audit Bureau builds network with all 156 municipal budget units, key state-owned enterprises, some financial institutions, and other networking, in order to gain data from 22-business system. Through the treasury centralized payment system, such as the daily monitoring, issues can be found from headstreams, such as the financial stock funds that are not turned over, and unfixed-point procurement. Tianjin Audit Bureau also organized R&D force to clean, converse, process and plan original raw data, in order to establish the large audit database. Moreover, 1173 audit model has been build, using big data audit model shown as “overall analysis, systematic research, found doubt, decentralized verification”. Thus, hidden doubts from the funds can be exposed in transparent audit supervision software, and to ensure the authenticity of the real-time monitoring.

Thirdly, a “firewall” has been build. Real-time audit pattern has the characteristics such as real-time, remote, rapid and sufficient data analysis. This pattern will facilitate the realization of audit supervision in a normalization and timely manner. It not only conducive to discover the major violations of discipline, but also let audited units aware of their unit’s financial revenue and expenditure situation are under audit supervision. Audit system can then achieve early detection, early warning, early correction, and promote the source of anti-corrosion.

Finally, it promotes a dynamic audit pattern. In practice, the audit sector has established a closed-loop by the network audit to push doubt, business department and network unit verification, network unit rectification, through project audit, no project audit, real-time monitoring of mutual penetration, and other ways to achieve the data networking, audit business and the command from the staff. Compared with traditional audit pattern, with the use of real-time database, the auditors may make a timely review of the issues that have not yet been corrected, which promote a conversion from static audit to dynamic audit.

## **4 Reconstruction countermeasures and suggestions of government audit system in big data era**

In order to construct the suitable institutional environment for the survival and development of real-time audit pattern in big data era, consideration should be taken from both macro and micro level. Moreover, objectives and tasks are also needed to adjust and adapt.

### **4.1 From macro level**

(1) The reform of audit system should consistent with the reforming aim of the administrative system

Auditing is the institutional arrangement that restricts the power by power (Liu Li-yun, 2013<sup>[6]</sup>). On the one hand, it has the protective and constructive effect on the power operation. On the other

hand, it has the function of supervision, appraisal and evaluation. The propose of deepening the reform of administrative management system not only promote the innovation of the audit method, but also determines the unique role of the audit reform in deepening the reform of the administrative system since the consistency of the audit value and the main goal of the administrative reform.

In general, the starting point of the audit work to promote reform is from the discovery of the problem. Through analysis of the problems found in the audit, reasons for problems from the institutions can be found out, so that the improvement of audit recommendations can be put forward and urged the rectification and implementation, which promote reform and system improvement. In specific, the factors that drive force of the reform mainly include problem-oriented, social-driven, top-level design, grass-roots exploration and policy implementation. Through these five aspects, the audit can effectively carry out the statutory duties, so as to promote the role of reform.

(2) The reform of audit system should coordination with the governance system and the modernization process of governance

The modernization of governance system and governance capability will inevitably lead to changes in the objectives and positioning of audit work. However, the principle of public interest is that the government governance information has a wide range of transparent features, which requires the audit work to promote social and intergovernmental trust and integration (Sun Yong-jun, 2013<sup>[7]</sup>).

At present, the construction of trust is an important foundation for the promotion of modern state governance (Liu Yi-meng, 2012<sup>[8]</sup>). The reform of audit system should take the audit objectives as the starting point, and take the trust and integration as the basic path. Through the new development strategy that reasonably determine the focus of the audit work areas, and constantly reform and improve the appropriate organizational incentives, technical support, the structure of the supervision system, the macroscopic, holistic, forward-looking of the audit system will be improved. Therefore, the rectification of the findings and the announcement of the results will be continuously promoted, the audit technology will be innovated, and the cooperation system of the audit system will be constructed. This will promote the improvement of the interactive between internal and external government, as well as the effectiveness of the governance.

#### 4.2 From micro level

(1) Improve audit effectiveness

Two changes should be made in order to reform of the audit work from the requirements to improve the audit performance. On the one hand, transformations should be conducted from supervision of funds to supervise the power and responsibility, from the discovery of the problem to promote the improvement of the system, from the micro units or activities to the whole industry and the system of the macro-activities, from the specific economic behavior of the review to the abstract economic and political assessment, and from post audit to both post and real-time audit. On the other hand, the factors in the system should also be adjusted, consisting of re-divided the type of audit work, clear the different types of business audit objectives, strength the project selection and on-site work constraints, improve the degree of integration of resources. Therefore, through the innovation of audit methods and improvement of the audit system, auditors can promptly detect, correct and prevent the operation of the illegal acts of power, so as to strengthen discipline constraints, to achieve more effective control of power operation and supervision.

(2) Expand audit oversight coverage

Achieving full coverage of audit supervision is an innovation and breakthrough for the audit technical method, which can effectively break the constraints of the segmentation among audit sectors and improve the professional level of the auditors. Thus, to achieve full coverage of the audit supervision across the country should strengthen the integration of audit resources, innovate audit techniques and methods to build big data audit pattern. For example, in order to improve the audit capacity, quality and efficiency, national audit data system and digital audit platform can be built to increase data comparison and correlation analysis from financial data, cross-industry data, and cross-domain data.

(3) Establish a resource sharing mechanism

In the context of public management, through legal forms and procedures to achieve real-time



audit supervision, the establishment of departmental coordination mechanism can achieve information resources sharing between the various government departments, and release the audit results to the public or to a specific citizen or organization. Effective public power supervision of the prerequisites may then be achieved. Therefore, as a concrete way to realize the construction of government information, real-time audit model can also promote the coordinated development among government departments.

With the advent of big data era, Chinese government has taken information technology as an important task to promote national governance. E-government has become an indispensable and effective way to enhance the ability of governing and building a service-oriented government (McAfee A., Brynjolfsson E., Davenport T. H.<sup>[9]</sup>; Chen P.<sup>[10]</sup>). Hence, in the process of audit reform, audit sectors should take the initiative to adapt to the new changes in the audit environment, rely on national audit data to establish e-government information resource sharing mechanism, strength the audit object information resources integration efforts to actively explore multi-professional integration, and multi-perspective analysis of the organization, in order to promote audit results using in a wider range of applications.

## 5 Conclusions

The “real-time audit network” constructed by Tianjin Audit Bureau creates a new pattern of full coverage of audit supervision. It not only promotes the application of e-government, but also forms a “big data +” wisdom audit mode. Furthermore, this reform provides strong support for the audit system to carry out the audit work, and plays a demonstration role in realizing government modernization by achieving the sharing of data resource, procedure and framework, and audit findings. Therefore, in order to reform the audit system in the big data era, institutional guarantee can be provided from macro perspective to promote the construction of audit informatization. Moreover, reconstructing audit system from micro perspective can achieve data resource interactivity and sharing between different regions and different public sectors, which improves the efficiency of audit work, and ultimately to achieve full coverage of the audit.

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## Integration and Collaboration: Realizing the Change of Food Safety Supervision Mode

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**Abstract** At present, the food safety problems emerge in an endless stream, the traditional food safety supervision mode and the concept cannot cope with the complex food safety problems any longer. The government has carried out a comprehensive layout of the administrative system reform. As an important aspect of the reform, food safety supervision is directly related to the people's livelihood. This paper expounds the current situation of food safety supervision mode from the perspective of holistic governance and collaborative governance, sum up the various challenges faced by the supervision model, changing from the single supervision subject to the diversification of the supervision subjects, turns the government regulation to the trans-boundary cooperation combining society and the government, pays full attention to the equality, dependence, cooperation, integration and coordination as well as various resources and strength of the parties participate in, thus to achieve the changes in the inherent logic and mode of food safety supervision.

**Key words** Integration, Coordination, Food safety, Supervision

### 1 Present situation of food safety supervision system in China

On February 28th, 2009, Law of Food Safety was promulgated in China to clarify the sectional supervision mode for food safety management, which put forward new requirements for ensuring China's food safety from the legal level. Undoubtedly, China still adopts sectional supervision mode of the multidivisional coordination under the guidance of the government, supplemented by the variety regulation. The paper mainly analyzes the present situation of food safety supervision system of China from the aspect of regulatory agencies and responsibilities, supervisory powers and operation mechanism.

First, regulators and responsibilities. At the central level, food safety regulatory agencies includes the State Food and Drug Administration, Ministry of Health, General Administration of Quality Supervision, Ministry of Agriculture, State Administration for Industry and Ministry of Commerce. The State Food and Drug Administration is mainly responsible for supervision and management of food, medicines, health products and cosmetics, the investigation of major food and drug safety accidents. At the same time, it also drafts related laws and regulations to food, medicines, health products, cosmetics, and has the right to approve health products. Ministry of Health is divided into Department of Health Law and Supervision, Chinese Center for Disease Control and Prevention. Ministry of Health is responsible for related policies to food hygiene and comprehensive management and coordination, including dealing with major food safety accidents, leading the formulation of related laws and regulations to food safety, inspecting and guiding local food safety supervision work. The General Administration of Quality Supervision with the full name of the State General Administration of Quality Supervision and Inspection and Quarantine is responsible for food safety of production, processing, import and export, supervision and management of food from the food safety certification and standardized management. The agricultural sector, one of the important departments of food safety supervision, is mainly responsible for food safety of planting and breeding process, involving the control of the use of pesticides and fertilizers, animal inspection and quarantine, and the control and management from production base to market. The State Administration for Industry and Commerce and the Ministry of Commerce are mainly related to the management of the food circulation and trade. Under the unified leadership of the central authorities, there are food safety regulatory agencies in province, city or county in charge of food safety supervision in the administrative area, accepting the guidance from central regulatory agency, and reporting to the government at the same level. Exceptionally, the local Entry-Exit Animal and Plant Inspection Bureau

doesn't have to report to the local government, but directly accepts the unified leadership of the General Administration of Quality Supervision and is supervised by it.

Second, the supervision power. Independence, impartiality, authority and professionalism are basic principles of administrative power allocation of the modern government (Wang Yao-zhong, 2005<sup>[1]</sup>). Under the guidance of the principle, China's food safety regulatory power allocation is divided into horizontal and vertical power allocation. The food safety regulatory agencies of the central level include the State Food and Drug Supervision, Ministry of Health, General Administration of Quality Supervision, Ministry of Agriculture, State Administration for Industry and Commerce and Ministry of Commerce, which is the horizontal allocation of food safety supervision power. The horizontal allocation grants food safety regulatory agencies the power and responsibility of a comprehensive coordination of food safety, food safety risk assessment, standards formulation for food safety, food safety information disclosure, drafting qualification of food inspection agency and inspection norms, dealing with major food safety accidents. The longitudinal allocation of food safety supervision power refers to vertical distribution of central and local food safety supervision power. The vertical power allocation is divided into three types, including vertical integration management below the level of province, classification management and integrated management.

Third, the operation mechanism. Food Safety Law of People's Republic of China defines the food safety management system, makes the relevant regulations and requirements for the coordination and cooperation between various departments, and covers the operation mechanism of food safety supervision in accordance with the basic conditions of China. First of all, the Food Safety Committee of the State Council exerts influence on comprehensive coordination of food safety, takes the lead to organize investigation of major food safety accidents and unified release of major food safety information. Secondly, all levels of food safety regulatory agencies above the level of county work within the administrative area under the unified organization and coordination of the government. Thirdly, relevant departments to food safety supervision above the county level, such as, health administration, agriculture administration, quality supervision, administration for industry and commerce, department of food and drug supervision and management should strengthen communication and close coordination, and exercise the powers and responsibilities with clear division of labor, in order to avoid unclear responsibility in parallel regulators and improper supervision.

## **2 Challenges faced by the traditional food safety supervision model**

The lack of communication and coordination between departments with departmental interests as the goal directly exacerbates the gap and conflict between department and leads to problems of food safety supervision, which is a manifestation of government failure, causing serious waste of resources, reducing administrative efficiency. In recent years, the frequent occurrence of China's food safety accidents and questions exposed in the process of food safety regulation are worth pondering.

### **2.1 Unclear regulatory responsibilities**

It is defined in Law of Food Safety of China that China's food safety supervision adopts the model of multidivisional joint supervision with sectional supervision at the core, supplemented by variety supervision. This kind of supervision model clearly divides responsibility and authority of the food safety supervision in theory, and a monitoring network in all aspects is formed with the cooperation of departments, but in fact, the implementation process is not ideal. First of all, there are too many sectors involved in food safety supervision. At least 8 departments at the central level are involved in food safety regulatory, and departments set up agencies in the local government. Therefore, the number of food safety regulatory agencies are so huge that functions and responsibilities of departments can't be distinguished from each other, resulting in the phenomenon of "free rider" and "collective action dilemma" of multiple supervision. In addition, according to the principle of one department for one link, the sectional supervision model is adopted, supplemented by the variety supervision. In brief, food production, processing, distribution, trading and other links are supervised by different regulatory bodies, however, food safety accidents can not appear alone be in a link for every links are interconnected. Thus, it is difficult for sectional supervision to find the regulatory agency for every safety accident, accordingly. What's more, unclear division of responsibilities for

departments may lead to blank division and absent supervision. It is possible that a number of departments bear the same regulatory work at the same time, which will make law enforcement harder.

### **2.2 Decentralized regulatory objectives**

Food safety supervision is the supervision and management of state departments for food from farm to table, so as to ensure the safety of people's lives and health. In the process of specific law enforcement, due to dislocated understanding of food safety supervision departments to the regulatory objectives and fragmentation of regulatory concept, supervision process will lack of science, and the result of regulation is lacking in rationality. First, one-sided pursuit of GDPA driven by the "political tournament". In the face of pressure from performance appraisal, every regulatory department often focuses on their own interests without mutual cooperation and communication, impossible to achieve resource sharing, resulting in poor efficiency and effectiveness of supervision; Second, loss of the understanding for public administrative responsibility. In the regulatory process, power rent-seeking is produced, which results from the serious failure of government supervision(Peng Chao,2004<sup>[2]</sup>). Due to insufficient understanding of the importance of food safety supervision and weak consciousness on the realization of public interests and commitment to public responsibility, in the process of investigation food safety accidents, large limits of discretion, lax enforcement of law, and even the acts of failing to punish lawbreakers occur. The punishment isn't often implemented according to the standard, due to nepotism, local protectionism and so on. The cost of breaking law is too low to stop it by punishment.

### **2.3 Low degree of integration of supervision**

Food safety supervision includes three stages, including pre supervision, supervision, post supervision, which is a integration of a full range of dynamic supervision system. The survey shows that the integration degree of China's food safety supervision is low at present, the regulatory system is not complete, three links of supervision are independent of each other, not in close contact. Meantime, the main concentration lies in the post processing, however, early warning of food safety happens to be the key to food safety supervision, and the lack of early warning mechanism has become the bottleneck of China's food safety supervision. Although some food safety supervision agencies have established risk management system of food safety, and started to do risk prediction and assessment, but due to the lack of the professional team and excellent technical support, the level and ability of predicting and evaluating are limited. In addition, some regulators take chances not to develop contingency plans, or to only focus on plan for major accident. The scale of the accident doesn't matter, more importantly, food safety is closely related to the life and health of the masses. Only after doing all kinds of the accident plans can we quickly deal with the accident.

### **2.4 The weak social strength of supervision**

Law of Food Safety of China clearly defines to strengthen self-discipline, to encourage social organizations and ordinary people to participate in food safety supervision. However, social participation has become fragmented in the process of specific food safety supervision, and enterprises, non-profit organizations, citizens are not really involved in food safety supervision, whose role is not played obviously in it. First of all, participation mechanism is not perfect. The distribution of power system decides that the government plays a dominant role in the regulation of food safety and has the legal power to supervise food safety, but the participation of social forces is empty of specific legal norms. Secondly, industry self-regulation is not high. The organization's internal self-discipline is the fundamental guarantee of maintaining market order(Chen Ji-xiu and Liu Zhi-yong,2004<sup>[3]</sup>). In order to protect their own interests, organizations only pursue economic profits and don't actually take part in the food safety supervision. What's more, associations don't have effective cooperation mechanism with related organizations, ultimately they don't play their role. Finally, the news media's participation in the food safety supervision is not smooth. The news media is caught in a lot of obstacles in the process of actual investigation, and there are serious problems in coordination and cooperation with food safety supervision departments, furthermore, it is difficult for the media to report truthfully and effectively under the influence of in the local protectionism.

### **3 Integration and synergy: To build a new model for food safety supervision**

#### **3.1 Guarantee regulatory bodies to participate equally**

##### **3.1.1 Main bodies**

Our government plays a monopoly role in food safety supervision for a long time, and carries out unified supervision, but the role of social forces in the supervision is not obvious. With the development of democratic politics and the need to express the diversity of social interests, the involvement of social forces in the food safety supervision appears to be necessary. Under the conditions of coexistence of pluralistic society governance power, it is no longer about whether the government intervene less or doesn't take the place of society to act, but how the government to cooperate with multiple-governance subjects (Zhang Kang-zhi, 2014<sup>[4]</sup>). Governance theory advocates the "cross-border" cooperation of government, namely, cooperation between the government, the private sector and non-profit organization, in order to establish a complete governance system of government and enterprise and society. The government as the main regulatory authority plays a leading role in the food safety supervision, and should actively guide the growth of social forces to involve the private sector, non-profit organizations and citizens into the food safety supervision system, to establish social power supervision responsibilities within the framework of democratic procedures and the legal system, and to establish a diversified institutional environment of social supervision.

##### **3.1.2 Equality**

The premise of equality of regulatory body is to tolerant and respect, and to respect the existence and participation of social diversified power in the food safety supervision. First of all, equality in thoughts. As an important subject of food safety supervision, the government has the authority, but the private sector, non-profit organizations, citizens should have equal power in food safety supervision, government departments can not maintain "high profile" itself so that neglects the role and status of of social supervision body in food safety supervision. Secondly, the equality of power. Equality of power is not equal to the power equalization. Social forces as the main food safety supervision body should have the right to speak in the regulation of food safety, and have the legal authority and responsibility, which requires the government to transfer part of power of the food safety supervision to social supervision subject. The governance theory corrects defects caused by excessive division of power within government departments. It concentrates the power within the government and closes the power gap, then allocates the power to non governmental organizations, so as to alleviate the problem of fragmentation of power decentralization. Although power configuration between government and society supervision body is the process of decentralization, it strengthens the integration and coordination between decentralized power, and intensifies the authority of the government.

##### **3.1.3 The financial transfer payment**

It is set up to compensate for insufficiency of national finance to support the power, thus, the presence of financial transfer payment and specific funds are based on the relationship between financial power and authority of office (Chen Yun-liang and He Cong-cong, 2014<sup>[5]</sup>). Currently, China has strengthened the financial support in the food safety supervision, and allocated special funds and special transfer payment funds to related department of supervision. Local government has also increased funds in food safety supervision. With the transition from the single regulation of government to pluralistic society supervision, funds of financial transfer payment can't only circulate and distribute in government supervision departments, at the same time, public finances of the social organization should be included into the budget (Shuai Rui-bing, 2014<sup>[6]</sup>), and allocates part of it to main body of social supervision, in order to protect the equality of the main participants, improve their enthusiasm and efficiency in the supervision.

#### **3.2 Establish the interdependence of regulatory bodies**

The purpose of governance is to realize public interests, and the realization of public interest depends on coordination between governance subjects. Adam Smith put forward the concept of "economic man" that people are pursuit of maximizing their own interests rationally, and the governance subject is not an exception. Behind it are various interest groups. Because goal orientation of the main body is not the same, interest conflict and confrontation happen inevitably. The key to internalization of the external effect brought by conflicts lies in the establishment of mutual

dependence between governance subjects, making them not harm the public interests with the orientation of self-interests. Interdependence among government, non-profit organizations and private sectors should be established in food safety supervision to realize the protection of life and health security of citizens. As citizens transfer management authority to the government, government departments should be orientated to public interests, break departmental selfishness, and earnestly fulfill their duties in food safety supervision, otherwise, the government's credibility will be threatened, accompanied by the loss of citizen's trust and recognition. The non-profit organization is between the government and the private sector, exists as the volunteer group, civil association and social organization, and represents interests of citizens. Non-profit organizations coordinate the interests of all parties in the food safety supervision, set up communication platform for the government and the private sector, and have professionalism and authority in the food safety inspection and quarantine, assessment and so on. The private sector takes the profit as the main goal, and pursue profit maximize the pursue efficiency in faithful operation. Enterprises and individuals to produce food and provide service should actively take social responsibility of food safety supervision. Economic benefit is the premise of the operation for enterprises, but social benefit directly decides the fate of the enterprise, because it cannot do without the support of the government policy and consumers.

### **3.3 Realize the cross-border cooperation between regulatory bodies**

The food safety supervision needs to establish a cooperation mechanism, in order to realize cross-border cooperation between government departments, non-profit organizations and private sectors with risk sharing, benefit sharing, enough respect and trust for the regulatory body. Information communication, cooperation motivation and conflict resolution are essential to safeguard cross-border cooperation.

#### **3.3.1 The communication of information**

The government effectively and timely shares and communicates with social supervision subjects about information of food safety supervision, conducive to obtain understanding and support of regulatory participants, integrate all forces and coordinate supervision. The food safety risk is of social construction, that's to say, the food safety risk have "social amplification effect"(Zhang Jin-rong, Liu Yan, and Zhang Wen-xia, 2013<sup>[7]</sup>). Government departments are supposed to break the monopoly and control of information, to unblock information dissemination channels, to establish food safety crisis information release platform, and perfect information sharing mechanism for each aspect of supervision. Under the cross-border cooperation mechanism, the supervision should have timely communication and coordination with each other about problems in food safety supervision, and share the analysis and treatment program of food safety accidents, in order to seek the most reasonable way.

#### **3.3.2 Cooperation motivation**

The motivation mechanism is the basis to establish a long-term effective cooperation. The motivation is actually to induce. It is divided into positive motivation and negative motivation. The subject's behavior is stimulated through incentive measures and punishments to promote the formation of equilibrium relationship. The government, private sector and non-profit organization need the motivation mechanism as a guarantee in the cross-border cooperation of food safety supervision. This kind of cooperation motivation demonstrates the consistency of targets, and pays attention to the effectiveness and operability of motivation mechanism(Liu Gang and Guo Li, 2013<sup>[8]</sup>). Government departments should assess the supervision target, and carry out strict accountability system for offside, dislocation and vacancy in the supervision. As long as government behavior is restricted and supervised, government departments will take the initiative to avoid the negative effect and implement supervision. The industrial association represents private interests in food safety supervision, implements negative list without favoritism, blacklists enterprises for illegal production and marketing and reveals to the public. Meanwhile, it approves legal enterprises in the industry, and intensifies publicity for these qualified enterprises. Non profit organizations participate in the food safety supervision, express interest demands of citizens, encourage to safeguard legitimate rights, take the initiative to expose enterprises and traders that have problems of food safety, and put forward suggestions for the improvement of food safety supervision.

### 3.3.3 Conflict resolution

Contradiction exists at any time, but not all the contradictions will turn into conflict. When there are contradictions on interests, goals and actions, and contradictions are intensified in a form of mutual confrontation, the conflict happens. The conflict is not avoidable, so when it occurs, what need to do at first is not to avoid but face the conflict. Multiple regulatory bodies in food safety supervision mean diverse interest groups. Once the conflict about interest occurs, it needs reconciling to ensure the existence of partnership between regulatory bodies. Firstly, the power and responsibility of the regulatory body are defined. The power and responsibility are granted in line with the main functions of the regulatory body. Restraints for function, responsibility and power are clarified by the law to ensure that the regulatory body correctly exercises power in the scope of function, avoiding the conflict caused by the overlapping of power. Secondly, reasonable interest demands of the private sector needs attentions. The private sector and the public sector are fundamentally different because the interests they pursue are different. It is impossible for the private sector to put public interests at the first place. As long as the enterprise does not damage public interests in the food safety supervision, the government should pay attention to its reasonable interest demands, and guide it to actively help achieve public goals.

## 4 Conclusions

Resource integration and cross-border cooperation will be a new idea of food safety supervision. The improvement of food safety supervision depends on the equality of the participation of the main supervisory body, the interdependence of the supervisory body and the cross-border cooperation of the supervisory subject. To establish the equal, cooperative and dependent relationship between multi subject of food safety supervision, to form the regulatory force, and to take the cross-border cooperation in supervision as the focus of the reform, which will achieve the goal of seamless supervision of food safety.

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## The Hot Spot, Current Situation and Trend of Crisis Communication in China \*

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**Abstract** In this paper, 198 journal articles on Crisis Communication research in Chinese core journals from 2000 to 2016 were used as research objects. SATI software was used to transform and process data of periodical literature's bibliography, and then to analyze and summarize it. The study found that there are four kinds of themes in China's Crisis Communication research, they are the research on communication activities and mechanisms from the perspective of Communication, research on coping strategies of government and organization from the perspective of Management, research on the function and meaning of the Internet in Crisis Communication from the perspective of technology and concern on time sequence of Crisis Communication. China's Crisis Communication research began with "SARS" incident in 2003. Social issues involved in Crisis Communication field are in a wide range. The case study is the leading research method in the field of Crisis Communication in our country, in which there are less empirical research and theoretical research. More research has been conducted on Communication, Management and Informatics than Behavior and Histology. Research on strategies in Crisis Communication has been conducted mainly of government or social organizations instead of enterprises. Based on the analysis of the research status and research hotspots in the field of Crisis Communication, this paper aims to clarify the internal interaction in and basic characteristics of Crisis Communication research field, and provide relevant research basis for China's Crisis Communication research on the basis of foreign Crisis Communication research.

**Key words** Crisis Communication, Research status, Bibliometrics

### 1 Introduction

With the rapid development of China, there appear more and more social conflicts in forms of sudden events or public events. In the face of crisis, the development of the event itself, the spread of crisis information and the management of crisis events are the focus of Crisis Communication research. Ulrich Rosenthal defines the crisis as event which is a serious threat to the basic values and behavioral norms of a social system and should be dealt with critical decisions in the case of time pressure and high uncertainty in his book *COPING WITH CRISIS-The Management of Disasters, Riots and Terrorism* (Rosenthal U and Charles M T and Hart P T, 1989<sup>[1]</sup>). Some scholars have analyzed the origin of the Crisis Communication, and considered that the crisis group under 1947 National Security Council is the beginning of the Crisis Communication research (Lai Xiang-wu and Wang Peng-jin, 2013<sup>[2]</sup>). Compared with foreign research, the earliest journals of Chinese Crisis Communication research appeared after the "SARS" incident. With the development of research, China's Crisis Communication research papers have increased day by day. This paper uses related journals in domestic journals database as the source of literature data, and analyses by combination of quantitative analysis and qualitative analysis the research status of domestic Crisis Communication and internal relation among research fields with SATI and other statistical analysis software.

### 2 Definition of connotation

With regard to Crisis Communication, Kathleen Feambanks the United States considers that it is the information communication of crisis events between organization (governments or enterprises, etc.)

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and the public (Feam-Banks K, 1996<sup>[3]</sup>). From the perspective of public relations, Sturges believes that Crisis Communication should be mainly about communication strategy which affects the public's impression and perception of the organization (Sturges D L, 1994<sup>[4]</sup>). Domestic scholars believe that the research object of Crisis Communication is the social information system and its various parts including structure, function, process and interaction. Damage to human society brought by crisis can be reduced if we can explore, find a scientific method to overcome communication barriers in crisis field and find a mechanism in which social information system circulates virtuously (Lai Xiang-wu and Wang Peng-jin, 2013<sup>[5]</sup>). Some scholars have retrospect the study of Crisis Communication in the western academic circles, and thought that there are three paradigms including "management", "rhetoric" and "criticism" in the "Western paradigm" (Shi An-bin, 2008<sup>[6]</sup>). Some scholars have summarized the history of China's Crisis Communication research, considering that although "Crisis Communication" is paid more attention by the government and the community, but there exists many problems such as imbalanced Crisis Communication researches in different kind, various stages of crisis period and improper role of media. They also considered that the reason why the media doesn't act improper in Crisis Communication is that government doesn't deal with the relationship with media (Wu Yan-jun and Xia Chang-yong, 2010<sup>[7]</sup>). This paper argues that there is a link between Crisis Communication and Risk Communication, but in view of the difference between their meanings, this article focuses only on the relevant literature of Crisis Communication, paying more attention to a certain kind of Crisis Communication which tense is the present tense and which is mainly about the exchange and communication of crisis information (Zeng Lai-ha, 2011<sup>[8]</sup>). Therefore, in the information retrieval, we can only regard "crisis information" as the core vocabulary rather than "Risk Communication".

### 3 Research method and data sources

This paper uses the method of bibliometrics to analyze the basic situation of Crisis Communication research in China. The existing statistical analysis software includes Citespace, etc., which can carry out data analysis on and make visual presentation come true of Web of Science and other international literature database. This paper chooses the SATI literature analysis software developed by Liu Qi-chao etc., which can not only pre-process keywords, subject terms, related information of literature and text of bibliography data, but also process literature in domestic and foreign databases (Liu Qi-yuan and Ye Ying, 2012<sup>[9]</sup>). In addition, this paper also uses other software to visualize the pre-processed literature data.

The research data are derived from CNKI. Core journals from 2000 to 2016 was retrieved (retrieval time was March 5, 2017) with "Crisis Communication" as keywords. Secondly, the retrieved literature was screened. We choose 198 papers on Crisis Communication research after excluding the literature that is not relevant to the Crisis Communication research. Finally, the retrieved documents are saved in the End Note format, which includes topics, authors, abstracts, keywords, and so on.

### 4 Data statistics

#### 4.1 Word frequency statistics of keywords

Keywords analysis and statistics are made on 198 articles data with SATI3.2 software, and 757 original keywords are obtained. We classify and merge the original keywords and their similar words, and regard the words which frequency is greater than or equal to 5 times as high-frequency keywords, then we find 30 high-frequency keywords. We put in order keywords according to their frequency.

**Table 1 High-frequency keywords in crisis communication research**

Keywords	Frequency	Keywords	Frequency	Keywords	Frequency
Crisis communication	143	Public crisis events	8	Social media	6
Crisis communication management	20	Public crisis	8	Public sentiment	6
Crisis information	17	First time	7	Risk society	6
Crisis management	14	Communication subject	7	Interpersonal communication	6

Keywords	Frequency	Keywords	Frequency	Keywords	Frequency
Agenda setting	12	Press release	7	People's Daily Online	5
Opinion leader	11	Communication activities	7	Communication mechanism	5
Communication research	10	Government	6	Catastrophic events	5
New media	9	Communication channels	6	Mass media	5
Communication strategy	8	Crisis public relations	6	Communication features	5
Communication process	8	Press spokesman	6	New media communication	5

#### 4.2 Clustering analysis and multidimensional scaling of entries

High-frequency keywords reflect the focus and hotspot of crisis communication research to a great degree, and sometimes reflect the theory and method of research. According to the high frequency keywords, the covariance matrix and multidimensional scaling are constructed. The clustering analysis and multidimensional scale analysis are carried out by SPSS, which can grasp the direction and domain direction and position of crisis communication research field. Clustering analysis is a process of aggregating related topics with high relevance through clustering, which can help researchers to better grasp the structure of research topics in a research field or subject field. Through the clustering analysis of the entries and its multidimensional scaling analysis, the paper summarizes the four categories of topics in crisis communication research.

**Table 2 Four categories of topics in crisis communication research**

Category	Keywords
1	Government, risk society, catastrophic events, crisis management, crisis public relations, crisis communication management, crisis communication information, communication strategy
2	New media, social media, public crisis, new media communication, opinion leaders
3	First time, agenda setting, press spokesman, press release, public sentiment
4	Communication research, communication subject, communication activities, communication channels, communication features, interpersonal communication, mass media

In terms of the coordination and consistency of clustering analysis and multidimensional scaling analysis, China's crisis communication research is divided into four directions and themes. (1) Information communication activities of crisis communication are paid more attention, which basically follow the "5W" elements of Lasswell including communicator, communication content, communication channels, recipients and communication effect. (2) Governments' response is focused on including its communication strategy in face of crisis. (3) Information Timeliness of crisis communication is paid more attention from the perspective of tense. (4) Information communication of new media and social media in crisis events are paid more attention with Internet as a entry point.

#### 4.3 Research theory of crisis communication

Theoretical research is a summary of the law in the field of research. The research method is the path of exploring and solving the problems in a research field. The research method can reflect the research level in the research field and open the way for further development of the research field. Through analysis, attributes and methods of China's crisis communication research are shown in Table 3.

Application-oriented strategy research plays a leading role in crisis communication. There are many theoretical research on crisis communication, however, most of the research on crisis communication theory is focused on the use of certain communication theory or management theory to verify and discuss, lacking of construction and innovation of crisis communication theory. What's more, relatively perfect and complete local endogenous crisis communication theory is rare, and the qualitative research is main research method instead of quantitative research and experimental research. And as for the proposition and construction of foreign crisis communication theories, Wu Guo-hua has

analyzed in detail (Hong Jun-hao, 2014<sup>[10]</sup>), and classified them. See Table 4.

**Table 3 Attributes and methods of crisis communication research**

		Number	Percentage
Research attributes	Theoretical research of crisis communication	82	41%
	Applied research of crisis communication	107	54%
	The others	9	5%
Research methods	Quantitative research	32	16%
	Qualitative research	118	61%
	The others	48	23%

**Table 4 Crisis communication theory classification**

Microscopic Theory	For stage before outbreak of crisis	Regulation management theory
	For stage in outbreak of crisis	Enterprise Defense Theory Image Renovation Theory Situation Crisis Communication Theory Integration of Crisis Drawing Model
	For stage after outbreak of crisis	New Discourse Theory
Mesoscopic Theory		Fink Four-stage Theory Sturges Five-stage Theory Burnett Integration of Crisis Management
Macroscopic Theory		Complicated Crisis Theory Excellent Public Relations Theory Contingency Theory

The theory of foreign crisis communication focused on the combination of endogenous factors of the organization and its external environment to explore the causes of the crisis, and thus adjust the internal operation and internal communication of organization and its external image and external communication. We make use of the organization of microscopic theory and order theory of mesoscopic theory to guide crisis communication Strategy Practice, and then to focus on internal and external crisis factors in macroscopic theory to carry out efficiency evaluation to transform the organization. Foreign crisis communication theory system is relatively perfect. China's crisis communication research still needs to be strengthened in the introduction, use, reference and localization of foreign research theory.

## 5 The hotspot and current situation of crisis communication research

Crisis Communication is a cross-disciplinary research field. In foreign countries, the Crisis Communication research focuses on using public relations and organizational behavior to solve crisis events from the perspective of Management, so as to improve the organization's image. We focus on the government, enterprises and organizations. Although the search period is limited to 2000 to 2016, but except for relevant papers about economic crisis communication, we find that the earliest literature appears in 2003 to 2004 on the social life field which is about the "SARS" incident in the reflection of government behavior. It can be seen that the research on crisis communication in our country started with the research of government's information communication in crisis. Since then, the research papers on crisis communication have been enriched and the social problems involved have become more and more extensive. There are research on government's communication and management in sudden crisis, research on crisis information communication of natural disasters such as earthquakes and other major events and development of relevant information system, research on crisis information management of group events, research on public opinion communication in network hot events, and research on media coverage of the crisis and media framework and so on.

### 5.1 The hot spot of crisis communication research

Through analysis, China's crisis communication research presents four themes and from the perspective of communication, the research focuses on communication activities of crisis information,

such as “Information Control and Publicity in Crisis Information—Based on Heilongjiang TV’s Report on the Two “Songhua River Water Pollution Incidents” and “Changes of China’s Media System Promoted by Crisis Communication—See Internal Connection between Crisis Events and Media System Innovation in Virtue of Wenchuan Earthquake”. What’s more, China’s Crisis Communication research is based on the “5W” elements, which corresponds to control research on Crisis Communication mainly about government behavior and management. These four themes include communication skills and content of crisis information, the role of media and its effect on Crisis Communication, audience acceptance of crisis information and group behavior and the role of information communication in crisis. From the perspective of management, public relations are used to explore the government behavior in Crisis Communication, such as “Government, Media and the Public in Crisis Communication—Concurrently Discussing Sino-US Response Differences in Sudden Events”, “Attempt of Government Crisis Communication in China’s localization Based on Wukan Incident” and “Government’s Ability to Guide Public Opinion in Crisis Communication” and so on. Also through political relations, public management and other theory and case summary, we put forward the government’s correspondence and strategy in Crisis Communication. Through analysis, we focus on communication of crisis information from the perspective of tense, and mainly discuss timely and real-time management of government and media in crisis information communication such as “‘Agenda Setting’ Model of Crisis Communication and Response” and “Press Spokesman System in Crisis Communication”. Government, organization or business can take the initiative through grasping the timing of crisis, so as to avoid the intensification of crisis. Starting with the Internet, the role of new media and social media in crisis information communication are paid more attention. Internet information communication has some kind of “empowerment”, that is, to change not only people’s way of life, but also people’s thinking and treatment on crisis or major events, which will possibly change the process and result of crisis.

There are two reasons for the emergence of above-mentioned research themes in Crisis Communication field. Firstly, with the rapid development of China’s economy, social development disorders and increased social contradictions increase the production safety emergencies and group events, adding the number of crisis events. Secondly, with the development of communication technology, the Internet has greatly promoted the synchronicity and cross-regionalization of information communication, and the high interaction of the Internet makes the information communication of crisis events become more participative. Compared with the traditional media, Internet possesses decentralized flat information communication, the reason of which is that network empowerment weakens the central discourse of traditional media and complicated information communication activity appears in crisis communication.

## **5.2 The problem of crisis communication**

The deepening and expansion of Crisis Communication research is accompanied by the development of crisis events over and over again. Throughout the research methods of Crisis Communication, 55 papers in selected journals of this paper are based on case studies. On the one hand, historical context and the conceptual connotation of crisis research are explored longitudinally to find the theoretical basis of crisis information communication and management, such as situation crisis communication, agenda setting theory, game theory and so on. On the one hand, social factors in connection with cases are analyzed horizontally to promote the development of corresponding strategy. Research method is a way in which questions raised in a certain research field can be explored and solved. Research methods can not only reflect the level of research field, but also open up the road for the further development of research field. Case studies in Crisis Communication field can fully sum up the experience of the case, but empirical research in the research method still needs to be strengthened.

With the development of Chinese society and the prosperity of the Internet age, classical Crisis Communication, which is mainly about crisis classification and strategy, cannot fully explain the information communication activities of crisis events, because the media plays a fundamental role in negotiation and crisis dynamic detection in society (Utz S, Schultz F, Glocka S, 2013<sup>[11]</sup>). In China, due to the media system, the traditional media plays a subtle “neutralizer” role in Crisis Communication, mainly in its information “upload release”. Views and attitudes of the traditional media in Crisis

Communication tend to reflect the “political” discourse, and in the event of crisis, there is a possibility that this metaphor cannot monitor the government behavior, such as Qingdao 11.22 bombings event, in which “collective silence” of local media is pushed to the forefront of public opinion. In the “from the Traditional ‘Information Offense and Defense’ to New Model of ‘Crisis Communication—Analysis on Media Performance in Qingdao 11.22 Bombings Event’ ”, Wei Yong-zheng points out that the traditional media should change the concept in response to communication activity of crisis information, and avoid not being defeated in Internet age by actively grasping the initiative of the crisis information communication rather than using the method of attack and defense.

As for the role of the media in crisis communication, researches at home and abroad both turn their attention to the social network on line, as it has already immersed in many people’s life. However, it is through the social network that the crisis communication and the spreading of the critical information find their new channel. Schultz points out that the content of the crisis information on the social net work is considered to be the ideal access to observe the public’s reaction towards crisis situation. The public can quickly and directly obtain relevant information in social media and participate in discussions. While some researches pose a conservative attitude towards the social media’s role in crisis communication, OECD for example, once reported that in the face of the re-impact of globalization, even if the use of social media as a crisis management tool has been identified, the road ahead is still unclear(Wendling C, Radisch J, Jacobzone S, 2013<sup>[12]</sup>). At present, some foreign scholars put forward the “network crisis transmission model” through online experiments on the information spreading of the Fukushima nuclear crisis, they indicate that the Internet era need more complex mode of crisis transmission. China’s network crisis communication research focus on network hot events and public opinion of social events on the network, for instance, *The Function of Governmental Microblogging in Crisis Communication*, *Digital Memory Curse in Crisis Communication—Taking Food Safety Report as an Example*, *Discourse Analysis Model of Social Media Crisis Communication—Taking APEC Blue Microblogging as an Example* and so on. These topics of crisis communication researches only follow the context of hot events and trends, therefore the theoretical depth and the dimension of the analysis need to be strengthened.

## 6 Conclusions

China’s crisis communication research started later than the West, but the field of research has been trying to rooted in the “localization”. China’s social development imbalance leads to more social contradictions, and because of China’s political, economic, cultural and social life uniqueness, the Western crisis communication research experience can not fully meet the conditions of China. China’s crisis communication research should pay more attention to the role of social media in the dissemination of crisis information, use quantitative analysis, data analysis and comparative analysis and other methods to explore the crisis spreading form and dissemination model in the network era. The theoretical basis of crisis transmission is still not solid enough, therefore in-depth excavation of the localization of the crisis communication theory and the use of multidisciplinary and interdisciplinary research in reference to the foreign theory is necessary. It also requires emphasis on the empirical study of the crisis from the perspective of communication research, media research, content research, audience research and effect research. Attention needs to be paid to the Chinese discourse power in crisis spreading, as in the pace of globalization, the crisis spreads from a country to international organizations, countries and so on, the information dissemination may quickly “spread” across the world, thus resulting the growing difficulty of crisis management. In a word, it is very necessary to present and disseminate the experience of crisis transmission and management in China.

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## Research on Patterns of Energy Diversification in China \*

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**Abstract** In recent years, with the improvement of social and economic development and the progress of energy exploitation and utilization technology, the energy structure has also changed accordingly. Due to the diversity of fundamental situation among provinces in China, there are visibly regional differences in economic development level, resource endowments, and technological development level. For this reason, the energy diversification shows a big diversity on development model. This paper, based on 1991-2013 energy consumption structure data of 30 provinces and cities, applying cluster analysis method of panel data, classifies and summarizes ten typical types of energy diversification patterns.

**Key words** Energy structure, Energy diversification pattern, Cluster analysis

### 1 Introduction

China is a country covering vast territory; districts with different geography features, social economic and cultural environment shall form their unique pattern of energy diversification. In the increasingly scarce energy resources and the threat of human living environment today, the theoretical and practical value of energy diversification is emphasized by scholars and policy makers. Energy diversification is an important way to ensure energy supply security and sustainable economic development. Energy diversification reduces the reliance on transition and offers multiple choices. On the one hand, energy diversification could reduce the risk of energy supply disruption; on the other hand, it ensures that the use of energy will not cause irreversible impact on the environment. The concept of diversification was raised earlier in economics, and the significance of energy diversification has attained widely attention in recent years. As with biodiversity in ecosystems, energy diversity plays a pivotal role in ensuring the healthy functioning of the economic system. The system of single energy domination is very easy to cause disruption of supply, environmental damage, affecting the normal operation of the economic system, and even lead to more serious economic and social consequences. Numerous studies have shown that energy diversification is of great importance to the role of energy diversification in the framework of energy security and sustainable development.

In order to make a deep understanding of energy diversification patterns in different regions, we divide the energy consumption structure acquired into groups by the method of cluster analysis. At present, most cluster analysis is based on two-dimensional cross-section data, relatively analysis referring 3D panel has less applications. The few scholars have developed the method and application of cluster analysis for 3D panel data. (Li Yin-guo, He Xiao-qun, 2010<sup>[1]</sup>) took the panel data feature of panel and time series into consideration, constructed the distance function and Ward-clustering algorithm for measuring similarity. Finally, they achieved clustering analysis on panel data, and had a good test from the application. (Wu Li-feng, Liu Si-feng, 2013<sup>[2]</sup>) designed a panel data clustering analysis method to reflect the association degree of panel data by using the 3D grey convex relation degree, and found that this method was able to achieve a good clustering effect on the research objectives through actual test. (Wang Shuang-ying, Wang Qun-wei, Cao Ze, 2014<sup>[3]</sup>) applied the self-organizing competitive network algorithm into the cluster analysis of panel data, and obtained a good application effect through the test of actual cases.

On the basis of three methods of cluster analysis of panel data mentioned above, after considering the need of research content, we select the panel data clustering method designed by Liu Si-feng and Wu Li-feng. The breakthrough point is that this paper, which adopts clustering analysis for panel data,

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makes a deeper research on the basis of the clustering analysis of cross-sectional data, summing up the typical model of energy diversification and giving more advice and provide a variety of options.

## 2 Method of panel data clustering for three-dimensional gray convexity relation

The method of panel data clustering based on 3D gray convex relation is as follows:

The first step is to transform the panel data into the behavior matrix of the object.

The second step is to average the original data so as to remove the dimension effect of different indexes, so<sup>1</sup>

$$x'_i(s,t) = \frac{x_i(s,t)}{\bar{x}(s,t)}, \quad \bar{x}(s,t) = \frac{1}{L} \sum_1^L x_i(s,t)$$

The behavior matrix of the object i is changed into

$$x'_i = \begin{bmatrix} x'_i(1,1) & x'_i(1,2) & \cdots & x'_i(1,n) \\ x'_i(2,1) & x'_i(2,2) & \cdots & x'_i(2,n) \\ \vdots & \ddots & \vdots & \vdots \\ x'_i(m,1) & x'_i(m,2) & \cdots & x'_i(m,n) \end{bmatrix}$$

Where  $i = 1, 2, \dots, L$ .

The third step is to calculate the convexity of each point in the panel data, and then calculate the degree of correlation between any two objects, and compute an upper triangular correlation degree from the calculated association data, as shown in the following matrix:

$$\begin{bmatrix} \gamma_{11} & \gamma_{12} & \cdots & \gamma_{1L} \\ & \gamma_{22} & \cdots & \gamma_{2L} \\ & & \ddots & \vdots \\ & & & \gamma_{LL} \end{bmatrix}$$

The fourth step is to set a reasonable threshold of correlation, according to the correlation matrix calculated in the third step, and get the cluster analysis results of panel data. In practical applications, we take the appropriate critical value of correlation is generally 0.5 to 1, that is  $r \in [0.5, 1]$ .

When  $\gamma_{ij} > r$  时, we think i and j are in the same cluster group, according to this method, traversing the correlation matrix, we get the final panel data clustering analysis results.

## 3 Cluster analysis results of panel data

Because there isn't any cluster analysis application for panel data, we choose MATLAB and EXCEL to collate data and compute the data matrix, finally achieve empirical process and get results. According to the four steps mentioned above, we get the correlation matrix of clustering analysis for 30 provinces as shown in Table 1. By setting different correlation critical value, we assign values to as: 0.7, 0.8, 0.83, 0.84, 0.85, 0.88, then get the result which is greater than the critical value, finally get the clustering results as shown in Table 2.

The first group of energy diversification patterns is clustered in the southwest and the north; the second group of energy diversification patterns is clustered in the central region; the third group of energy diversification patterns is clustered in one province in northeast China, three provinces in East China and one province in Northwest China. The fourth group of energy diversification patterns is located in two provinces in northeast, one in northwest and one in southeast. The fifth group of energy diversification patterns is distributed in South China and the sixth group of energy diversification patterns is clustered in the southwestern provinces. The seventh group of energy diversification patterns is only in Beijing. The eighth type of energy diversification patterns is Qinghai model. The ninth type of energy diversification patterns is Xinjiang model. The tenth energy diversification

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patterns are Hainan model.

It can be seen from the spatial distribution that groups have a strong correlation in geographical locations, a phenomenon that should be related to that similar energy resources exist in the relevant area, so members of one group have a similar resource endowment and show a similar pattern of energy diversification. Of course, the factors that affect the diversification of energy resources are far more than resource endowment; other factors such as technology, environment, society, population also make significant impact.

**Table 1 Typical energy consumption structure of panel data cluster analysis results**

Bei-jing	Tian-jin	He-bei	Shan-xi	Inner Mongolia	Liao-ning	Ji-lin	Hei-longjiang	Shang-hai	Jiang-su	Zhe-jiang	An-hui	Fu-jian	Jiang-xi	Shan-dong	He-nan	Hu-bei	Hu-nan	Guang-dong	Guang-xi	Hai-nan	Chong-qing	Si-chuan	Gui-zhou	Yun-nan	Sha-anxi	Gan-su	Qing-hai	Ning-xia	Xin-jiang		
1.00	0.71	0.67	0.66	0.66	0.71	0.69	0.67	0.72	0.67	0.66	0.65	0.66	0.68	0.65	0.67	0.65	0.70	0.64	0.49	0.66	0.64	0.66	0.65	0.70	0.72	0.68	0.66	0.65	0.65	Beijing	
	1.00	0.73	0.71	0.71	0.81	0.76	0.78	0.80	0.74	0.74	0.71	0.70	0.71	0.75	0.73	0.72	0.69	0.79	0.69	0.45	0.69	0.66	0.72	0.73	0.78	0.81	0.66	0.73	0.65	Tianjin	
		1.00	0.85	0.84	0.73	0.82	0.71	0.75	0.82	0.82	0.88	0.78	0.87	0.81	0.85	0.83	0.85	0.75	0.81	0.47	0.66	0.62	0.86	0.85	0.74	0.77	0.62	0.80	0.62	Hebei	
			1.00	0.90	0.72	0.79	0.70	0.75	0.81	0.82	0.87	0.76	0.83	0.78	0.79	0.83	0.81	0.76	0.80	0.47	0.67	0.62	0.88	0.84	0.74	0.76	0.61	0.77	0.61	Shanxi	
				1.00	0.73	0.79	0.70	0.75	0.82	0.80	0.87	0.76	0.83	0.78	0.80	0.83	0.80	0.76	0.81	0.47	0.65	0.62	0.84	0.82	0.74	0.77	0.61	0.80	0.61	Inner Mongolia	
					1.00	0.77	0.79	0.77	0.76	0.75	0.73	0.71	0.72	0.76	0.75	0.73	0.71	0.77	0.69	0.45	0.70	0.68	0.74	0.74	0.76	0.80	0.66	0.73	0.67	Liaoning	
						1.00	0.74	0.78	0.87	0.83	0.79	0.78	0.80	0.83	0.83	0.83	0.79	0.77	0.75	0.46	0.68	0.63	0.79	0.79	0.76	0.81	0.63	0.81	0.62	Jilin	
							1.00	0.74	0.75	0.74	0.70	0.70	0.70	0.74	0.71	0.71	0.69	0.74	0.67	0.45	0.73	0.67	0.71	0.70	0.76	0.77	0.63	0.71	0.66	Hei-longjiang	
								1.00	0.78	0.78	0.76	0.73	0.76	0.76	0.74	0.76	0.73	0.82	0.71	0.47	0.68	0.66	0.73	0.73	0.80	0.83	0.67	0.74	0.66	Shanghai	
									1.00	0.79	0.77	0.73	0.77	0.77	0.75	0.78	0.74	0.82	0.71	0.47	0.70	0.67	0.74	0.74	0.80	0.84	0.68	0.74	0.66	Jiangsu	
										1.00	0.83	0.83	0.84	0.83	0.78	0.84	0.82	0.83	0.78	0.47	0.71	0.65	0.78	0.78	0.78	0.79	0.63	0.80	0.63	Zhejiang	
											1.00	0.78	0.88	0.80	0.81	0.87	0.87	0.77	0.83	0.46	0.65	0.62	0.84	0.82	0.75	0.76	0.61	0.80	0.61	Anhui	
												1.00	0.80	0.79	0.76	0.78	0.79	0.78	0.80	0.45	0.66	0.61	0.74	0.74	0.73	0.74	0.61	0.77	0.61	Fujian	
													1.00	0.80	0.83	0.88	0.89	0.78	0.81	0.47	0.66	0.62	0.81	0.81	0.75	0.76	0.61	0.83	0.61	Jiangxi	
														1.00	0.82	0.83	0.78	0.77	0.73	0.46	0.68	0.63	0.79	0.78	0.74	0.78	0.62	0.77	0.63	Shan-dong	
															1.00	0.83	0.81	0.73	0.76	0.46	0.66	0.62	0.82	0.83	0.73	0.76	0.61	0.79	0.61	Henan	
																1.00	0.75	0.70	0.70	0.60	0.64	0.63	0.70	0.71	0.69	0.70	0.63	0.73	0.63	Hubei	
																	1.00	0.76	0.80	0.46	0.64	0.60	0.79	0.79	0.74	0.74	0.61	0.81	0.61	Hunan	
																		1.00	0.74	0.46	0.69	0.66	0.73	0.72	0.78	0.81	0.65	0.75	0.64	Guang-dong	
																			1.00	0.46	0.64	0.60	0.80	0.79	0.72	0.72	0.60	0.76	0.59	Guangxi	
																				1.00	0.47	0.47	0.46	0.46	0.48	0.46	0.45	0.46	0.47	Hainan	
																					1.00	0.75	0.67	0.66	0.71	0.70	0.64	0.65	0.71	Chong-qing	
																						1.00	0.63	0.63	0.66	0.68	0.63	0.61	0.69	Sichuan	
																							1.00	0.91	0.72	0.74	0.61	0.75	0.62	0.69	Guizhou
																								1.00	0.72	0.74	0.62	0.75	0.62	0.62	Yunnan
																									1.00	0.79	0.68	0.73	0.65	0.65	Shanxi
																										1.00	0.66	0.76	0.64	0.64	Gansu
																											1.00	0.59	0.62	0.62	Qinghai
																											1.00	0.60	0.60	0.60	Ningxia
																												1.00	1.00	1.00	Xinjiang

**Table 2 Panel data cluster analysis group results**

Groups	Group members (province, city, district)
First group	Inner Mongolia, Shanxi, Guizhou and Yunnan
Second group	Hubei, Hunan, Anhui, Jiangxi, Hebei, Henan, Ningxia
Third group	Jilin, Shandong, Shaanxi, Jiangsu, Zhejiang
Fourth group	Heilongjiang, Liaoning, Tianjin, Gansu, Shanghai, Guangdong
Fifth group	Fujian, Guangxi
Sixth group	Sichuan, Chongqing
Seventh group	Beijing
Eighth group	Qinghai
Ninth group	Xinjiang
Tenth group	Hainan

#### 4 Comparative analysis of typical energy diversification patterns

According to the cluster analysis results of the above table, the thirty sample provinces and cities in this paper are divided into ten different groups. Based on the analysis of the characteristics and changes of each group data, ten typical energy diversification mode and characteristics are summarized. Firstly, we make definition of six small concepts. Proportion between 80% to 100% is called an Absolute Dominance (AD), between 65% and 80% called it Strong Dominance (SD), 50% to 65% called Weak Dominance (WD), 30% to 50% is called Absolute Complement (AC), 15% to 30% as Strong Complement (SC), 0% to 15% as Weak Complement(WC).

**Table 3 Characteristics of ten typical models of energy diversification**

Category	Group characteristics	Consumption ratio	Provinces and regions
The first category	Coal: AD	Coal: 85%-95%; Oil, Natural gas: close to 0%; Electricity: close to but less than 10%	Inner Mongolia, Shanxi, Guizhou and Yunnan
The second category	Coal: SD Crude oil: WC Electricity: WC	Coal:70%-80%; Electricity: close to but higher than 10%; Crude oil: close to but less than 10%; Natural gas: gradually increased from 0% to 2%-4%	Hubei, Hunan, Anhui, Jiangxi, Hebei, Henan, Ningxia
The third category	Coal: SD Crude oil: SC Electricity: WC	Coal:60%-70%; Crude oil: close to 20%; Electricity: close to 10%; Gas:0% gradually increased to 2%-5%	Jilin, Shandong, Shaanxi, Jiangsu, Zhejiang
The fourth category	Coal: WD Crude oil: SC Electricity: WC	Coal: 50%-60%; Crude oil: about 30%; Electricity: increased to 10%-15%; Natural gas: from 0%-3% to 4%-9%	Heilongjiang, Liaoning, Tianjin, Gansu, Shanghai, Guangdong
The fifth category	Coal: AD to WD Crude oil: WC to SC Electricity: WC to SC	Coal: from 85%-90% absolute lead into 55%-60% weak leading; Crude oil: increased from single digits to 15%-20%; Electricity: increased from just over 10% to 20%	Fujian, Guangxi
The sixth category	Coal: AD to WD Electricity: WC to SC	Coal: from 80%-85% dominant to 60%-70% dominated; Crude oil: remained close to 0%; Natural gas and electricity from slightly lower than nearly 10% to 15%-20% and tend to 20%	Sichuan, Chongqing
The seventh category	Coal: AD to WD Crude oil: AC to SC Electricity: WC to SC	Coal:69% ;Crude oil: 33%; Electricity:7% ; Natural gas: 1%; Gradually developed into a very balanced energy structure, the consumption ratio of coal, crude oil, natural gas, electricity is about 20%	Beijing
The eighth category	Coal: SD to AC Crude oil: WC Electricity: WC to SC	Coal: 77%, Crude oil: 10%; Electricity:12%, Natural gas: about 1%; Gradually transformed into coal: 40%; Crude oil: 10%; Natural gas: about 20%; Electricity: about 30%	Qinghai
The ninth category	Coal: WD Crude oil: SC Electricity: WC	Coal: 61%; Crude oil: 32%; Electricity and Natural gas: 7% Gradually evolved into coal: 50%; Crude oil: 20%; Electricity and Natural gas: about 10%	Xinjiang
The tenth category	Coal: SD to SC Crude oil: WC to AC Electricity: SC to WC	Coal: 74% ; Electricity: 26% ; Crude oil and Natural gas: 0% Gradually evolved into crude oil: about 40% Coal and Natural gas: about 25% Electricity: about 10%	Hainan

By contrast, we found that China's energy consumption model is mainly coal-based, but taking into account the environment and sustainable development, some areas have been gradually reducing

the use of coal, while adding other types of energy. The rational use of various resources is conducive to the sustainable development of Chinese resources. Oil, natural gas and power resources are emphasized seriously, and the proportion is also increasing. In the long run, this trend is conducive to the sustainable development of China's environment and energy.

## 5 Conclusions

In this paper, we analyze the energy diversification patterns of 30 provinces and cities by cluster analysis of time series data and panel data, and compare and analyze the characteristics of diversification patterns of different groups, and get some typical energy diversification models. One of the more breakthrough points is the widely used cross-section data clustering analysis based on a more in-depth study. The results obtained from the information contained in the panel data of urban energy consumption structure gets closer to the actual situation and provides an accurate and effective method and technical support for a better analysis of typical models and characteristics of energy diversification. And it provide accurate and effective methods and technical support for better analysis of the typical patterns of energy diversification and their characteristics, which has a certain reference value for the development of energy diversification in China.

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## Chinese Food Safety Supervision: From Emergency Model to Response Model \*

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**Abstract** Currently some problems are existing in Chinese food safety supervision, including incomplete supervision law system, unreasonable allocation of regulatory power, unsound supervision measures, unsmooth supervision collaboration and unobvious supervision effect. Under the new historical background, Chinese food safety supervision transforming from emergency model to response model is inevitable. The core of response supervision model is social governance, the precondition is a complete rule of law system, the foundation is a smooth supervision system setting, the key is effective risk management and control and the guarantee is a complete supervision operation mechanism.

**Key words** Food safety, Emergency model, Response model

### 1 Introduction of questions

In recent years, food safety events occurred in China frequently. Because it is directly related to health and happiness of the public as well as harmony and steady of society and sustainable development of economy, it has attracted great attention from the government. Meanwhile, the endless food safety incidents have made food safety emergency management a hot topic. Along with that is how government departments that have market supervision function deal with such incidents. Food safety supervision theories and supervision practice in the transition period are in an urgent need to use advanced science and technologies and legal ideas as reference bases. However, the long-term talent training mode of China has resulted in separation between technical talents and legal talents and the failure to use technical and legal norms in a balanced way in the research of food safety supervision field and practice. Currently, the supervision and management of government about food has become an important embodiment of national social functions in developed countries. “The theoretical and practical field is universally suppressed by government regulation; since government coercive force is more required in the field of supervision than in other fields, it is reasonable to see consider government as the only body of supervision” (Yang Bing-lin, 2014<sup>[1]</sup>). On the other hand, though traditional emergency supervision ideas oriented by government view the improvement of technical standard level as an important way to guarantee food safety, they have ignored the profit-oriented wish of market entities. That has resulted in increasingly development of science technology in the field of food and the appearance of more and more food safety incidents. Hence, seeking for support from advanced theories and practicing combined action of technology and law on food safety supervision to form an efficient and effective food safety supervision mechanism has become a top priority to deal with challenges on food safety supervision. Response supervision model is an inevitable choice, that is, comprehensively establish a food safety supervision system from perspectives of establishing a food safety social governance pattern, completing rule of law regarding food safety, controlling food safety risks and perfecting food safety supervision mechanism.

### 2 Model analysis of China’s food safety supervision status quo

The frequent food safety events indicate that current food safety supervision model can not effectively solve current food safety problems and the efficiency of food safety supervision

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organizations is widely questioned. Currently there exist many problems in China's emergency food safety supervision model. In specific, it is demonstrated as following:

## **2.1 Problems on supervision status quo**

Currently, the incomplete food safety supervision legal system in China, along with the unreasonable allocation of supervision power and unsmooth supervision collaboration, has restricted the improvement of food safety status quo and the condition of food safety is worrying.

### **2.1.1 In complete supervision law system**

Fundamentally, Chinese food safety supervision problems are caused by a lack of complete and systematic food safety laws and regulations, divided policies from various sources and different standards. Core laws that involve food safety supervision primarily include *Food Safety Law of the People's Republic of China* (hereinafter refers to *Law on Food Safety*), *Law of the People's Republic of China on Product Quality* (hereinafter refers to *Law on Product Quality*), *Law of the People's Republic of China on the Protection of the Rights and Interests of Consumers* (hereinafter refers to *Law on the Protection of Consumers*) and *Law of the People's Republic of China on Quality and Safety of Agricultural Products* (hereinafter refers to *Law on Quality and Safety of Agricultural Products*), etc. However, these laws are not established or planned by centering around food safety supervision, which has resulted in the lagged-behind legislation of food safety supervision in China, a lack of completeness, coordination and rigorousness of legal system, an incomplete standard system and disconnection with international community.

Though Chinese food safety supervision system has been completed and developed to certain degree, various drawbacks are existing regarding force and level of supervision. So far as formulation of legal system concerned, there are incomplete supporting laws and outdated regulations; moreover, laws and regulations for supervising safety of special foods like health-care products, pesticide and fodder are incomplete. The lacking of a complete supervision system has resulted in difficulty to enforce the law in reality and disordered protection of consumers' rights.

### **2.1.2 Unreasonable allocation of supervision power**

On one hand, the supervision function of government in the field of food safety is not allocated reasonably. After going through food hygiene management system, mix management system and the "division of responsibility and united coordination" supervision system, Chinese food safety supervision system is still defective with differentiation of food safety supervision function and dissimulation of supervision power; meanwhile, food safety incidents are happening frequently due to unreasonable supervision system. On the other hand, participation of social forces in food safety supervision is featured with institutional and system defects. The new Law on Food Safety in 2015 stresses that food safety risk control under concept of "social governance" is a process that requires cooperation between various social forces and the government. Currently, food manufacturing enterprises, experts, media and consumers have few supervision channels and weak influence and there is a lack of policy support for them to bring society-supervising function into play.

### **2.1.3 Incomplete supervision measures**

First, there is a lack of theoretical bases for the selection and application of food safety supervision means and the means of supervision is too simple. Supervision departments often practice supervision by taking checking as the main way and reporting as the supporting way and apply compulsive supervision means like warning, penalty, rectification and suspension of license. It is difficult for enterprises to defend themselves, let alone self-supervision. Second, there is no a scientific and reasonable division of supervision levels in supervision and corresponding law enforcement means setting like changes to inspection and frequency of random inspection; moreover, co-governance supervision cored by enterprises is not established. Finally, China's food safety information is primarily announced by supervision departments, but there is inadequate exchange of information between departments and a lack of effective integration and unified analysis of food safety information; besides that, the lacking of an unified food safety information announcement platform has resulted in information asymmetry.

### **2.1.4 Unsmooth supervision collaboration**

China began a reform to food safety supervision system in 2013. Moreover, China has established

more than ten laws and regulations involve food safety like *Law on Food Safety* (2009), *Law on the Protection of Rights and Interests of Consumers* (2013) and *Rules for the Implementation of Frontier Health and Quarantine Law of the People's Republic of China* (2016). Besides that, China has established a relatively complete supervision system that includes food safety throughout track system, market access system and food recall system. Nevertheless, the reform has resulted in undefined management limits and differences among the three departments regarding law enforcement procedure, law enforcement document and law enforcement institution. Furthermore, grassroots market supervision institutions have been established, but their superior supervision departments are still food and drug supervision department, industry and commerce department and quality supervision department; the superior departments deploy simultaneously and the inferior departments muddle through their work, which causes inconsistent paces between superior and inferior department in the reform. Such interlaced functions, risk management and undivided assessment are very likely to result in buck passing, low administrative efficiency, waste of resources, failure to execute corresponding functions and blocked supervision.

### 2.1.5 Unconspicuous supervision effect

The government has been criticized regarding food safety supervision. To a great extent that is because the administrative order-type food safety supervision way does not conform to the law of food safety scientific management and the unconspicuous supervision effect. Existing researches regard enhancing supervision as primary policy direction for solving frequent food safety illegal behaviors, but new researches show that: enhanced force of supervision will not necessarily result in the decrease of illegal behaviors in the food market. New food safety “supervision dilemma” is put forward hereby (Jouanjean M A, Maur J C, Shepherd B, 2015<sup>[2]</sup>; Xie Kang, Lai Jin-tian, Xiao Jing-hua, 2016<sup>[3]</sup>). Food safety involves many processes including food production, processing, circulation and consumption. The reformed “trinity” supervision system is characterized by both repeated supervision and blind supervision areas. Toxic and harmful substances are flooding the market and consumer food safety education is an important task of food safety supervision department. However, Chinese consumers have been lacking of food safety education for a long time, which makes it impossible for them to view food safety problems in a scientific and reasonable way and worsened the market environment of food safety. Meanwhile, the government does not have necessary professional knowledge in the process of supervision; instead, it is limited to narrow space in system and policy and professional organizations on market supervision, such as industrial associations with “unrealized ambition”; finally, it has resulted in unconspicuous supervision effect.

### 2.2 Pattern of supervision status quo

Currently, emergency management model is applied in food safety supervision. It involves several links like prevention, prediction, warning, command, coordination, handling, rescue, recovery and assessment of food safety incidents. Subjects of emergency model refer to organizations, institutions and relevant people in handling emergency incidents while objects refer to objects of handling—various emergent public security incidents. China has taken important steps regarding the construction of emergency management laws and regulations, primarily including *The Law of the people's Republic of China on Response to Emergencies*, *Law on Food Safety*, *Regulations on preparedness for and Response to Emergent Public Health Hazards*, *National Interagency Incident Management System*, *National Overall Pre-Arranged Planning of Emergent Events*, *Notification on Punishing Severely Criminal Activities that Harm Food Safety*, *Notification on Severely Attacking Illegal Food Additive Behaviors and Practically Enhancing Food Additive Supervision* and such type of documents issued by different places. Besides that, governments of all levels have issued a series of laws and regulations. However, potential food safety hazards cover every area of society, running through the whole process from production, circulation and consumption; meanwhile, they are featured with a high degree of concealment, abruptness and hazardness. When it comes to food safety emergency management incidents, government departments are always tired of handling and supervision resources and strength are often in short supply.

### **3 The coming up of response model for food safety supervision**

The diversified tendency of society has put food safety emergency model under question and finally led to that actions for maintaining current order reflecting the rigid and even alienated legal system. Apparently, such legal model fails to reflect, adapt to and stimulate the development of food safety supervision.

#### **3.1 Connotation of response supervision model**

Food safety response supervision aims at achieving non-repressive freedom, that is, all participants from government to food producers, consumers, media and other social forces should have a chance to state their opinions and counterplead so as to cultivate subject consciousness, increase legality of government punishment and improve food safety supervision effect. Response supervision aims at constructing a cooperative supervision model where government, food producers, consumers, media and other social forces collaborate with each other; the supervision function of other subjects other than government and the relation between government and other subjects are stressed; “a third road” is tried to be found between strong and weak government supervision, that is, a mix model where government supervises and other supervision subjects intervene. Response supervision loosens the requirement for civil obedience and formulates laws through communication by relying on consciousness of the public in order to improve food safety supervision.

#### **3.2 Basic features of response supervision model**

The core feature of response supervision model is finding a substitution of suppression upon determined legal values and use it as a tool to respond to social needs and wishes. First, response supervision model is featured with initiative. Government has always been the first subject of market supervision, but food producers, consumers, media and other social forces, as objects of market supervision, also require self-supervision and supervision from third parties. The government gives them autonomy in supervision so as to improve their self-discipline spirit and give third-party supervision forces recognition on relevant supervision power, which is in nature allocation of supervision power. Market entity is the primary supervision force and government provides guidance and supplementary support. Second, response supervision model is featured with flexibility. Under emergency model, lawsuit need of involved parties is suppressed consciously through power arrangement system in order to achieve national interests and break through laws and regulations and to certain extent achieve stable social and legal order for the country with coercive power of state. However, such flexibility is at the cost of authority of laws and unjustifiable. Legal application of response model has to certain extent overcome rigidness of rules. Relevant substantive rules and procedures are featured with elasticity and flexibility. Third, response model features with participatory, stresses the full participation in the decision-making process and tries best to give consideration to interests of relevant persons.

#### **3.3 Inevitability of changing from emergency model to response model**

The current food safety supervision emergency model of China is a systematic projects, but its legal positioning should be a handy tool to respond to social needs and certain renaissance of instrumentalism. The participation of multiple subjects is not only a need from supervision situation but also a process for creating social civilization. A good legal order provides not only procedural justice. Instead, it should define public interests in a powerful and fair way while devoting to achieving substantive justice (P. Nonette and P.Selznick, 2004<sup>[4]</sup>). As food technology progresses with each passing day, the two major risks (traditional risk hazard and new social risk) of food safety have appeared. New food safety social risk is primarily social public opinions related to food safety that attract great attention from consumers, traditional media and new media. Comparatively speaking, social risk has amplification effect and the social consequence of risk amplification is far greater than direct harm to health. In general, it will result in damage to enterprise reputation, decline in product sales and impact on economic development. In addition to that, social and political pressure on the government and management cost of the government will increase and government credibility will decline, which means it is necessary to construct a food safety social governance system (Rouvière E, Caswell J A, 2012<sup>[5]</sup>).

## 4 Construction of food safety supervision response model in China

One major task of legal realists is making laws “respond more to social needs” (Jerome Frank, 1932<sup>[6]</sup>). A kind of responsive and responsible legal order is something that can respond positively to various changes to social environment. Considering problems existing in current food safety supervision, it is necessary to construct a food safety supervision response model:

### 4.1 Core of response supervision: Social governance

Under response supervision model, it is necessary to not only construct government responsibilities, but also carry out various policy measures through enhancing external supervision (Cheng Pei-gang, 2015<sup>[7]</sup>). Social governance is a new area established in public management theories and practice as well as a new model and mechanism. In nature, it is social co-governance based on rule-by-law path under guidance of government by law as well as system innovation formed through practice in China (Wang Ming, Cai Zhi-hong and Wang Chun-ting, 2014<sup>[8]</sup>). Under the concept of social governance, government supervision in response model is no longer a passive “night watchman” but a positive supervisor (Yang Xiao-min, 2016<sup>[9]</sup>). So far as subjects involved by food safety social governance concerned, they generally include government, food safety supervision department, production operators, third-party certification and inspection institutions, consumers, media, industrial associations and experts. On one hand, it is necessary to clarify that government is the leader of food safety social governance that normalizes, guides and encourages other subjects to participate in social governance. Currently, the most important thing is integrating supervision departments, including reallocation of supervision power. On the other hand, complete the public participation mechanism and enhance the propaganda of food safety knowledge. Furthermore, organize and plan science popularization activities of various forms, stimulate various social forces and increase responsibility consciousness of subjects to create conditions for public participation in food safety supervision and decision making.

### 4.2 Precondition of response supervision: Complete rule of law

Complete food safety laws and regulations constitute foundation for the smooth carrying out of food safety supervision. Hence, it is necessary to complete scientificity, unity and integrity of legal system under leading of Law on Food Safety. Meanwhile, carefully sort out, integrate, modify, abolish and supplement current disordered and conflicting laws and regulations. Furthermore, integrate relevant laws and regulations of the State Council and different ministries, supplement with relevant laws and regulations of different provinces and local governments to form a food safety supervision legal system safeguarded by national standard technologies. Besides that, stress key points, fill blankness, straighten out conflicts, systematically sort out and modify laws, administrative regulations, department rules, local legislation and compulsory standards related to food safety to form a scientific and comprehensive food safety legal network with Chinese characteristics that features with both comprehensive laws and specific supporting norms. In this way, organized management will be available upon occurrence of emergencies and powerful legal bases will be offered for the formation of anew system that “prevention first, risk management, whole-process control, social governance and accountable governance” for Chinese food safety supervision.

### 4.3 Foundation of response supervision: Strengthen mechanism

From perspective of *Law on Food Safety*, China’s food safety supervision system centers on segmented supervision while stressing variety supervision and unified coordination. The newly-established China Food and Drug Administration integrates power that originally belongs to supervision and management departments like industrial and commercial bureau, quality inspection bureau and quarantine bureau and undertakes daily work of food safety commission. However, problems like many supervision links, unclear supervision functions and undefined responsibilities are identified in practice. The emphasis of food safety supervision system should focus on following two aspects. On one hand, clarify supervision responsibilities and enhance supervision cooperation. Meanwhile, create joint supervision force to eliminate supervision void, clarify rights and responsibilities of various supervision objects, sort out supervision system and improve supervision efficiency. Apart from that, lead food supervision of various departments in an unified way, further carry out power and responsibilities of food safety commission and give them authority to make rules



and execute laws to realize integration of power and responsibility, guarantee necessary material security and improve food safety supervision ability. On the other hand, complete accountability system and increase law enforcement efficiency. In China there exist a lot of small-sized food operators (primarily include small workshops and vendors) that feature with large mobility and great difficulty for supervision (Han Xing-qian, 2016<sup>[10]</sup>). However, local governments and administrative authorities are sluggish in fulfilling safety supervision responsibility for purifying food market order and that has resulted in frequent occurrence of food safety incidents in small workshops and vendors who seek for profits only. Hence, it is necessary to assess and comment food supervision of various departments and enhance undertaking of responsibilities.

#### **4.4 Key of response supervision: Risk management and control**

Good risk regulation is not only an administrative behavior of government. It shows more respect to the choice of social public about their ways of life (Elizabeth Fisher, 2007<sup>[11]</sup>). The most effective way to lower risks of food safety supervision is the whole process from farm to table and the principle of prevention first within the maximum range. That means it is necessary to establish a risk monitoring and evaluation system to expand the scope of supervision to risk factors that are or are seemingly hindering food safety for preventive control. On the other hand, establish an institutional system that can urge various subjects to take the initiative to prevent food safety hazards in various links like food production, processing, circulation and service.

First, comprehensive carry out food safety risk analysis, implement special administration in a target way according to risks existing in the industries or products within the jurisdiction and degrees of risks. Meanwhile, take the initiative to discover and expose problems and practice governance and eliminate food safety hazards in time to avoid falling into a passive situation. Second, investigate and analyze if there are illegal phenomenons in the industry in the process of implementing special administration; once any is discovered, solve it completely while normalizing and completing food production permission. Third, practically enhance supervision over every step of production and take multiple measures simultaneously to urge food production and processing units to fulfill responsibilities of quality safety subjects. When fulfilling supervision responsibilities, quality supervision department must stick to the policy of serving and promoting local economic development.

#### **4.5 Guarantee of response supervision: Complete mechanism**

Food supervision aims at guaranteeing public security. Different from market supervision, it features with strong professionalism. Hence, it is necessary to enhance grassroots comprehensive law enforcement, promote market supervision and optimize food supervision and management mechanism and independent regulation institutions to guarantee fairness of food safety supervision. In the process of food safety supervision, complete the comprehensive coordination mechanism and define working bodies; enhance the close connection of various links, concentrate supervision force and establish a mechanism for sharing information and resources to improve supervision efficiency; complete local government supervision responsibility system to make sure the implementation of supervision responsibility; strengthen the construction of supervision departments, especially that of grassroots talent team, to improve the ability to inspect and examine food safety and provide comprehensive technical support for guaranteeing food safety. Furthermore, strengthen information reporting and releasing channels when handling emergent food safety incidents and enhance inter-department and inter-regional coordination and linkage.

## **5 Conclusions**

The concept and requirement of social governance have been included into China's new laws on food safety. Under the historical background that the new generation of information technologies like mobile internet, cloud computing, big data, artificial intelligence and internet of things are closely combined with various social fields, realizing the transition to response food safety supervision model is a fundamental approach to solve frequent occurrence of risks in the field of food safety and poor effect. In addition, it is an important measure to improve the national governance system and achieve modernization of governance capacity.

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# A Study on Targeted Poverty Alleviation from the Perspective of Chinese Government

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**Abstract** This paper studies on targeted poverty alleviation (TPA) in China rural region from the perspectives of government operation in Multi-departments of China. Through defining poverty, comparing and contrasting absolute poverty and relative poverty, based on multidimensional poverty measurement theory, the paper argues poverty line in China. From the achievements targeted poverty alleviation produced, the article proposes some suggestions improving the government performance on TPA. Based on the multidimensional poverty measurement and poverty line in China, this paper illustrates that poverty alleviation has benefited from government multi-sectorial participation. Meanwhile, the paper shows some TPA practical experiences from government sectors and presents actions, including international cooperation, knowledge exchange and the usage of the Internet and big data in building TPA platform in poverty alleviation, which benefited China, Asia and the world. Conclusively, the article points out that it is crucial for the government to update poverty alleviation.

**Key words** Targeted poverty alleviation, Poverty line, Chinese government, Multidimensional poverty

## 1 Introduction

### 1.1 Poverty

Poverty is general scarcity or the state of one who lacks a certain amount of material possessions or money. It is a multifaceted concept, which includes social, economic, and political elements.

In 1776 Adam Smith in the *Wealth of Nations* argued that Poverty is the inability to afford, “not only the commodities which are indispensably necessary for the support of life but whatever the custom of the country renders it indecent for creditable people, even of the lowest order, to be without.” (Adam Smith, 1776) “People are poverty stricken when their income, even if adequate for survival, falls markedly behind that of their community.” (J.K. Galbraith, 1958) “No objective definition of poverty exists... The definition varies from place to place and time to time. In America as our standard of living rises, so does our idea of what is substandard”<sup>[1][2]</sup>.

The definition of poverty changes with general living standards. Those labeled as poor in 1995 would have had “a higher standard of living than many labeled not poor” in 1965 (Rose Friedman, 1965). Peter Townsend transformed the conception of poverty, viewing it not simply as lack of income but as the configuration of the economic conditions that prevent people from being full members of the society (Townsend, 1979; Ferragina et al. 2016). Brian Nolan and Christopher T. Whelan of the Economic and Social Research Institute (ESRI) in Ireland explained, “Poverty has to be seen in terms of the standard of living of the society in question”<sup>[3]</sup>. From perspective of income poverty, poverty means a family’s income fails to meet a federally established threshold that differs across countries.

According to United Nations, fundamentally, poverty is the inability of having choices and opportunities, a violation of human dignity. It means lack of basic capacity to participate effectively in society. It means not having enough to feed and clothe a family, not having a school or clinic to go to, not having the land on which to grow one’s food or a job to earn one’s living, not having access to credit. It means insecurity, powerlessness and exclusion of individuals, households and communities. It means susceptibility to violence, and it often implies living in marginal or fragile environments, without access to clean water or sanitation<sup>[4]</sup>. From World Bank explanation: poverty is pronounced deprivation in well-being, and comprises many dimensions. It includes low incomes and the inability to acquire the basic goods and services necessary for survival with dignity. Poverty also encompasses low levels of health and education, poor access to clean water and sanitation, inadequate physical security, lack of voice, and insufficient capacity and opportunity to better one’s life<sup>[5]</sup>.

## 1.2 Absolute poverty, relative poverty and multidimensional measurement on poverty

Poverty is usually measured as either absolute or relative (the latter being actually an index of income inequality).

Absolute poverty, extreme poverty, or abject poverty is “a condition characterized by severe deprivation of basic human needs, including food, safe drinking water, sanitation facilities, health, shelter, education and information. It depends not only on income but also on access to services”<sup>[6]</sup>. Absolute poverty is meant to be about the same independent of location. Absolute poverty refers to a set standard which is consistent over time and between countries. First introduced in 1990, the dollar a day poverty line measured absolute poverty by the standards of the world’s poorest countries. The World Bank defined the new international poverty line as \$1.25 a day in 2008 for 2005 (equivalent to \$1.00 a day in 1996 US prices)<sup>[7]</sup>. In October 2015, they reset it to \$1.90 a day<sup>[8]</sup>.

Relative poverty occurs when people in a country do not enjoy a certain minimum level of living standards as compared to the rest of the population and so would vary from country to country, sometimes within the same country<sup>[9]</sup>. Consequently, relative poverty views poverty as socially defined and dependent on social context, hence relative poverty is a measure of income inequality. Usually, relative poverty is measured as the percentage of the population with income less than some fixed proportion of median income. There are several other different income inequality metrics, for example, the Gini coefficient or the Theil Index. Relative poverty is the “most useful measure for ascertaining poverty rates in wealthy developed nations.” Relative poverty measurement method was adopted in the European Union, UNICEF, and the OEDC. The main poverty line used in the OECD and the European Union is based on “economic distance”, a level of income set at 60% of the median household income<sup>[10]</sup>.

A decomposable poverty measurement (FGT)<sup>[11]</sup> was proposed in 1984 based on Sen<sup>[12][13]</sup>. In 2003, Atkinson developed poverty theory in his article: “There is widespread agreement that deprivation is multidimensioned. It is not enough to look only at income poverty; we have also to look at other attributes.” Some people are concerned about those who have either low income or poor access to housing or a low level of education? Other people are concerned with those who have low income and poor housing access and a low level of education<sup>[14]</sup>. In the same year, another two scholars named Bourguignon and Chakravarty discussed this issue in their paper “A simple way of dealing with the multidimensionality of poverty is to assume that the various attributes of an individual may be aggregated into a single cardinal index of ‘well-being’ and that poverty may be defined in terms of that index”<sup>[15]</sup>.

Based on above discussion, Alkire and Foster proposed in 2009, “Our identification step employs two forms of cutoff: one within each dimension to determine whether a person is deprived in that dimension, and a second across dimensions that identifies the poor by ‘counting’ the dimensions in which a person is deprived. The aggregation step employs the FGT measures, appropriately adjusted to account for multidimensionality”<sup>[16]</sup>. Wang Xiao-lin and Alkire, S. proved that deprivation is multidimensioned beside income poverty, such as education, water, health, sanitation condition, transportation and shelters<sup>[17]</sup>. Yang Long and Wang San-gui argued multidimensional poverty measurement could reflect poverty status comprehensively based on the China Rural Poverty Monitoring Household Survey in 2010 through FGT index and multidimensional poverty measurement<sup>[18]</sup>.

## 2 Poverty line in China

Poverty line also named poverty standard, which means low incomes to acquire the basic food, non-food (include services) necessary for survival with dignity with time, location and society changing<sup>[19]</sup>. There are two situation when poverty line adjusted concerning. First, based on the society economy developing and life standard improving, poverty line should be set to a high level over time. Second, poverty line should be adjusted with price change to maintain the same life standard.

At the first adjustment, we have 1978 line (rmb100 a year), 2008 line (rmb865) and 2010 line (rmb2300). At the second adjustment, poverty line will be adjusted with consumer price index change of the rural poor population. Base on this adjustment, Chinese government defined the poverty line as

rmb2300 a year in 2010, rmb2625 in 2011, rmb2625 in 2012, rmb2736 in 2013, rmb2800 in 2014 and rmb2855 in 2015. (See Table 1)

In the past three decades, China’s broad-based and high-speed economic growth helped more than 700 million people rise out of poverty. Bert Hofman, the World Bank’s Country Director for China noted that “ the nature of poverty in China is changing,” (2016) which requires the country to maintain moderately rapid growth, accompanied by measures that reduce inequality and put in place social safety nets for the most vulnerable<sup>[20]</sup>.

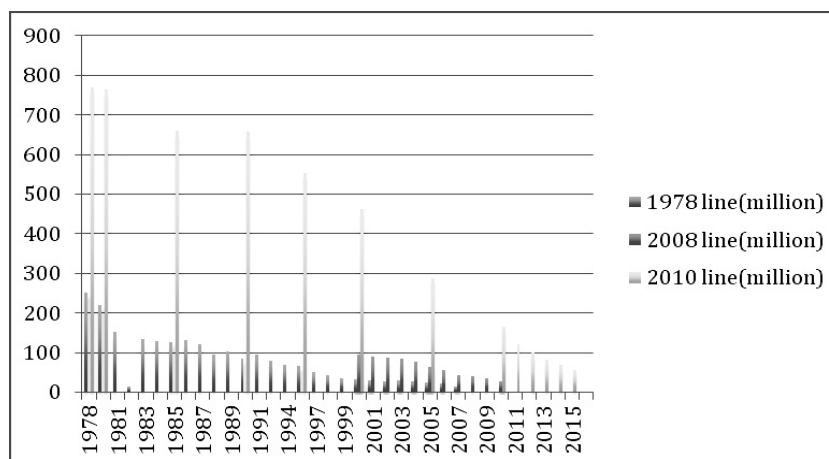
**Table 1 China primary years rural poverty line statistics (1978-2015)<sup>[21]</sup> (Yuan/one person per year)**

Year	1987 line	2008 line	2010 line
1978	100		366
1980	130		403
1985	206		482
1990	300		807
1995	530		1511
2000	625	865	1528
2005	683	944	1742
2008		1196	2172
2010		1274	2300
2011			2536
2012			2625
2013			2737
2014			2800
2015			2855

Note 1. Data resources: Poverty Monitoring Reports of Rural China, National Bureau of Statistics of China

Note 2. In same poverty line, different year shows different comparable value, but represents same life standard. However, different poverty lines represent different incomparable life standard.

Chinese government has eradicated poverty and lifted all extremely poor citizens out poverty base on 1987 and 2008 standard, reduced 110 million extremely poor citizens out poverty. Till 2015, there were 55.75 million extremely poor citizens, 14.42 million less than last year. (See Figure 1)



**Figure 1 China poverty population statistic (1978-2015)<sup>[25]</sup>**

Data resources: rural household survey and household income and life state survey from National Bureau of Statistic of China

Note: A 1978 standard: rural poverty line (1978-1999), rural absolute poverty line (2000-2007)

B 2008 standard: rural low-income line (2000-2007), rural poverty line (2008-2018)

C 2010 standard: new line of rural poverty alleviation

### 3 Government polices on targeted poverty alleviation

In 2013, the term targeted poverty alleviation (TPA) officially appeared the first time in Chinese government documents<sup>[22]</sup>. From then, over 40 official documents about TPA were released from Chinese central government departments, such as General Office of the Communist Party of China and Chinese State Council and some local government departments. According to official explanation on poverty alleviation from China, contrast to traditional poverty alleviation, TPA will focus on local environment and background by using contingency analysis method to help needed people.

In 2014, Chinese State Council released document and explained this contingency method into five aspects: targeted measurement, targeted aid, targeted management, targeted performance assessment and develop TPA mechanism<sup>[23]</sup>.

In 2015, the central government proposed six TPA plans: targeted aid object, TPA project, targeted fund utilizing, TPA to home, targeted civil servant to village and TPA outcome evaluation (Liu Yong-fu, 2015)<sup>[24]</sup>.

### 4 Activities of the government departments targeted poverty alleviation

2017 is the second year of the 13<sup>th</sup> five-year plan. The government performed the TPA activities ambitiously. Activities from the government show the belief of poverty eradication. The State Council Leading Group of Poverty Alleviation and Development (CPAD) set TPA mechanism. (See Table 2) This intensively clarified poverty eradication accountabilities.

**Table 2 Targeted poverty alleviation activities frame**

Build TPA File Card	TPA in Village	Regional TPA	Old Liberated Area TPA
Industry TPA	Profession TPA	Relocation TPA	Village Impelled
Human Resource Training	TPA-INNO	Performance Evaluation	Finance Cooperation
International Exchanges & Cooperation	One-One TPA	Ease-West Coordination	Society Aid

Resources: The State Council Leading Group of Poverty and Development

*Build TPA file card:* in July 7, 2006, the CPRC released official file about Build TPA file card. This statistic project identified poor population and registered them in government poverty official files and Internet TPA platform.

*TPA in village and one-one TPA:* from 2012, the government launched Civil Servants Aid in village program.

*Regional TAP and old liberated area TPA:* in the 12<sup>th</sup> five-year plan, the local government positively carried on China Rural Poverty Alleviation Development Outline (2011-2020) to fight for the extremely poor area as main battlefield.

### 5 Achievements

*Successfully accomplished the goal advance of the plan.* At the end of the 12<sup>th</sup> five-year plan the government TPA goal over completed to help more than 100 million people rise out of poverty. This represents the government has reached the TPA goal in the China Rural Poverty Alleviation Development Outline (2011-2020) successfully. During the 12<sup>th</sup> five-year plan, the rural poverty population based on the 2010 poverty line reduced from 0.166 billion in 2010 to 60 million. The disposable annual income from the poor counties' farmers is expected to rise from rmb3273 to rmb6600.

*Achieve TPA goals greatly.* Based on the Internet, TPA big date platform appeared and developed rapidly. The government improved TPA file card program and developed China poverty alleviation development information center to help TPA program to identify the poor's situation accurately. Meanwhile, the central government selected appointed 321 major secretaries from the China State Council's departments and sent them to targeted villages to work on TPA projects. There are over 128 thousand work teams and 480 thousand government civil servants selected to join in the villages TPA program. In Shandong Province in 2016, the local government helped 224 thousand low-incomes family students including pre-school age students, compulsory education students and college students to set file card to aid them free education. This free education funded the low-income family students

over rmb311 million in 2016. Also, there are over 50 thousand rural poor citizens identified into social security insurance poverty alleviation program in Qingdao, a city of Shandong Province, in 2017. In the same year, Hubei Province government impelled over 400 thousand local poor citizens registered their relocation poverty file card. In Hunan, the local government encouraged all poverty labors registered in the TPA file card program to get jobs. This program lifted 63 thousand low-income families out of poverty in 2016. In Sichuan, the government offered small loan to qualified TPA file card registers to begin their business in 2016. In 2016 in Hainan, a south province of China, the government promised to build TPA file card to eradicate absolute poverty population completely in 2020. Today, local governments have set up Build TAP file card programs and TAP Internet platforms all of the country. This job obviously benefits rural poor citizens. In Shandong Province, till 2012, the local government selected 2714 major secretaries 3 times to work in targeted villages, this action brought over 40 thousand major secretaries selected to work for TPA program in villages, trained 70 thousand village's secretaries and 300 thousand Two Committee members to enhance TPA program every year. In Chongqing, 85 major secretaries were arranged officially down to rural villages to work on TPA project. During the 12<sup>th</sup> five-year period, the central government has funded rmb122 billion to agricultural infrastructure and special funds for regional and old liberated poor areas.

*Reach a new stage to poverty alleviation cooperation.* Because the government launched Belt and Road strategy, a new portal aims to facilitate international cooperation and knowledge exchange, proving information on global poverty reduction and on the Chinese experience. The Global Poverty Reduction & Growth (GPIG) Portal was officially launched in Beijing on May 2017, dedicated to sharing best practices and tools for poverty reduction in China, Asia and the world. It is the first online platform in China focusing on poverty reduction worldwide. It offers information on the latest research in poverty alleviation and inclusive growth, including experts' opinion, events, trends and opportunities. This portal was initiated by the World Bank and supported by the Asian Development Bank (ADB) and is operated by the China International Poverty Reduction Center (IPRCC) and China Development Gateway (CnDG). Think tanks from Asia, Africa and the Americas are also invited to contribute their knowledge and experience<sup>[26]</sup>.

## 6 Conclusions

Based on the research of targeted poverty alleviation in China, we found that poverty reduction is a dynamic and complex cooperation and coordination work among different sectors of internal and external government. Poverty is pronounced deprivation in well-being, and comprises many dimensions. Deprivation is multidimensional. It is not enough to look only at income poverty; we have also to look at many other attributes. It includes low incomes and the inability to acquire the basic goods and services necessary for survival with dignity, poverty also encompasses low levels of health and education, poor access to clean water and sanitation, inadequate physical security, lack of voice, and insufficient capacity and opportunity to better one's life.

In China, the government released policies and launched activities to perform TPA improving program in family income, basic food, water and shelter for survival, identify poverty population, education, health care, and social security. The government proposed 3 poverty lines from 1987. The central government joins itself in the activities for fighting the poverty and achieved a great success. Such empirical experiences and achievements on TPA benefit China, Asia and the world. Also, this success proved that TPA could reduce poverty effectively and efficiently. The inadequate in this study is that the paper does not prove the process the TPA influences poverty line. In the future study, this will be focused on.

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## Research on the Spatial Matching of Affordable Housing and Public Service Facilities in Chengdu, China \*

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**Abstract** Under the realistic background of the layout of public service facilities, which is capitalized into the house price to some degree, it's a key point for government to insist on the harmony between efficiency and safeguard of social fairness, and it's also a significant standard of affordable house to live comfortable or not. This paper, based on the field survey of the construction scale and spatial distribution of affordable housing construction projects in Chengdu from 2007 to 2014, evaluates the accessibility of affordable housing to five types of public facilities used by ArcGIS. Through the study of the shortest distance with ArcGIS, the results of this paper show that, firstly, the availability ranking of affordable housing to public service facilities is green land, subway, key secondary school, business center, Class A&B Hospital. Secondly, from the point of fair value, the difference in the spatial layout of affordable housing and public service facilities, leading to the inequality of accessing to certain public service, it will be more unfair for the accumulation of affordable housing's construction. Thirdly, the basic public service is fair obtained even in Chengdu's cluster area of affordable housing, while the unequal characteristics of high quality public service are obvious at the same time.

**Key words** Affordable housing, ArcGIS, Public service facilities, Efficiency and equity, Spatial distribution

### 1 Introduction

With the rapid economic development during the 30 years of reform and opening up, a large amount of mobility population influx into big cities and the urban housing prices rise rapidly like a rocket to the sky, nowadays, "a house is too difficult to buy" have become the core problem for urban Chinese. Solving the housing problem is the key point to balance the differentiation between the rich and the poor within the city and sustain the development of the society. It is affordable housing that the government can solve the housing problem for the low-income class, so how to guide such a huge flux of population live and work in this city has become an important object for local government. Therefore, the efficiency and fairness of affordable housing has become the most significant issue to guarantee the target crowds' vital interests and build a harmonious society.

### 2 The theoretical framework

Affordable housing is constructed by government to guarantee the low-income class's basic living rights and living conditions for which the site layout and the surrounding public service facilities are in great demand to meet the affordable housing families' living conditions for standards (Du Deng-bin, Cui Bin and Liu Xiao-ling, 1996<sup>[1]</sup>).

As ordinary commercial housing, the most fundamental feature of affordable housing is its fixed position. The residential location is a basic part of its demand, so the location's choices are the core problem of affordable housing construction. The 30% of affordable housing construction funding is supported by the subsidies of central government and the 70% is supported by local government's funds (Zheng Si-qi, Zhang Ying-jie and Zhang Suo-di, 2016<sup>[2]</sup>). Coupled with the local government that is heavily dependent on "land transfer income", it is hard to make an opportunity to loss such huge land transfer income, so the local government is willing to "save" land to transfer more than constructing affordable housing (Wang Song-tao, Zheng Si-qi and Feng Jie, 2007<sup>[3]</sup>). The public welfare of

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affordable housing determines that its location cannot be contrary to the principle of market efficiency, as well as cannot be in loss of fairness. Therefore, in the process of site's selection, the government tries to weigh the pros and cons in order to find the balance between cost and income to maximize the benefits.

In addition, Zheng Si-qi and some other scholars' empirical results (Zheng Si-qi, Fu Yu-ming and Liu Hong-yu, 2005<sup>[4]</sup>; Zheng Si-qi, Fu Yu-ming and Ren Rong-rong, 2011<sup>[5]</sup>) show that high-income groups are still biased towards living in the city center. The reason is that there are high level public service facilities in the city center that can support them better living conditions, so the living space of city center is still occupied by the groups who have high-level income, and such people with high consumption capacity will continue to keep the city's economic vitality, enhance economic development and animate business activities.

As a result, the high quality public service facilities of the city center's residential areas are highly efficient for the middle and high income classes to use. It can be a waste of efficiency for low-income people's use. The waste of social efficiency will eventually be converted into loss of social economic and cost of development. Residents who own affordable housing are less able to promote the economy around, in the long-term development, the economic vitality of the residential areas will be limited to some extent (Zheng Si-qi, Ren Rong-rong and Fu Yu-ming, 2012<sup>[6]</sup>). The contribution of the affordable housing groups to economic development is less, which is the price that the government is reluctant to pay in terms of considerations of economic efficiency.

From the perspective of social benefits, affordable housing in large cities, such as Beijing (Liu Ze and Xing Hai-feng, 2013<sup>[7]</sup>), is located far away from the employment-intensive areas of low-income groups, the public transport facilities, and the high-quality public service facilities. The layout of affordable housing in the city, firstly, directly increases the difficulty of employment; Secondly, it determines the quality of their living conditions; Thirdly, it determines the prospect of social development. Cluster of indemnificatory housing construction and lack of social resources will lead to the emergence of social stratification, social differentiation and many other social questions.

### **3 The spatial analysis of affordable housing and public service facilities in Chengdu**

#### **3.1 Research scope**

Chengdu is composed of five central cities, including Jinjiang district, Qingyang district, Jinniu district, Wuhou district and Chenghua district. Due to the strong geographical advantages and the prosperous economy, five districts play a great role in promoting Chengdu economic growth. According to the aim of the research, this article will focus on five center districts as the main area to research.

#### **3.2 Data sources**

According to the information that Chengdu Urban and Rural Real Estate Authority announced to constructing 45 affordable housing from 2007 to 2014, this research collects geographical information of affordable housing samples from the official website (<http://www.cdfgj.gov.cn>).

Based on public service facilities to which life quality highly related, this research selects the subway, hospitals, key schools, commercial centers, green land these five kinds of public service facilities as objects of this paper. It will be shown in Table 1 to analyze the accessibility of affordable housing and public service facilities.

Public service facilities' information, as shown in Table 1, are collected from the official website of each field. Firstly, according to actual operation status, this article selects Metro Line 1, Line 2, Line 3, and Line 4 in Chengdu to research and analysis. Secondly, searching through the National Health Department Hospital Grade Inquiry System, this article collects eleven high-level hospitals and their branches. Thirdly, author retrievals 11 key schools that directly under Chengdu Municipal Education Bureau domination and 30 samples of their branches in total as research's object. Fourth, this article selects 45 large-scale commercial stores as research object, such as Wal-Mart, Carrefour, Yonghui supermarket, to study its coverage of affordable housing. Fifthly, as a representative of garden city, green land is a standard of Chengdu livability. According to scale of 1: 25,000, as Baidu's map shows, the author uses Arcmap tool to estimate the area of green land that is more than 10,000 square meters

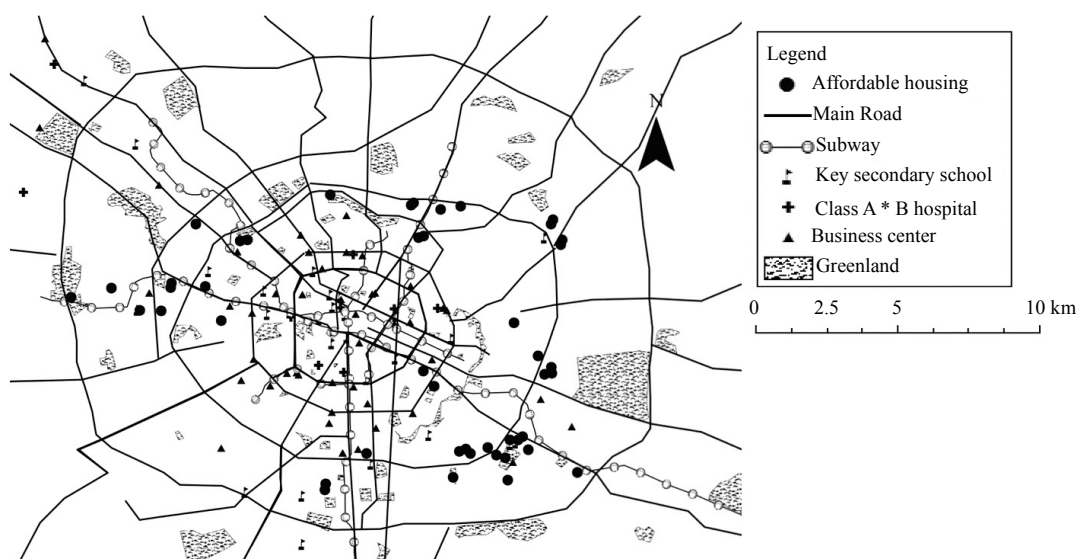
and selects the green land as study samples. Finally, author draws spatial distribution of affordable housing and public service facilities with ArcGIS and calculates the distance between them.

**Table 1 Statistical table of public service facilities**

Study object	Study object	Number of samples
Subway	Chengdu secondary and tertiary A, B and other comprehensive hospitals	4
Class A&B hospital	Chengdu hospital of class A and band their branches hospitals	11
Key secondary school	11 key secondary schools and their branches under the direct control of Chengdu education bureau	30
Business center	Chengdu Wanda, Wal-Mart, Carrefour and other commercial centers	45
Greenland	Areas of more than 10,000 square meters of green space measured by Arcmap	More than 50

### 3.3 Spatial analysis of affordable housing area and public service facilities

Figure 1 clearly shows that there is no construction of affordable housing in the core area of the city. The majority of affordable housing projects are located along the third-ring road within the high-speed way, away from the city center showed as circular distribution. For site selection, a number of projects tend to cluster.



**Figure 1 Spatial distribution of affordable housing and public service facilities in Chengdu**

Combined with the results of the shortest distance of ArcGIS spatial analysis, affordable housing constructed beside the subway, key secondary schools, excellent general hospital, commercial center, green land these five kinds of public service facilities, the average shortest distance followed by 2,030.15 meters, 2,508.98 meters, 6,821.58 meters, 2,533.27 meters and 1,022.96 meters. The order of the shortest distance followed by green land, subway, key secondary schools, commercial centers and class A&B hospitals. Among the 46 affordable housing construction projects, there are 10 projects, the shortest distance calculation results for the subway, accounting for 21.74%; 7 projects for the key secondary schools, accounting for 15.22%; the shortest distance for the class A&B hospitals is 0 times; 3 projects for the commercial centers, accounting for 6.52%; 26 projects from the green land, accounting for 56.52%. In all affordable housing construction projects in Chengdu, excellent

comprehensive hospitals as high-quality resources, obtain for affordable housing for the shortest distance is 0 frequency, which shows for high-quality medical resources, affordable housing costs much.

### **3.3.1 Spatial distribution of affordable housing and subways in Chengdu**

Until the date of writing, Chengdu Metro already has four lines: Line 1, Line 2, Line 3 and Line 4. Most of the affordable housing has a better accessibility to the subway. Among 46 projects about affordable housing, the minimum distance to the subway is 255.78 meters, while the maximum distance is 7,133.87 meters and the standard deviation is 1,827.99. Among the five kinds of public service facilities, affordable housing's accessibility to the subway is secondary, only followed by green land. The standard deviation of the shortest distance is relatively large, indicating that there is a great difference in affordable housing's accessibility to subway. The location of a small part of affordable housing, which is beyond accessibility to the subway, may not be covered by Chengdu Metro until now. The reachability of the subway can be effectively improved in the future.

### **3.3.2 Spatial distribution of affordable housing and class A&B hospitals in Chengdu**

The 11 hospitals are elected as the study's samples in this research to meet the demand of the vast majority of therapy of serious diseases in Chengdu even in Sichuan Province. Among 46 affordable housing projects of the hospitals, the minimum distance is 3,136.15 meters while the maximum distance is 12,218.14 meters and the standard deviation is 2,038.69. The spatial distance between the affordable housing and the hospitals mostly distributed in the city center within the Second Ring Road is objective and the spatial distribution of affordable housing and hospitals shows a shape of a concentric circle with different layers, which indicate that the affordable housing's accessibility to high-quality medical resources is difficult and the spatial distance is long. This isolation distribution in physical space brings the medical-seeking of the protection population a great deal of inconvenience, and greatly reduces their motivation to have high-quality medical resources, along with medical costs increasing due to the increased distance, which result in the situation that the quality medical resources acquisition for the affordable housing is limited in physical space.

### **3.3.3 Spatial distribution of affordable housing and key secondary schools in Chengdu**

The average shortest distance of affordable housing and key secondary schools is 2,508.98 meters; the minimum distance is 143.2 meters; the maximum distance is 6,654.33 meters; the standard deviation is 1,729.5 meters. Among the five types of public service facilities, the accessibility of the affordable housing to the key secondary school ranks third, only after the green land, subway, slightly better than the commercial center. Overall, the quality resources are isolated sited out of the affordable housing spatial distribution, not in the effective availability to affordable housing within the distance. Moreover, the quality education resources attach to the residence location, living conditions, entrance examination results and other conditions, indicating that affordable housing population's access to quality education resources conditions are severely limited.

### **3.3.4 Spatial distribution of affordable housing and commercial centers in Chengdu**

Among 46 affordable housing projects to the commercial centers, the average distance between affordable housing and commercial center is 2,533.27 meters, and the minimum distance is 470.74 meters, while the maximum distance is 7,731.85 meters and the standard deviation is 1,859.76. The minimum distance is 470.74 meters while the maximum distance is 7,731.85 meters and standard deviation is 1,859.76. At the same time, the spatial agglomeration of low-income people will produce some "crowding-out" effect on the surrounding high-income people and the middle and high-end commercial activities, so that the middle and high-level residents will choose to stay away from the affordable housing area. It makes the affordable housing area more isolated apart from society, increasing the possibility of social differentiation. This will also make the government's governance costs and difficulties increased and have a huge impact on the region's economic development.

### **3.3.5 Spatial distribution of affordable housing and green land in Chengdu**

Its scale is 1:200,000, choosing the green land that the estimated area is more than 10,000 square meters in the Arcmap. The average distance between affordable housing and green space is 1,022.96 meters while the minimum distance is 0 meters, the maximum distance is 3,274.68 meters and the standard deviation is 700.72. Compared with the spatial distribution of affordable housing and green

space in Chengdu, the green land coverage of the affordable housing is better than that of the city center, and the availability to green space in the north and west is better than the east and south. Overall, affordable housing is highly accessible to the green land, ranking first in the five types of public service facilities. The standard deviation is relatively small and the accessibility is high-quality balanced.

## **4 The way to realize the improvement of living conditions of affordable housing**

### **4.1 Reasonable site selection of affordable housing**

In the provision process of affordable housing's construction, the government has actually been in balance with two value goals of fairness and efficiency. The government insists on the principle of "focusing on efficiency and maintaining social fairness" in the provision of public goods. It is also a very important principle and an important criterion for the "livable" standard of affordable housing (Wang Dong-ning, Jin Xiao-bin and Wang Jing, 2012<sup>[8]</sup>). Therefore, the government in the provision of affordable housing should take efficiency and fairness both into account. They may give more consideration to protect the low-income group's living conditions, as providing better employment, transportation, medical, education and other public sources. This class is in order to obtain more equal opportunities for development and capacity as a vulnerable group in the city.

### **4.2 Spatial equilibrium allocation of public resources**

Public service facilities as non-exclusive public goods, to a certain extent, the spatial distribution determines the residents of each region on the acquisition equality of public resources (Cheng Shun-qi, Qi Xinhua, Jin Xing-xing and Li Da-mou, 2016<sup>[9]</sup>). The improvement of the infrastructure and public service in the suburbs will help to encourage the residents to migrate to the suburbs. For the construction of affordable housing projects in suburbs, only the construction of public service facilities be strengthened can make up the defects of residential location. For the government, they should supply public service facilities for all types of living population fairly to keep reasonable coverage for all citizens, especially for vulnerable groups of the city, which will effectively enhance the equality of affordable housing residents to access to public resources

### **4.3 Advocate the mixed-income housing of "no bounds"**

The large-scale agglomeration of affordable housing will increase the city's residential segregation and social differentiation (Sun Xiu-lin, 2015<sup>[10]</sup>). In today's advocacy of the "no bound"-the mixed income of community building model, the government should have a well plan, implementing the mixed-living model step-by-step (Chen Wei-zhen and Sun Chen, 2015<sup>[11]</sup>), gradually reducing the existence of living isolation in the physical space, and then eliminate social barriers, and guide all sectors of society to develop orderly.

## **5 Conclusions**

The study uses ArcGIS technology to show the spatial distribution of affordable housing and public facilities in the form of distribution map, and analyzes the spatial accessibility of affordable housing to public facilities. From 2007 to 2014, the government constructed 45 affordable housing projects. The majority of affordable housing projects are located along the third-ring, within the high-speed way or away from the city center. A number of projects tend to cluster in the provision, especially in the southeast, north and northwest. Affordable housing, located far away from the city center, determines the greatly limitation of obtaining high-quality public resources, and the low-income people become more difficult to gain the high-quality public service. According to the study of the shortest distance with ArcGIS, the ranking of affordable housing to public service facilities is green land, subway, key secondary school, business center, class A&B hospital. From the point of fair value, the difference in the spatial layout of affordable housing and public service facilities leads to the inequality of accessing to certain public service, and the inequality of public service will be strengthened for the accumulation of affordable housing construction. Therefore, the basic public service is fair obtained by the people who live in affordable housing, but the limitation of high quality public service is very obvious at the same time. It is a long way to go for the government to improve the living conditions of residents who live in affordable housing.

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## Research on the Mechanism of Continued Trust Generation of Micro-government Based on User Experience

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**Abstract** The micro-government is an important embodiment of “Internet + government Affairs”, promoting the public trust of the micro-government and promoting the public adoption has become an important way to realize the modernization of national governance. The establishment of the continuous trust is based on the user experience obtained after the adoption of micro-government, and the improvement of user experience has a positive effect on promoting the continued trust of the public. From the perspective of user experience, this research combined with the theory of self-perception, telepresence, heart-flow experience and expectation confirmation, the model of impact mechanism of user experience on the continuous trust of micro-government public is built on the basis of the expectation confirmation models, from the aspects of public participation, heart flow experience, telepresence and risk perception. The study collects data through questionnaires and uses AMOS17.0 and SPSS22.0 for hypothesis testing and model fitting. The results show that: (1) Public participation has a positive impact on the heart flow experience and telepresence, negative impact on risk perception, (2) the telepresence positive impacts the heart flow experience, and through satisfaction, expected confirmation positive effects the micro-administrative public trust; (3) The Heart flow experience has positive effect on the public trust of the micro-government through the satisfaction degree, but it is not significant to the positive effect of the expectation confirmation; (4) The risk perception has negative influence on the public trust through the satisfaction degree and the expectation confirmation. On the basis of this, the paper puts forward some suggestions to improve the public trust of micro-government.

**Key words** User experience, Micro-government, Continuous trust, Heart flow experience, Telepresence, Expectation confirmation

### 1 Introduction

On December 22, 2016, the State Council issued the *guiding opinions on strengthening the construction of the government's honesty and credit* which made the deployment of strengthening the credibility of government affairs, pointed out the further improvement of government credibility and the modernization of the National governance system and governance capacity. It can be seen that the construction of government trust not only has the political significance of guaranteeing the legality and authority level of governments, but also has the realistic value of helping to push forward the state governance and social service modernization, which is an important issue in the field of public administration. The so-called micro-government refers to the governmental departments in the Web 2.0 environment take the political affairs microblogging, government WeChat and government service as a platform, to complete the information release and public, public demand response and network opinion guidance e-government new model, is the important embodiment of “Internet + government”. Continuous trust is an important guarantee for sustaining the development of micro- government. Although the academic circles have carried on a series of explorations from the technology, the government, the network and so on, but it is regrettable that the problem of the public continuous trust of the government has not been solved. This study considers that the key to solve the public trust lies in the public perspective, only after grasping the public's actual experience and emotional cognition to analyze the public's continued trust is of real significance.

### 2 Theoretical basis and analytical framework

#### 2.1 Hope confirmation theory

The theory of expectation confirmation was first proposed by Oliver (1980), which was mainly

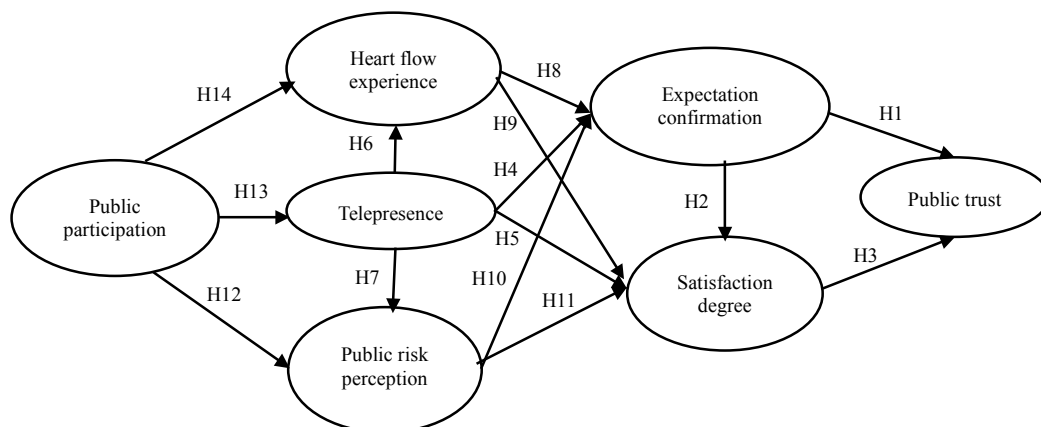
used to study consumer satisfaction. This theory puts forward four core concepts, namely, expectation, performance, confirmation degree and satisfaction degree, and thinks that the ratio of consumers' shopping performance and expectation is the degree of confirmation, the degree of confirmation will affect the satisfaction degree, and satisfaction degree is the key to establish and maintain the long-term loyalty of consumers. The theory of expectation confirmation the bridge between psychology and behavior, and it has strong explanatory power to the user's emotional attitude, psychological cognition and behavioral generative mechanism. The main performance of the theory since it came out are the following three aspects: (1) continuous use, such as Bhattacharjee, who introduced the theory of expectation confirmation to the study of continuous use of information systems users, he pointed out that the continuous use of behavior also exists the similar decision-making process in the consumer's continued purchase behavior. (2) knowledge sharing, such as Jin X L, Zhou Z Y, et al. (2013), who explored the information sharing of network virtual community based on the theory of expectation confirmation, and found that satisfaction degree and knowledge self-efficacy are the important factors that lead to the willingness of users to share information<sup>[1]</sup>. (3) User loyalty or trust. A lot of research, from the expectation confirmation theory, such as Valvi, Aikaterini c.; West, Douglas C. (2013) derived that satisfaction degree can directly trigger loyalty or trust<sup>[2]</sup>.

**2.2 Self-perception theory**

Self-perception theory believes that the user's behavior of using a product is an important basis for its evaluation of the product, in other words, the more you use it, the easier it is for users to form relatively objective cognition, attitude and emotion. The academic community introduces it into the field of information system research to analyze the influence of user behavior and interaction behavior on perceived usefulness, risk perception, heart flow experience, and so on, so as to promote satisfaction degree, trust of emotion, knowledge sharing and continuous adoption.

**2.3 Analytical framework**

In the process of using micro-government, the generation and maintenance of public trust is an extremely complicated process. It is of great significance to understand the mechanism and internal logic of the public trust of micro-government for the promotion and maintenance of public trust. Unfortunately, there is a lack of research on the public trust of micro-government in the current academic circles. This study holds that the same is true of micro-government, and the internal experience of users is the key to influence their trust in micro-government, and the participation or use of micro-government is an important way for users to gain experience. Environmental psychology puts forward the famous "stimulation-organism-response" (S-O-R) theory, which indicates that environment as stimulation affects the user's internal organism or state, and then acts on the user's behavioral response. Based on the theory of "stimulation-organism-reaction" (S-O-R), this research explores the generation mechanism of the public trust of micro-government, as shown in Figure 1.



**Figure 1 Model of research theory**



### **3 Research hypotheses**

#### **3.1 The assumption of satisfaction degree, expectation confirmation and the continuous public trust of the micro-government**

As mentioned earlier, the theory of expectation confirmation is widely used in the field of information system user loyalty or trust, which can be understood from two aspects. First of all, trust is essentially a kind of internal psychological expectation that whether the actions of others are in accord with their own interests, which is the ratio of the prophase expectation and the later confirmation, if the ratio is higher, the trust degree is stronger. The same is true of the continuous trust of the micro-government, which is the result of the comparison of the expectation formed before the user's contact with micro-government and the confirmation degree obtained after the use of micro-government, and if the experience is close to the initial expectation, the user's approval of the micro-government is higher, and vice versa. However, a large number of studies have shown that the key to whether a user decides to trust a particular information technology or commodity service is if the latter's ability to meet the user's needs. A comfortable, enjoyable and satisfying experience can often lead to the generation of the continued trust of micro-government. Such as J Kim, S Hong, et al. (2011) pointed out, in the research of satisfaction and trust on the continued adoption of the application services, that the customer satisfaction with the service quality can impel the user trust to the service<sup>[3]</sup>.

Based on the theory of expectation confirmation and the existing literatures, the assumptions are:

H1 satisfaction degree positive impacts continuous public trust of the micro-government.

H2 expectation confirmation positive impacts satisfaction degree.

H3 expectation confirmation positive impacts continuous public trust of the micro-government.

#### **3.2 The hypothetical relationship between telepresence and continuous public trust of the micro-government**

The theory of telepresence originates from communication field, which is mainly used to analyze the psychological state and emotional experience of the user in contact with the media. Ljsselsteijn pointed out that the remote telepresence and virtual telepresence are essentially the same in the perspective of psychology, and divided it into spatial telepresence and social telepresence, spatial telepresence means "immersive", that is, through the adoption of virtual services process to feel the real degree, while social telepresence embodies "coexistence with others", that is, the process of enjoying virtual services to experience the real degree of social relations existence. This study holds that the micro-government, takes government affairs microblog, micro WeChat and client and other social media as the platform, can provide the public with personalized government service through the way of teletext, voice and so on, and is committed to the effective interaction with the public which enhances the public's sense of telepresence experience. The research believed that the most direct effect of such experience can make up the defects of the micro-government online service virtualization and information asymmetry, thus reducing public risk perception. Such as D Cyr, K Hassanein, et al. found that adding some personalized, picture and text, can effectively enhance the user's online shopping sense of telepresence, thereby eliminating uncertainties and increasing trust and loyalty to online shopping<sup>[4]</sup>. Based on this, the following hypotheses are proposed based on the telepresence theory and the existing literatures:

H4 Social telepresence positive impacts on public expectation confirmation.

H5 Social telepresence positively impacts on public satisfaction.

H6 telepresence positive impacts on public heart flow experience.

H7 telepresence negative impacts on public risk perception.

#### **3.3 Theory of heart flow experience**

In the process of browsing, searching and acquiring the network information, the users are often accompanied by the corresponding psychological changes. These psychological changes may be tension, anxiety, fatigue and other negative emotions. The American psychologist Csikszent-mihalyi called it "flow experience." The heart flow experience is also introduced into the online shopping, technology experience and other research, mainly to explore how to improve the user's heart flow experience, enhance user stickiness, and thus to further promote user trust, loyalty, as well as to attract new users or ensure that old users continue to buy, use and so on. A Bilgihan, K Nusair, et al (2015)

found that user online interaction in the service environment can create a good user flow experience, and this experience can help online service to nurture brand reputation, user trust, and then to establish and maintain long-term relationships with users<sup>[5]</sup>. The study considers that the micro-government is essentially the extension of the government service in the mobile Internet technology platform. Based on this, combined with the theory of heart-flow experience and existing literatures, the following hypotheses are proposed:

H8 heart flow experience positively affects the public expectation confirmation degree.

H9 Heart flow experience positively affects public satisfaction degree.

### 3.4 Risk perception theory

The risk perception theory is the analysis method of public safety and risk from the group psychological paradigm. Such as Be Langer constructed the e-government trust and the risk perception model, believed that the e-government trust mainly stems from to the government trust and the trust to the network, and is affected by the perceived risk<sup>[6]</sup>. Although previous studies have explored the impact of risk perception on user trust, while they did not understand the specific mechanism of action. This study argues that risk perception, as a user experience, whether can affect or the influence degree of public trust in the government depending on the public expectation recognition and satisfaction, the same degree of risk perception may result in different results due to the different expectation confirmation. Such as Zhang Min, Tang Guo-qing(2017), based on the theory of expectation confirmation and perceived risk, probed into the continuous use behavior of search engine users under the situation of product injury crisis, and confirmed that risk perception suppresses user satisfaction and continuous use behavior<sup>[7]</sup>. Based on the above analysis, the research suggests that the higher the public's perception of the risk of micro-government, the greater the concern, the lower degree of the expected value and satisfaction, and puts forward the following assumptions:

H10 risk perception positively influences public expectation confirmation.

H11 risk perception positively influences public satisfaction degree.

### 3.5 Self-perception theory

Self-perception theory holds that the formation of people's inner affective attitude is rooted in their cognition and experience of past behavior. The theory considers that the people's inadvertently behavior, as well as the frequency and degree of behavior often implies the emotion and attitude towards the behavioral object. In the existing research, there are also some researches that demonstrate the impact of information interaction and experience on user experience and cognition, such as Solomon O Ogara, Chang E-koh (2014), in the process of exploring the factors affecting the telepresence and satisfaction of mobile instant messaging users, found that the use experience and degree are the important driving forces of user's telepresence and satisfaction<sup>[8]</sup>. Participation in micro-government is an important way for the public to gain practical experience and subjective cognition. Generally speaking, the higher the frequency of participation, the wider the scope of participation, the deeper the degree of participation, the public's experience of micro-government will be relatively richer, and also the public would obtain a more comprehensive understanding and awareness and the feeling of the potential risks and uncertainties will be relatively small. and make the following assumptions:

H12 Public participation negatively impacts on public risk perception.

H13 Public participation positively impacts on telepresence.

H14 Public participation positively impacts on the heart flow experience.

## 4 Research design

### 4.1 Variable measurement

The variables involved in the study are selected in the existing research, so the classical measurement scale in this field is adopted, and the final scale is generated by combining the logic of this research with the characteristics of the micro-government.

The theory of public participation in ladder is divided into eight steps of manipulation, treatment, notification, consultation, exhibition, cooperation, power transfer and citizen control according to the degree of participation. Tang Zhi-wei and other scholars (2016), combining the characteristics of the stage of e-government development and the public participation of the micro-government, divided it

into three types: (1) Basic information acquisition, (2) Public service adoption, (3) Interactive exchange of political participation. The paper continues this division and increases the frequency of participation in this observational indicator. The telepresence adapted the two dimensions proposed by Ljsselsteijn, namely, social telepresence and spatial telepresence, and the scale of this study is changed according to the measurement scale developed by him. The measurement of risk perception adopts the scale developed by Be Langer; and the heart flow experience refers to the study of Csikszent-mihalyi. Satisfaction degree and expectation confirmation were confirmed on the basis of the Oliver Development scale.

#### 4.2 Data collection

According to the above scale, the questionnaire is compiled. Micro-Government public trust falls in the category of psychological cognition and attitude, so the use of Li Kete five-point scale to carefully test. A total of 544 valid questionnaires were completed to meet the requirement that the number of samples should be 10-25 times the number of variables. Of them, male 244, accounted for 44.9%, female 320, accounted for 55.1%; The age is mainly the phase of 20-29 years old, as high as 63.9%; The income level is mainly the income less than 3000, accounting for 38%, occupation is mainly students, accounting for 55.1%, the net age is mainly 4-6 years, accounting for 40.5%. The sample situation coincides with the demographic structure of the 37<sup>th</sup> China Internet Development Report.

### 5 Discussion of data analysis and results

#### 5.1 Reliability and validity analysis

The Cronbach's alpha reliability coefficients and CR test reliability are used to test the internal consistency of the data scale. The results showed that both the Cronbach's Alpha and CR values are more than 0.7, indicating that the scale had a high reliability. The validity is embodied by collecting validity and distinguishing validity, and the result shows that AVE values are all more than 0.5, the loads of each variable are more than 0.7, which indicated that there is a good convergent validity between these variables; the diagonal is the arithmetic square root of Ave, which is shown by Table 1, and the square roots of each variable AVE were greater than the corresponding correlation coefficient, which indicates that the validity of the scale is obvious.

**Table 1 Reliability validity and correlation coefficient**

Variable	Cronbach's alpha	CR	AVE	Public participation	Heart Flow experience	Telepresence	Risk perception	Expected confirmation degree	Satisfaction degree	Continuous trust
Public participation	.829	.893	.616	.785						
Heart Flow Experience	.914	.876	.610	.553**	.781					
Telepresence	.901	.842	.575	.511**	.736**	.758				
Risk perception	.885	.870	.626	-.183**	-.208**	-.219**	.791			
Expected confirmation degree	.872	.875	.635	.414**	.526**	.574**	-.214**	.797		
Satisfaction degree	.861	.854	.655	.398**	.652**	.709**	-.229**	.711**	.809	
Continuous trust	.923	.893	.616	.362**	.549**	.594**	-.268**	.511**	.681**	.785

Note: \* means  $p < 0.05$ , \*\* means  $p < 0.01$ , \*\*\* means  $p < 0.001$

#### 5.2 Structural equation analysis

The AMOS17.0 is used to model structural equations for model fitting and hypothesis testing. Analysis found that GFI, CFI, NFI, IFI > 0.9, which indicates that the model can be fitted. The results of hypothesis testing are as shown in Table 2, in addition to H8 (heart flow experience positively affects the public expectation confirmation degree) did not pass, the remaining assumptions presented in the study are examined.

**Table 2 Path coefficients and results of structural equation analysis**

Hypothesis	Path	Estimate	P	Result
H1	Continuous trust←Expectation confirmation degree	.827	.001	Pass
H2	Satisfaction degree←Expectation confirmation degree	.670	***	Pass
H3	Continuous trust←Satisfaction degree	1.556	***	Pass
H4	Expectation confirmation degree←Telepresence	.525	***	Pass
H5	Satisfaction degree←Telepresence	.153	.029	Pass
H6	Heart flow experience←Telepresence	.808	***	Pass
H7	Risk perception←Telepresence	-.135	.015	Pass
H8	Expectation confirmation degree←Heart flow experience	.133	.106	Fail
H9	Satisfaction degree←Heart flow experience	.115	.019	Pass
H10	Expectation confirmation degree←Risk perception	-.028	.021	Pass
H11	Satisfaction degree←Risk perception	-.068	.025	Pass
H12	Risk perception←Public participation	-.334	.003	Pass
H13	Telepresence←Public participation	.758	***	Pass
H14	Heart flow experience←Public participation	.369	.002	Pass

### 5.3 Discussion of results

The research shows that there is a positive relationship between the expectation confirmation degree, satisfaction degree and public participation and public trust in micro-government, and the expectation confirmation degree can significantly affect the satisfaction degree, that is, H1, 2, 3 are certificated, indicating that the higher the user's expectation confirmation degree, the stronger the satisfaction degree. The research also finds that the higher the telepresence, that is, the higher of the reality degree that users perceived in the process of using the online virtual service through the micro-government platform, the more they can effectively enhance the user's heart flow experience, reduce the public risk perception, and further improve the expectation confirmation degree and satisfaction degree. Risk perception has a restraining effect on expectation confirmation degree and satisfaction degree, in other words, if users, in the process of using micro-government, the more feel the security risks, information disclosure and other uncertainties, the lower the user's expectation degree of micro-government, the less easily satisfied, namely H4, 5, 6, 7, 9, 10, 11 hypothesis are established. It is worth noting that the heart flow experience is not significant to impact the expectation confirmation, it is thought that the difference between the two functions is not significant due to differences in the meaning of the two roles, and the expectation confirmation emphasizes the ratio of the use experience and expectation, while the heart flow experience emphasizes that the user is attracted by the interest of the micro-government service, so the heart flow experience does not necessarily to bring the expectation confirmation, so the H8 failed. The study also discovers that there are many ways to improve the user experience, but promoting their participation is one of the important ways for users to experience.

### 6 Conclusions

The research attempts to start from the perspective of user experience, to construct a model of the continuous public trust of micro-government, and probes into the factors influencing the public's continuous trust through the empirical method, which provides new ideas and perspectives for analyzing the public trust of the micro-government, and also enriches the theory system of continuous public trust of micro-government. The samples selected in this study mainly concentrated in the central and western regions, failed to cover the eastern seaboard, which remains to be perfected and improved in the following research.

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## **New Public Management: Innovation of Internal Management System of Chinese Higher Vocational Colleges \***

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**Abstract** Due to historical conditions and realistic factors, there are various problems in the internal management system of Chinese higher vocational colleges. The management system has been not adapted to current economic and social development needs. The appeals of market orientation, power decomposition, result-control and multiple monitoring in New Public Management Movement provides theoretical support and pattern guidance for internal management system innovation of higher vocational colleges. Based on this theory, higher vocational colleges should change the internal organizational settings, administrative authority as well as power operation; establishing a new resource allocation way and management order, build a modern university governance structure, construct “running-evaluating separation” governance system, implement “project responsibility system”; organize college council to coordinate the interests of all parties, optimize structure, devolve power and guarantee multiple-participation. Only in this way can higher vocational colleges remove development obstacles as well as reform restrictions, and then promote competitiveness, innovation-ability as well as service-capability.

**Key words** New Public Management, Higher vocational colleges, Management system innovation, Power disposition, Multiple participation

### **1 Introduction**

At present, higher vocational colleges, after the completion of extended development featured as scale expansion, are now changing their development mode according to China's economic transformation, advocating “improvement of quality and connotative development”. The key to realize transformative and upgrading development is to follow the road of reform and innovation. “Only reformers improve, only innovators be strong, and only reform-innovators win”. However, due to the historical condition and practical factors, the internal management system of higher vocational colleges is inevitably facing many problems, such as organizational structure, power allocation and operation mode, which can meet the economic and social development needs no more. How to innovate the internal management system, thus to maximize people's activity and creativity, improve the scientific level of management, and make it better play its social service functions, is an important issue to higher vocational colleges. New Public Administration, as a major theory of administrative reform in Western countries, has become a popular new administrative model since the late 1970s and early 1980s, which emphasizes that the government should adopt a private enterprise management approach, use market mechanism in government reform, enhance customer guidance and improve service quality, thus to pursue “Economy, Efficiency and Effectiveness”<sup>[1]</sup>. This theory, has not only got broad concern in the field of government reform, but also got active application in the field of vocational education, which has provided theoretical support and model guidance for the innovation of higher vocational colleges' internal management system. Higher vocational colleges should proceed from their own reality, select the advanced experience of New Public Administration as references, changing the internal organizational settings, administrative authority and power operation, establish new resource allocation ways and management order, and explore a new practicing path for system innovation, thereby removing development obstacles and reform constraints, effectively enhancing the competitiveness, innovation-ability and service-capability.

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## **2 Re-examination: Analysis on internal manage system problems in higher vocational colleges**

### **2.1 Organizational structure dimension**

First, the bureaucracy feature is obvious, which hinders the reform and innovation of higher vocational colleges' internal management system while helps maintain the stability of organizational structure. Higher vocational colleges' internal management system is structured according to job classification, power stratification, legal qualification and responsibility, which mainly takes ways of control, command as well as authorization, and has fixed roles with corresponding rights, featured as structural stability and stylized design. In this mode, departments are difficult to do cross-border cooperation and inefficient in work, resulting to financial waste and energy difficulties. The one-way top-down regulation, the long upload and release process, and the steady organizational structure not only have delayed timely feedbacks of the latest information, but also have brought huge inertia which led higher vocational colleges cannot make timely strategic adjustments and direction changes in accordance with the development of regional economy and the needs of industry.

Second, a complete management system has not been really established yet, due to the four basic functions, namely decision-making, consultation, implementation, and supervision have not been formed as a complete closed loop. The executive department, when offering options for decision-making department, is also involved in decision-making, "acting as both athlete and referee". What's more, most of the decision-making options have not been consulted and argued, so their scientific level and professional level are not high, which have affected the scientific nature of decision-making. While researchers in the vocational education research centers set up in higher vocational colleges, are often caught in specific affairs and have difficulty in developing forward-looking and strategic research, can not fully play the role of consultation and suggestion. In addition, supervisory and feedback system is weak. It concerns more about the supervision and accountability of results, but generally asks less about the executive process, effects and quality.

### **2.2 Power allocation dimension**

First, there's imbalance between political power and administrative power. Some higher vocational colleges take the Party Committee's leadership as management, "making the Party on behalf of Administration"; or have not rightly grasped the power boundary between the Party Committee Conference and the Headmaster Conference, with no scientific or standardized procedures for argument and decision-making, and the normal play of this leadership system is mainly ensued by the leaders' personality and interpersonal relationship. When communication between the Party Committee and the Administration System is not smooth, there will easily occur confusion and unsmooth relationship, and then affect the normal and effective operation of the decision-making system and executive system. When "not easy do" becomes a normal state, will easily cause "not do", and accordingly affect the effective function of the Party Committee<sup>[2]</sup>.

Second, the academic power is replaced by the administrative power. Most of higher vocational colleges have relatively weak scientific research foundation, academic atmosphere is not strong, and lack the tradition of using academic power. Therefore, it's common that administrative power intervenes or replaces academic power, and academic affairs like teaching, research and teachers are "controlled" by the administrative system; many members of the academic system are still administrative staffs, making it another "administrative organization". This has affected the academic organization's prestige and image, or only gives the Academic Committee the power of consultation and consideration, but no academic-decision power, making academic power fail to play its due role.

Third, the democratic power has failed to show. On the one hand, a system including higher vocational colleges, industry and enterprises interests is still not been formed, the integration of production and education is still not tight enough, and school-enterprise cooperation is still not in-depth. These cause less engagement of industry, enterprises, community and parents in school governance, leading to an increasing difficulty in personnel training. On the other hand, student organizations are generally seen as "assistant" for student management, applying self-education, self-management and self-service, which determines their passive position in exercising student power, and their administration-engaging right, supervision right and so on are not asserted.

### 2.3 Operation mode dimension

First, internal closed. Although there is a complete in-school communication channel in the vertical for all departments, the communication channel is not smooth because of the slow and lengthy feedback mechanism. At the same time, in the horizontal, since the division of departments, each department has also formed a relatively closed small system, and communication among departments has no corresponding sound channel and lacks direct horizontal dialogue mechanism, leading to information communication barriers and the lack of information transmission. In addition, seeing from the whole operation mode, the top-down disclosure of information is not enough, the publication of school affairs is apt to avoid the serious ones, which is speeding up the in-school closing trend.

Second, self closed. The first thing higher vocational colleges consider is to make their education ability known to their upper supervisors, so they always first comply with administrative instructions, superior documents and government policies, and then refer to market information and social dynamics. As long as higher vocational colleges meet administrative orders, they will get appropriate benefits and vocational education resources under the original system. This will, with no doubt, lower the activity, timeliness and accuracy of information obtaining; weaken higher vocational colleges' matching and relevance with regional economic development and industrial demands; lead to a path dependence on the administrative system and social members having difficulty in entering the management system; and finally cut off the possibility of multi-party co-governance.

## 3 New Public Management: A new perspective for internal management system innovation in higher vocational colleges

### 3.1 Theoretical basis

Because of the illogic of political control model, the oldness of bureaucratic model, and the disjoint between the administrative model and market, some Western countries had experienced government management crises. In the early 1980s, under the context of globalization and informatization, Western governments faced new challenges, that was, how to establish an administrative system in line with the requirements of modern society in the context of increasing global competition. Therefore, they began to explore and reform their management theories and practices. "New Public Management" came into being, then quickly spread to the world and developed into different theoretical systems. For example, Friedman and Hayek put forward "small government theory", advocated that government should narrow the scope of jurisdiction and to provide non-exclusive public goods and services; Hammer put forward "process reengineering theory", advocated to transform and transcend the bureaucracy system, and to rethought and redesigned work process in the perspective of customer demands, thus to realize the innovation of cost, quality, service and speed; Holzer put forward "response theory", advocated to build a customer-centered, authorized and collaboration-emphasized total quality management system; Osborne and Gebler put forward "government reshaping theory", advocated market orientation, government decentralization, competitiveness, customers driven, attention to effects, etc. Although the specific ideas of scholars are different, their basic principles and ideas are very close. As a new practice mode and theoretical trend, the core contents of New Public Management are as follows: more care for public service efficiency, quality and effectiveness; the extraction of advanced experience from private management methods and emphasis on establishment of competitive environment; emphasis on decentralization instead of centralization and flattening instead of bureaucracy; and attention on output and results. In short, New Public Management intends to establish a public interests-centered management system, trying to fundamentally solve the contradiction of fairness and efficiency in administrative management.

New Public Management is established under the influence of public choice theory, managerialism, modern property right theory, neoclassical economics, new institutional economics, game theory, etc.<sup>[3]</sup> Although there is various views about New Public Management's implementation in China, it is undeniable that its taking modern economics and private enterprise management methods as bases, emphasis on service quality and efficiency, and effectiveness and responsiveness in solving public problems and meeting demands, are still references for the reform and innovation of Chinese higher vocational colleges' internal management.



### **3.2 New Public Management is conducive to the new situation of higher vocational colleges' modern governance**

First, its “market orientation” is in line with the industry orientation concept of higher vocational colleges' modern governance. New Public Management argues that relationship between government and society is not controlling and being controlled, but serving and being served. Government management is the application of a strategic approach, with the separation of strategic management and specific operation as well as “the separation of buyers and providers”; government should be market-oriented, and use market mechanism and enterprise spirit to do self-transform, thus to form a competition mechanism of public service supply, timely responding to the changing society, making positive response and adjustment, reducing management costs and improving service quality. As an education type most closely linked to economic and social development, higher vocational education must respond to economy and industry's personnel and service needs. It should be market-oriented and make education and industry as well as school and enterprises dock in-depth. When implementing modern governance and internal management system reform, it should keep in heart expectations of the outside world, such as applying “running-evaluating separation” system and building a modern university governance structure, to enhance the ability of serving regional economic development, thus to change the management philosophy from controlling to serving.

Second, its “power decomposition” is in line with the nomocracy demand of higher vocational colleges' modern governance. New Public Management holds that only power decentralization can make it adjust its structure flexibly and quickly, thus to respond to the new situation and maintain sound administrative performance. Government should re-examine itself, attach importance to the management practices of private departments, break public sectors' selfishness, split and reorganize departments, implement specialized management, and exercise vertical decentralization and horizontal conversion of power, so as to eliminate interdepartmental barriers and promote cooperation. Under the new situation of modern governance, higher vocational colleges must break through the old administrative system malpractice, follow the laws of higher vocational education, and build modern governance system under the framework of nomocracy, to balance political power, administrative power, academic power and democratic power<sup>[4]</sup>, optimize allocation of multi-resources and cultivate new development impetus, thus to change the management method from centralization to nomocracy.

Third, its “multi-monitoring” is in line with the co-governance demand of higher vocational colleges' modern governance. New Public Management deems that government no longer occupies the single principal position; government, the private sector, the third sector, as well as the public should bear appropriate management responsibilities due to the realization of public interests. Power should be given to non-governmental organizations to involve in management; multi-monitoring mechanisms like public accountability, quality assurance and performance management should be built to monitor public activities, to stimulate and guide their participation in management, and to deal with the current complex social and public affairs. Higher vocational college is a typical stakeholder organization whose stakeholders include teachers, students, government, industry, enterprises, research institutions, etc.<sup>[5]</sup> There are power dependencies and partnership among stakeholders, and they take a collective action for the common goal. Therefore, it can be said that higher vocational colleges' modern governance is actually a kind of cooperative management, and its ultimate goal is co-governance and win-win, thus to change the management subject from single to plural.

## **4 Practice explorations: Choices for internal management system innovation in higher vocational colleges**

### **4.1 Logical guidance: build a modern university governance structure**

Building a modern university governance structure is the due logic of internal management system innovation in higher vocational colleges. Higher vocational colleges, under the premise of the headmaster responsibility system guided by the Party Committee's leadership, should establish a modern governance system and structure featured as “the Party Committee leadership, headmaster responsibility, professors governing learning, democratic management, social participation”<sup>[6]</sup>, to clear rights and responsibilities among the Party Committee, headmaster, teachers and students, the school

and its sub-schools, as well as the school and government, society and other governance entities.

**The Party Committee leadership:** it is the core of school leadership, and is responsible for the overall leadership of a school, charges the whole situation and coordinate each party. Its specific works are as follows: makes decisions about the “triple big” matters to ensure a correct education direction<sup>[7]</sup>; supports headmaster to independently exercise rights and responsibilities in accordance with laws, and supervises the implementation of major resolutions; does well the ideological work, establishes and cultivates the core value of socialism; charges the inspection work of the Party’s disciplines, earnestly carries out the main responsibility building a clean government, and grasps the initiatives of constructing the corruption punishment and prevention system<sup>[8]</sup>.

**Headmaster responsibility:** this administrative command system led by the headmaster, should implement the Party Committee’s intention, get through the transmission channel, and build a implementation system. Its specific works are as follows: responsible for the Party Committee; implements the Party Committee’s decisions and strategy, reflects the education direction; fully responsible for administrative works and plays the management role.

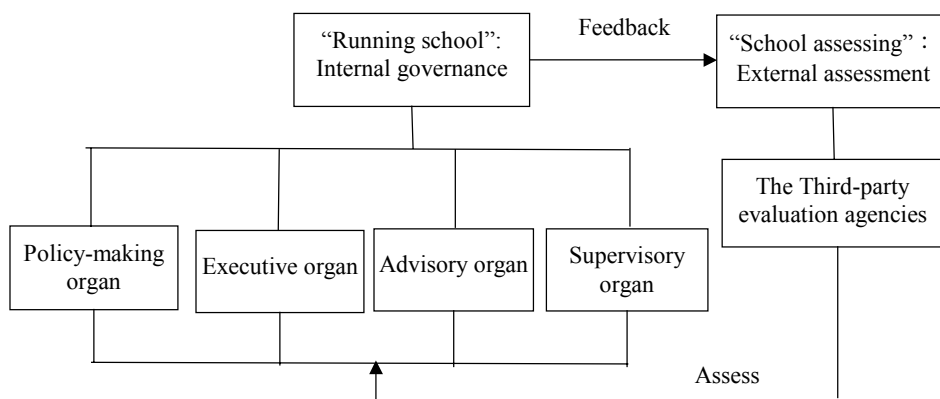
**Professors governing learning:** to form an expert organization which composed of professors and other academic experts, whose role is to give views and suggestions on internal management, personal training and so on, thus to ensure a more scientific decision-making and effective implementation.

**Democratic management:** to give full play of faculties and students’ roles in management through the Staff Congress and other carriers, thus to achieve administration-democratic, affair-democratic and finance-democratic.

**Social participation:** to form the Council, the Committee of Experts and so on, works out relative rules and laws and gives necessary financial supports, thus to ensure the effective achievement of the interests of school stakeholders. In specific practice, multi-supervision should be strengthened to ensure an open, justice and fair management.

#### 4.2 Structure optimization: Construct “running-evaluating separation” governance system

To meet the requirements of modern governance and innovate internal management system, higher vocational colleges should implement “running-evaluating separation” governance system, as shown in Figure 1.



**Figure 1 “running-evaluating separation” governance system of vocational colleges**

First, a “running” systematic network should be constructed by establishing decision-making body, executive body, advisory body and supervisory body. Among them, decision-making body consists of the Party Committee Conference, the Headmaster Conference, and the Party-government Meeting in Sub-schools; execute body is composed of the Dean’s Office, the Department of Research Affairs, Sub-schools, etc.; the advisory body is made up of the VET Research Institute as well as the Development and Planning Department; while the supervisory body is formed by College Union, Supervision Office and the Discipline Inspection Office. Second, an “evaluation” system should be constructed by inviting a third party assessment agency to do external evaluation.

The “evaluation” evaluates the quality and level of “running”, while “running” provides

feedbacks and enriches the dimension and strategy of “evaluation”. Through this way, these two lines form a closed system with mutual influence and progress, which is advantageous to standardize the internal bodies, refine work responsibilities, and clear labor division, so as to rationalize and optimize the development and allocation of human resources.

#### 4.3 Decentralization of power: Implement “project responsibility system”

Higher vocational colleges should improve the inefficient bureaucratic system, being market-oriented and taking demands as yardstick, reengineer processes and implement the “project responsibility system”, as shown in Figure 2.

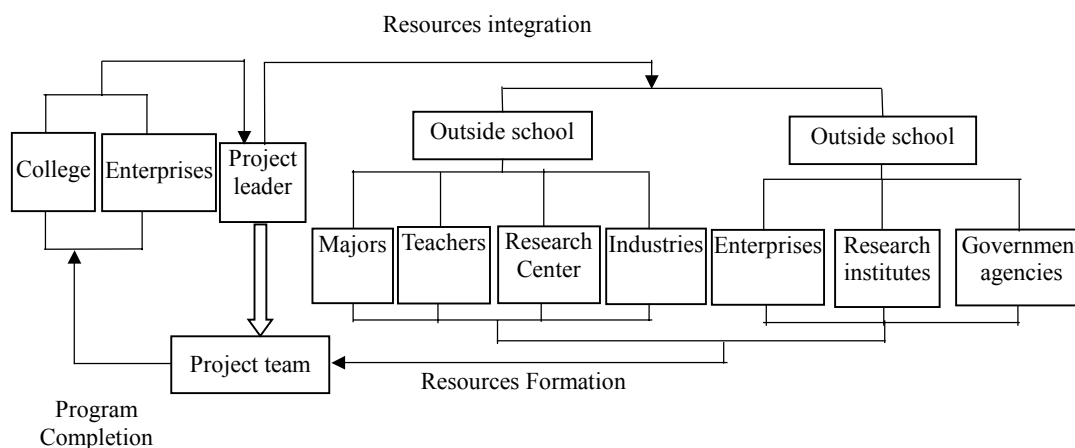


Figure 2 Operation of the “project responsibility system”

Higher vocational colleges and enterprises should issue requirements according to their own development needs. Higher vocational colleges will choose the project leader according to students’ development needs and enterprises construction and give the project leader rights of controlling project process and cost, monitoring performance and other key rights. The project leader’s specific works and functions are as follows: integrates inside-school resources (e.g. majors, teachers, the Vocational Education and Training Research Institute (VETRI)) and outside-school resources (e.g. industries, enterprises, research institutes, government agencies) to form a project team; is in charge of the whole project and responsible for the overall planning, organization and coordination, process supervision, budget monitoring, etc. The project team is directly responsible for the project leader, and the relevant departments are in mutual cooperation and supervision, making the whole project efficiently organized and excellently managed. At the same time, the higher vocational college, enterprise and third-party assessment agency will conduct a multi-evaluation about the project progress and results. School-enterprise integration, theory-practice integration, teacher-master integration, and student-employee integration<sup>[9]</sup> make higher vocational colleges’ personnel supply match the enterprises’ human resource demands, and further to achieve “co-construction and sharing” and “multi-party co-win” among the government, industries, enterprises and higher vocational colleges.

#### 4.4 Diversification of subjects: Form a Council to coordinate interests of the government, industries, enterprises and higher vocational college

In the process of innovating internal management system, the higher vocational college should fully consider stakeholders’ interests, and build a bridge—the Council to connect the government, industries, enterprises, research institutes with it. Establishment of the Council is an inevitable trend of implementing modern governance in higher vocational colleges and an important means to realize co-governance by changing the sole dependence on government, breaking the closed boundaries, smoothing the communication channel and strengthening the close ties with regional industries.

Higher vocational colleges should establish and operate the Council under the “government leading, industry guiding, enterprise participating, school implementing, and mutual development” principle. First, clarify the Council’s functions. “*Ordinary Higher Education Council Rules (Trial)*”

holds that “the Council is an advisory, consulting, reviewing and supervising agency which supports the school’s development and is made up of representatives from all school-running participants”. Higher vocational colleges must attach great importance to the Council’s role and make it blend into its internal management system reform and innovation. Second, scientifically compose the Council’s staff structure, so that the requirements and needs of the school-runner, industries and enterprises, government agencies, students, teachers and other stakeholders can get reasonable expression. Third, establish a new co-governance model. Adhere to “the Party Committee leading and multi- participating” leadership system, improve the rules of procedure and strengthen the relationship between the Council members and the social parties to establish a long-term cooperation mechanism; fully respect the views of all parties to make scientific decisions; reform the supervision and evaluation system to let the Council more involved in education and teaching, foreign cooperation and other school affairs. While maintaining the independence of the Council, higher vocational colleges should cooperate with the administrative system to build common educational values and bring into play the Council’s connection role, so as to achieve an effective mutual interaction, ensure the convergence of decision and implementation, and further build a new decision-executing procedure. Finally, guarantee the professionalism of multi-participation. Take various supporting initiatives to ensure the professionalism of the Council’s governance, e.g. make sure professionalism of the Council staffs, establish professional committees (including the infrastructure committee, financial committee and so on) and make them serve as Think Tanks for the Council’s decision-making.<sup>[10]</sup>

## 5 Conclusions

Internal management system is the guarantee of composition and operation of administrative departments and is a basis for higher vocational colleges’ reform and development. If the management system has any problem, there will be something wrong in higher vocational colleges’ development. Therefore, to maintain sustainable development, higher vocational colleges must establish an appropriate management system and do timely reform according to internal and external environment changes. Management system innovation is the most difficult part of management innovation in higher vocational colleges, it can neither be simply copying or blindly trend-following, nor be done behind closed doors or by random processing, for the internal management system itself is highly influenced by external factors such as economic system, political system, science and technology system, religious problems, and ethnic problems, which is easily to cause the consolidation of system and further become the constraints and obstacles for progress. More importantly, the management system reform and innovation is a systematic project. It is important to care both overall consideration and pertinence, and to remove development obstacles while fully mobilize initiatives. Splitting the existing vested interests, breaking the original path dependence, and laying the new system track which is conducive to development, are the most difficult tasks. Meanwhile, following reality is the precondition for innovation of the internal management system, so it is necessary to take the actual situation of the college into consideration, and to solve deep-seated problems with focuses, thus to improve the accuracy of deepening reform.

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## Research on Cooperative Cooperation between Government and Community in Urban Home-based Care for the Aged—Taking Shahekou District of Dalian City as an Example

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**Abstract** Based on the multivariate welfare theory and the background of China's aging population crisis, this paper does the following research work in allusion to the problem of the government and community cooperation: Firstly, home care's concept, characteristics and advantages are cleared out. Taking Shahekou District of Dalian City family endowment as an example, the problems of the mode of our country home endowment is analyzed. Then, according to the analysis, practical experience and basic ideas, discuss the countermeasures of home care cooperation from two aspects of government and community, logically propose solutions in our country city home care supplies, services, organizations corresponding, and prove the general countermeasures to guarantee suitable.

In order to cope with the increasingly serious trend of population aging in the future of China, the implementation of city family endowment mode will be the main trend. Studying on the countermeasures to improve the mode of aged care at home in Chinese city, has an important strategic significance on social security, sustained economic development and social harmony and stability.

**Key words** Home-based care, Government and community, Collaboration, Problems and countermeasures

### 1 Introduction

With the rapid development of social economy and the continuous improvement of material life and medical treatment, the life expectancy of the population has been prolonged, and the aging trend of the population is becoming more and more obvious. According to international standards, when a country or region with a population of over 60 years of age weighs 10% or the population of more than 65 years of age weighs 7%, the country or the region enters into an aging society. The time period from 2000 to 2020 is the rapid development stage of population aging. In this period, with the rapid development of industrialization and urbanization, the elderly population will increase from 130 million to 230 million, a net increase of 100 million, and the proportion of the elderly population in the total population will rise from 10.2% to 15.6%<sup>[1]</sup>. China, the most populous country in the world, will have to face the situation of aging trend accelerated and the elderly longevity, which will also give us more challenges when solving the problem of an aging population. According to the report of the United Nations General Assembly in 1995, the aged "should be able to obtain adequate food, water, housing, clothing and medical care with income, with the help of family and community as well as with individual efforts", "should be able to live at home as long as possible," and "should be cared and protected by the family and community in accordance with their cultural values."<sup>[2]</sup>

What accompanying with "green trend" together is the problem of caring for the old people which is urgently need to be addressed. As for the way of old-age care, the traditional one is based on family supporting and institution supporting, however, there are serious problems of functional weakening or shortage of quantity. The newly emerging one with drawing the advantages from the traditional mode is a kind of service mode which based on family support as well as relied on community, providing services of daily care, housekeeping, rehabilitation nursing, spiritual consolation etc. It is a necessary supplement for the social pension insurance system in our country and a renewal for the traditional endowment mode.

In the future, home care will become the new trend and the main mode of pension service in china. Research on the development mode and the problems of urban home care model in China and study on improving the countermeasures of urban home care model in China have an important strategic significance on social security and economic development.

## 2 Related theories and concepts

Welfare pluralism is developed with the development of western developed countries' social welfare, giving birth to a third power in addition to the government and the market to alleviate the basic contradiction of capitalism and the theory of the welfare issue.

The first clear explanation of welfare pluralism is explained by Ross. He believed that the government did not assume responsibility for the whole countries' welfare benefits. Also, he stressed responsibilities of organizations and departments in addition to government departments.

In the paper he published, "interlinked goals, different roles and the contribution of the state to the pluralistic combination of welfare", he pointed out that "social welfare is multi combination and the total welfare is equal to the summation of production of family welfare, through market trading and benefits, as well as the state welfare."<sup>[3]</sup> Therefore, Ross advocated that the government, society and family should share social welfare and play their respective roles.

As we all know, the word "community" was first put forward by Ferdinando Tonnies, a German sociologist, in the book "community and society" in 1887. His definition of community is: "a social community composed by the homogeneous population with common values of close relations, social community with friends, mutual help, help each other in adversity and human interest."<sup>[4]</sup>

In summary, the home-based care is defined as: taking family care as a basis, relying on community services and taking the government finances transfer payment as a guarantee, to provide material support and spiritual comfort and health care and other daily housekeeping services for the elderly. It is a new mode of support for the elderly, which is mainly supported by the family, supplemented by institutional endowment and both are combined with each other.

## 3 Analysis of the status quo of urban home care—Taking Shahekou District of Dalian City as an example

Dalian is the earliest city in Liaoning to enter an aging society, meanwhile, the aging population in Dalian (over 60 years old) accounts for 14.96%. At the same time, as of now, the number of elderly people over the age of 60 in China has exceeded 2 hundred million, accounting for 14.9% of the total population. Therefore, selected Dalian Shahekou District to implement the home-based care, is also a pilot for coping with the rapid development of the future trend of aging.

### 3.1 Description of implementation of urban home aged care in Shahekou District of Dalian City

Family endowment mode in Shahekou District of Dalian City mainly based on family and relied on community, and provides community service jobs for laid-off old female workers. After training those workers, appropriate nursing home accompany, medical and other daily services and old-age home services can be provided. This initiative meets two major problems of the social pension and employment at the same time. After that, positive social repercussions have been achieved.

#### 3.1.1 Government responsibility

The main responsibility of the government in the structure of Shahekou District home-based care is to formulate related policies and regulations, to organize and plan the daily operation of home-based care, to raise and manage the operation of the home pension fund and to coordinate and supervise other departments. District government financial support is greater, and some of the proceeds of the welfare lottery is used in home care services, while the government actively funding to charity, providing protection for the smooth implementation of the home pension model. In addition, donations from enterprises, institutions and individuals are also part of the source of funding. Among them, the most important source of resources is the old people's own contribution for the purchase of home care services. In view of the experience of other countries home-based care, government purchase has become a mainstream trend in the reform of government financial expenditure of the market. So the Shahekou District also began to use this approach of government purchase, to explore new ways of implementing government procurement of services. In accordance with the changing population of the elderly, the Bureau of Civil Affairs has made timely adjustments to the policy of providing for the aged at home. According to the different age groups, income levels and physical condition of the elderly, different levels of pension subsidies are distributed respectively.

### **3.1.2 Community responsibility**

The office will be responsible for the coordination of the three departments, the Security Committee, the Street Home Care Management Service Center and the Supervision Committee and ensure that the three departments perform their own duties, strengthen coordination and smooth operation. Community home-based care center is designed for the elder as a “daily care services center”, assigned by each street jurisdiction. “Shahekou District according to the standard that each Community Pension Service Center meets at least 2000 elderly people, established 57 community service center which are mainly based on daily trusteeship. The center equipped with ‘four room and one kitchen’ (daily rest room, entertainment room, study room, fitness and healthy room and kitchen).” With the continuous development and innovation, the operation mechanism of home-based care is becoming more and more mature. At the same time, it also sets up a mode of home-based care for the elderly with Chinese characteristics, which is different from other countries. Usually a maintenance worker needs to care for one to two elderly people.

### **3.2 Effectiveness analysis of home-based care mode in Shahekou District of Dalian**

Based on the analysis of the mode of home-based care in Shahekou District, it is not difficult to find that the home-based care mode for the aged is a cooperative mode, which is dominated by the government and supplemented by the community. As organizers, managers, providers and supervisors, the government is in a dominant position. Community, in different forms, such as enterprises and NGO organizations are responsible for providing the funding part and some welfare pension services. In addition to providing direct care services, community and neighborhood offices also plan community health care institutions through certain organizational management to provide care for community hospitals.

#### **3.2.1 Government side**

In view of the experience of the home care model abroad, the Shahekou District government has proposed to gradually establish a capital operation system with the main body of investment, the operation mechanism and the market. Through market-oriented operation under the supervision of the government, improve the cooperation mechanism between government and social capital, develop the single investment decision making into a multi-level investment decision of the government, departments, enterprises and individuals. This not only reduces the financial deficit of the government, but also plays the role of social forces, so that the market, participating in the pension service system, is conducive to improving the efficiency of the allocation of pension resources. In addition, the government implements monetary subsidies.

#### **3.2.2 Community side**

The establishment of the endowment mode of social diversified participation includes enterprises and NGO in the community. In addition, Shahekou also organized a service team which is mainly composed of the retired elderly people and supplemented by community volunteers. This measure not only let the volunteers better participate in community activities and serve the society, but also allow the community enterprises to respond to social responsibilities. It has realized the diversified participation mode of government, community, enterprise and individual, and has made effective use of the previously neglected resources of the community, so that it has been effectively utilized.

The combination of the post supply of maintenance workers in home-based care stations and the reemployment of laid-off and unemployed older women workers, not only solves the problem that the number of maintenance workers is insufficient and the losses are serious, but more importantly, it solves the employment problem of older women workers and provides a new impetus for the reduction of the financial burden and economic development of the country.

## **4 Problems existing in urban home-based care mode**

### **4.1 Government side**

#### **4.1.1 The shortage of capital investment and the single financing channel**

For the moment, the government is short of funds and the government’s buying standards are low due to lack of funds. Although implementing the monetization of subsidies, from the view of current price level and consumer price index, such subsidies can be described as a drop in the bucket. From the



perspective of the government, a fixed per month pension subsidy for per capita is indeed not a small expenditure. Since the reform of changing the original PAYG pension system in China in 1997 gradually into the social endowment insurance system in which the social pooling and individual accounts are unified. Because of the existence of already retired people before the reform and a portion of “zhongren”, the gap in pension funds has expanded in recent years, pension empty account risks become more obvious. Therefore, a certain amount of fund need to be used for earlier explore both from central government or local government, which results in a certain of financial pressure.

Other important reasons for lacking of funds for home care is short of financing channels and the relatively small source of funding. It is difficult for the community to apply for the home pension fund from the government, and the government’s financial allocation is not enough. It can only rely on community office funds, government subsidies, and raising funds from enterprises, institutions and charities. “Although non-governmental organizations and community building have made rapid progress in the past 20 years, they have faced many difficulties in raising funds. 41.4% of the community believes that the main difficulty they face is lack of funds.”<sup>[5]</sup>

#### **4.1.2 The role of government should be further clarified**

In the urban home care mode, the main functions gradually changed from the traditional individual family as the main unit to community oriented. Many local governments have not realized that strengthening community building is an effective way to develop home care, improve the quality of the elderly and meet the growing needs of the elderly. In the past, in the social security system, the government is the main provider of pension services, while in the home-based pension model, the role of the government will be transformed into the dominant model. When the conception of government can not change rapidly, and the actual situation of the current combination, the role of the government will be marked deviation. At the same time, the government sometimes not only does not reduce the intervention for the home aged activities, but also causes the resistance to the implementation of the model, because of the ambiguity of the role positioning. When the community development is weak and needs the support of manpower, financial resources and material resources, the government may not actively provide corresponding help, which results in the development of the home-based care mode lagging behind.

### **4.2 Community side**

#### **4.2.1 Single service content**

The service of home-based care is mainly divided into three kinds of daily services: material support, spiritual comfort and home care. As our country’s home-based care has just started, compared with the services in developed countries, those countries are different. According to the health and needs of the elderly, “to provide social services in different way: For healthy elderly, to provide traffic, accompany and the old cafeteria, legal services, and to offer help to find employment opportunities. For frail elderly and elderly people, to provide housework, family health, regularly visit, telephone confirmation, emergency response system and other services. For some special cases of the elderly, to provide protection and advisory services, etc.”<sup>[6]</sup> The service content of China’s home-based care is relatively limited and the elderly services are mainly composed of domestic service and simple care services. Domestic care and material support, which only focus on home-based care, obviously can not meet the needs of the elderly. In addition to the daily care needs of the elderly, enriching the spiritual life is more inclined. The supply of places such as old universities, old libraries, reading rooms, old age parks and old people’s fitness centers is very rare, so the corresponding services provided are even more obvious.

#### **4.2.2 The service staff is not professional and less organized**

In addition to the above factors, the effectiveness of the home-based care services depends on the professional ability and quality of the service personnel. As the maintenance of home-based care services are mostly unemployed laid-off older female workers and poor personnel, their cultural quality is generally not high. They haven’t accepted very systematic knowledge training and lack of professional knowledge and work experience in home-based care, and it is difficult to make correct choices and judgments in time without understanding the psychological and physiological changes of the elderly. As a result, some deep-seated pension services, such as spiritual comfort, cannot be

provided from them. “As the home-based care is still in the exploratory and gradually being improved stage, maintenance personnel quality, job conditions and treatment varying from place to place, less people can finish this job.”<sup>[7]</sup>

## **5 Countermeasures and suggestions for improving urban home-based care mode**

### **5.1 Government side**

#### **5.1.1 Building a diversified capital investment mechanism**

The most critical problem in the implementation of urban home-based care mode is lack of funds. Therefore, if we want to develop the pension system of this mode, we need to enrich the sources of funds and build various channels to raise funds. From the overseas model of home-based care practices, sources of funding not mainly depend on their income before retirement, or emphasize the responsibility of individual pension, but disperse the pressure of pension to the government, society and market multiple. Therefore, in this system, the pension fund is diversified and provides adequate security and trust for the elderly.

From the national conditions of our country, the government plays a leading role, so the government's financial support is very important. In order to ensure the stability of home aged pension funds, a special fixed financial expenditure project is set up. According to the relevant provisions of the State Council, in the future, social welfare expenditure should not be less than 10 - 20% of the fiscal expenditure. This part of the funds, on the one hand, subsidizes the difficult daily life expenses of the elderly. On the other hand, it can purchase pension services to enterprises and promote the process of home care market. With the vigorous development of China's capital market, it is also possible to set up a specific home pension fund management institution, linking it with the operation of providing pension projects, hiring professionals to operate funds, diversifying risks and increasing returns which is also one of the ways to diversify funding.

#### **5.1.2 Form a government -oriented cooperation system**

Besides playing a leading role in the support of financial funds, the government also need to be the main body of collaborative cooperation system in the leadership and supervision of the formation. In the home-based pension model, different from the previous government's “overall control”, we should also be incorporated into the social groups, such as enterprises and non-profit organizations, so as to form a pluralistic cooperative system. At this point, the government has a new role to play, not only improve the laws and regulations, but also carry out correct planning guidance, standardize the various departments in the market, and give full play to their role. Meanwhile, in the event of participation by each sides, to meet the elderly's needs for home care services to the maximum extent, to take the most efficient implementation of home care services, a flexible, organic and government-oriented cooperative cooperation system in a reasonable and orderly form of cooperation will be formed.

### **5.2 Community side**

#### **5.2.1 Provide diversified public services**

Aimed at the fact that our country's home-based care service is single, especially the specialized service item is few, professional medical care, psychological consultation and hospice care are urgently needed to carry on. Under normal circumstances, the promised home care services are more, but in actual development, the aim cannot be reached often due to the lack of funds and human resources. Therefore, in order to provide diversified and standardized services, we should strengthen the diversification of funds collection channels and the socialization of human resources development. So that all-round services to all the elderly can be provided with ability. With the continuous development of home-based care, its services are constantly improving, including but not limited to housekeeping services, culture and entertainment, spiritual consolation, health services, legal rights, pension services.<sup>[8]</sup>

The main aspects are as follows: Firstly, providing community medical and health services. Old people are easier to be sick than young people, but our current health care can not fully meet the needs of medical care. Therefore, the community health service should be developed to form a three level network of geriatric prevention, geriatric care and rehabilitation. It can not only prolong the life of the

elderly, but also improve the quality of life of the elderly, and achieve a healthy aging. Secondly, providing life care services. During the daylight, children and relatives often go to work, so the old are left at home and the old who are living alone have no children around them. To the old who are in a poor health condition, unable to engage in too much labor, home-based care services are indispensable, and the pressure of child care is reduced at the same time. Thirdly, providing spiritual comfort. As China gradually achieves a comprehensive well-off society, citizens' basic necessities of life are guaranteed, people pay more attention to the elderly in the spirit of communication, such as organizing "old college", the library and so on, which are conducive to the construction of the spirit of the elderly.

### **5.2.2 Emphasize the management of human resources in the field of pension services**

At present, the home-based care workers are composed of laid-off women who were born in 1940-1950. Although this can effectively solve the employment problems of some older female workers, it also reduces the professional quality and ability of the family pension team. Therefore, to absorb talents with professional knowledge, to accelerate the professional transformation of the home-based care team, and to strengthen the human resources management in the field of home-based care services should become the focus of the work in China. "The local government of the civil affairs department can admit a number of graduates from professional social work and medical nursing majors each year through the way of civil service exam, and regularly hold 'nursing home care training courses' in each community in a flowing way to improve the psychological nursing quality and maintenance."<sup>[9]</sup> At present, there is a large gap between professionals and elderly people who need this services. Therefore, more volunteers should be admitted into the field to alleviate the imbalance in demand.

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## **An Analysis on Social Construction from the Perspective of Civic Nationalism \***

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**Abstract** Civic nationalism is a concept which takes political identity as the core of concept and blending perfect with liberal concepts such as freedom, equality and tolerance and so on. Because of the nature of nationalism, civic nationalism is monistic itself, which cannot be a value-neutral theory and therefore will have a particularism in civil rights and moral obligations, and may even cause multi-national ethnic chauvinism and aggressive nationalism under some circumstances. In the multi-ethnic countries that advocates civic nationalism, the basic elements of social justice should include not only the pursuit of universal citizenship, but also the individual freedom and equality of members of the specific nation and the equitable and justice among the ethnic groups. It can be seen that social justice is given a broader meaning than the prevailing liberal era in the context of civic nationalism.

**Key words** Civic nationalism, Pluralism, Principle of neutrality, Liberal nationalism

### **1 Introduction**

Whether willing or not, people have to admit that in most countries nowadays, nationalism performed in its various forms has penetrated in every aspect of modern society. Nationalism is one of the constituent elements of modernity and a framework of modern state. In general, nationalism and contemporary multi-national states construction are complementary. From the perspective of geneticism, modern nationalism is accompanied by the development of the Western Enlightenment. With the disenchantment of modernity, nationalism replaces the role of religion, making the nation state a new object of personal political loyalty. In general, the national membership advocated by nationalism and the deep sense of belonging to a particular culture are essential to the existence of the individual, providing a stable moral space for the individual to form a stable “goodness”. At the same time, nationalism redefines the boundaries of the individual and society, and makes national identity and national unity the biggest motive of modern society to mobilize personal participation in public affairs, and even sacrifice personal interests for public affairs. To some extent, all ideas of modern liberalism on the civil society are inseparable from the power of nationalism of maintaining and social order. As a common form of nationalism in a liberal democratic society, civic nationalism’s demands are not absolutely pure as Hans Cohen described which is “free” “political rational” and “open and inclusive” and “Citizenization”. In any case, civic nationalism always preserves the particular demands of nationalism, and affects the theory of the construction of liberal democratic society in different dimensions.

### **2 The basic proposition of civic nationalism**

In 1940s, in the process of analyzing nationalism, American scholar Hans Cohen made a profound thesis. In his view, nationalism can be divided into “civic nationalism” that occurs in the west of the Rhine River in Europe and the United States and the “ethnic nationalism” which occurs in the east of Rhine River in Europe, Asia and Africa. This classification opposes ethnic groups and civic groups, arguing that the former is anti-liberal while the latter is liberal, and thus that civic nationalism is a reasonable form of nationalism.

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Putting aside Cohen's notion that civic nationalism is Western and ethnic nationalism is oriental, and simply on the characteristics of civic nationalism he summarized, it can be seen that civic nationalism tends to regard the nation as groups who voluntarily living under common law, represented by the same legislature, and can make arrangements for their own government. In general, all nationalistic researchers who support Cohen's classification argue that "civic nationalism is a form of nationalism relative to ethnic nationalism" (Leigh, 2001), which takes the principle of freedom and equality as the basic idea, takes political identity as the core standpoint, proposed that "people are connected together because of common law and rights, regardless of their ethnic origin," "national members are treated as individuals, and they freely, comprehensively and autonomously decide on their own destiny." (Leigh, 2001)

According to the definition, it can be seen that the civic nationalism mainly includes the following basic features: First, the membership is separated with family consciousness and ethnic identity, and it is based on the political recognition and loyalty of the democratic principles inside of the state. And on this basis, it will form a specific national character and civic culture. This feature assumes two aspects: on the one hand, in the same country, any descent and cultural traditions of citizens eventually enjoy the same culture, have a common goal, and constitute a unified "nation-state" community. On the other hand, only being members of the "nation-state", individuals can obtain the corresponding civil rights and obligations, and as a "nation-state" membership granted citizenship and its various benefits. In other words, "Only those who enjoy the public culture, those who follow the belief of citizenship, are eligible to enjoy those rights and obligations that constitute the citizenship" (Smith, 1995). Second, civic nationalism takes nation-state as its modern manifestations. In modern multi-national states, civic nationalism is mostly manifested as the form of state-nationalism. The state-nationalism takes the nation-state as the basic unit and the state interest as the core to deal with the relationship between the state and other nation-states. The national citizenship and the corresponding rights and obligations are usually determined by the state territory. Third, the countries advocating civic nationalism are assumed maintaining the cultural value of neutrality. Civic nationalism assumes that the liberal democratic society supported by it is neutral in all nationalities and cultures, and that is why the liberal monism has always been proud of it. Civic nationalism is advocated by the liberal monism, which is considered to be a substitute for nationalism in the era of "post-nationalism" and superior to the nationalist system of social identity because

Liberalism makes the state and ethnicity absolutely separated. Liberal countries are located on all ethnic and ethnic groups in the country, refuse to endorse or support their lifestyles, or are highly interested in their social multiplication. On the contrary, the state is neutral to the language, history, literature and calendar of these groups (Walzer, 1992).

It can be seen that civic nationalism is based on the liberal theory of individual non-discriminatory rights. It abandoned the membership identity of ethnic nationalism which based on the lineage and culture-based national identity, advocated a highly developed rationality and civil rights to dissolve irrational, immature national sense of belonging and national cultural demands, and then put forward the principle of neutrality of civic nationalist countries and the principle of equality between all citizens and all ethnic groups within multi-national countries. In addition, civic nationalism is regarded as must be liberal, and civic nationalist countries must have the basic elements of liberal democratic society, such as free, equal, tolerant and peaceful etc.

### **3 The basic framework of social construction in multi-national liberal democracy**

Since the Great French Revolution, the theory of liberal democratic state construction has become the basic social construction theory advocated by Western world. The basic idea of freedom, equality and fraternity is interdependent with the ancient Greek concept of justice and deep Christian tradition, and it becomes the basic framework of the concept of social justice. Despite the devastation of the two world wars, since the 1950s, Western liberal democracy has basically reestablished the dominance of its social construction theory. In the major Western countries, the views on freedom, democracy, equal rights, citizenship, etc., despite the deep debate and even the great differences, but the debate on these issues has always been based on how to achieve and continue to develop Western liberal democracy.

Although the degrees and forms of expression are different in different academic schools, they also have their own argument path, but their core elements are consistent. The basic values and order principles of the western liberal democratic society can be divided into three levels in general.

### **3.1 Universal human rights**

What is currently discussed by different academic schools and ideologies is not the question of the connotation of basic human rights and citizenship, but on the question of who has the right to enjoy what kinds of citizenship. This paper takes the most influential concept of contractual justice as an example to illustrate the basic problems of the construction of human rights and citizenship as a liberal democratic society. In his view of the concept of justice, Rawls emphasizes that, regardless of the specific beliefs and moral values of the people, we will observe some norms of justice together. In social life, people have been able to reach a consensus among the different demands, precisely because of this deep sense of justice and moral consensus, one of the most critical point is “respect for persons”. From the very beginning, Liberalism has put the individual as the core of its theory. In the discussion of the basic meaning of freedom, no matter what direction to argue, liberal thinkers generally believe that “let the individual has a good life on the right to choose, others have no right or no necessary to intervene”, which should be the most basic element of individual freedom.

### **3.2 Public reason**

On the basis of respect for universal human rights and citizenship, Western liberal democratic societies have formed public rationality. However, due to the abstraction of public reason, overlapping consensus always changes with the change of social situation. Western liberal democratic society can not effectively directly stipulate the citizens’ direct obligation to the public interest. Therefore, to maintain a relatively stable order, it is necessary for a society to require individual citizens to assume a certain degree of obligations to society, which has binding force on all members of the community, which requires all the members of a society to achieve the most basic or minimum consensus. For conservatives, this consensus is based on the idea of common goodness, and justice is a comprehensive concept. For the scholars of the contract theory, justice does not need to rely on any comprehensive theory, that is, do not need religious, ethical doctrine to support, justice is “free standing”, those who put themselves as free, equal citizens could reached the basis of a voluntary political agreement.

Rawls argues that liberty and equality is part of social cooperation, the idea of social justice is justice as fairness—The core of this concept is Difference Principle. When the cooperation between individuals is fair, not only individuals have freedom and equal rights of contract with others, but also benefit from the cooperation and the resulting public life, social justice is achieved. In the context of pluralism, the citizens of the liberal democratic society have profound divisions by believing in a variety of rational religious doctrines, philosophical doctrines and moral doctrines. Therefore, in order to construct a fair cooperation between citizens in this profoundly divided context which enable citizens holding different comprehensive theories to be able to reach a consensus on fundamental justice issues. The consensus that can be accepted by citizens who have different and reasonable comprehensive doctrines is nothing but public reason.

Rawls argues that the limits of public reason are clearly not legal or regulatory restrictions, but that we respect the respect of an ideal, which is the ideal of a democratic citizen who, in his own political affairs and strive to make it conform to the cause of the political values that we expect to be reasonably expected to be recognized by others, and that the ideal also expresses a voice that is necessary to listen to others and is prepared to accept others’ friendly opinions or to revise our own views. The public rationality further demands that we balance the values that we consider to be rational in special circumstances, and we are sincerely convinced that they can also see this balance as a rational balance (Rawls, 1993).

It can be seen that the public reason is not the general moral principles or the concept of good life, but a kind of golden law of moral principles. In a multicultural society, we can and should only pursue moral principles. In this way, not only for the political liberalism is concerned about the overlapping consensus to find the substantive elements, but also to deal with the critique of communitarian that liberal pluralism is moral relativism.

### **3.3 Citizenship**

To maintain the principle of social justice in a multicultural society, public reason is the minimum moral principle that qualified citizens must possess. First, citizenship is the basis of legitimacy of political authority. Citizenship is to create a moral responsibility rather than a legal responsibility among citizens. It includes not only the political value necessary for the rational interpretation of social justice, but also the rational adoption of others' opinions. Second, citizenship is the source of the stability of a reasonable multicultural society. Citizens with equal status have a civic responsibility according to public reason, not only to provide public reason to prove their own doctrine, but also to listen and prepare at any time to a reasonable theory of others, thus they could form an overlapping consensus between different theories on the basis of equal treatment and equal respect. It is a more conclusive consensus because this consensus is not based on coercive legal responsibility or arbitrary, but by equal respect, providing public reasons to explain to each other their citizenship. Finally, citizenship will inspire political virtues of cooperation in the field of political life. In a pluralistic society, an individual can have a lot of incommensurable comprehensive doctrines, and there is no need to insist that everyone has a completely consistent idea of goodness. However, this divergent comprehensive theory and values inevitably threaten the cooperation and stability of liberal democratic society. Therefore, in the basic question of public domain and social justice, people must follow the public reason to carry out the final ruling. Citizenship is not only a prerequisite in a liberal democratic society, but also a fundamental constituent element.

## **4 The impact of civic nationalism on social construction theory**

Regardless of the quarrels about the theory of justice in the liberal democratic society, in general, no one really doubts the fundamental values and principles of the liberal democratic society, but what is argued is how to pursue it in a better way. And there is no fundamental difference between people on the issue of universal values such as universal human rights, public rationality, and citizenship etc. However, as the ever-neglected power of nationalism increasingly manifests its role in free and democratic society, the basic values and order principles of the liberal democratic society pursued by Western societies have been challenged, or the way of realization also changes greatly with the influence of nationalism. The aggressive nationalism (extreme nationalism) represented by fascism in the 20th century has its fundamental subversion of social justice, the great destruction of human civilization. Thus in the worldwide, people naturally formed a general consensus of deep avoidance and vigilance on the aggressive nationalism. However, as a nationalist-civic nationalism, which is regarded as a self-consistency with a liberal democratic society, although it has a common goal with a liberal democratic society to a large extent, its own nature of "nationalism" affects the implementation and construction of the theory of social justice. At the same time, it subtly changes the theory of social construction.

### **4.1 Promoting the construction of multi-national countries**

Civic nationalism, this unique form of nationalism, is not a traditional division of nationalism. And it is not a simple addition or reorganization of the original nation, but stressed the recognition and loyalty of all members who share the citizenship of the multi-national state. They bear the rights and obligations of citizens of liberal democratic countries, and on this basis to form a specific national character and civic culture. In a sense, civic nationalism is very similar as the Enlightenment and liberal cosmopolitanism that all are enlightened. On the enlightenment of civic nationalism, Anthony Giddens had argued that nationalism, which focuses on the right of citizenship, is enlightening (Giddens 1987). In general, in modern political context, citizenship has political meanings such as equality, rights, autonomy, participation, virtue, freedom and so on. Civic nationalism traces the political connotations of citizenship in nationalism. Its enlightenment refers to the influence of citizenship in the process of citizenship and ethnic identity. The influence of citizenship is more than that of ethnic members, and thus makes the nationalism show enlightenment and universalism.

The value principle and goal proposed by civic nationalism are very powerful and inciting, and this feature can promote the multi-national state "through the use of political power, clear the natural integration of the roadblocks, to create a good atmosphere and environment for the origin of the

symbiosis of all ethnic groups (Zhu, 2012)". The incorporation of free human rights and civil society into the legal system can not be achieved by compromising or even sacrificing their own values and interests for people with different broadband values. Only the nationalist discourse system can enhance the personal sense of "citizenship" and "belonging". The sense of common language, common territory, common culture, common economic life and psychological quality could continuously strengthen the multi-national country's political ideas and national consciousness. British philosopher Isaiah Berlin argues that

Most people want to be citizens of countries that are consistent with their own nationalities, which are considered to be a natural desire, or at least a historical-political development consequence, while the growth of national consciousness is the reason and the result of this development, at least in the west (Berlin, 1979).

Nationalism is the constituent of modernity, and the function in modern politics goes far beyond the territorial disputes and the single category of racial confrontation. Civic nationalism not only replaces the ultimate goal of traditional religion, but also strengthens the multi-national integration in the same country in a more secular way of expression, so that the groups that are separated from each other and differentiated can exchange and cooperate. And it integrates the ethnic groups with different culture and interests into a political community aimed at the common values and behavioral norms of liberal democratic society.

#### **4.2 Affecting the realization of the principle of neutrality**

On the issue of nationalism, civic nationalism thinks that it has completely ruled out the influence of irrational factors such as race and culture on nationalism, lifted the traditional values—religion, etiquette and respect for authority—and turned to the value of secular rationality, complete enlightenment and the idea of justice of liberal democratic society, thus contributing to the universal adaptability and neutrality of the liberal democratic countries.

The liberal principle of neutrality, regardless of what kind of theory for its defense, is set a political constraint principle in the framework of political justice. It refers to the fact that the state must remain neutral in the dispute concerning the way of life and good values, and that it is not open to the idea of a good life or to impose it on citizens. This principle has become the core principle of liberalism in dealing with the differences in good values in a modern society of cultural pluralism. In theory, the principle of neutrality is reasonable. This assertion maximizes the value of pluralism and respects the values of life and the idea of goodness. Liberalists argue that the principle of neutrality is a necessary principle of liberal openness, equality and inclusiveness. In a well-neutral framework, all the ideas of life can be pursued and developed very well, preventing the actual control of the state and power from opposing and persecuting dissidents. The significance of the principle of neutrality lies in restraining the expansion of government authority through political restraint and resisting the illegal violation of the authority of the personal life. However, this principle of value neutrality can only be defensive, or tend to, and can not really achieve the consequences of neutrality.

In reality, even in a society where liberty and democracy are highly developed, complete cultural neutrality is still impossible, and civic nationalism can not erase the mark of the majority culture in the society. Civic nationalism also inevitably contains specific cultural connotations, and any liberal democratic country has its ethnic foundation and must have a corresponding ethnic culture. Ethnic culture is not a concept that absolutely conflict with liberalism. In fact, the essence of the liberal monism has determined that the civic nationalist state must have some value orientation. For those who enjoy the same culture as the mainstream culture of the individual members, they can naturally agree with some common good ideas. In contrast, for those minority ethnic groups, they lack the "basic concept" of social identity, and therefore are difficult to be recognized and affirmed in their lives (Seglow, 1998). This substantive cultural inequality and the resulting inequality of opportunity are often overshadowed by universal equality of civil rights and become a fuse of ethnic conflict within the multi-ethnic nation of liberal democracy.

#### **4.3 Strengthening the logical contradiction of moral boundary**

In general, liberalism advocates the distribution of justice, the principle of equality and so on. These arrangements are only applicable to the boundary clear, relatively closed social framework. This



narrow “you and me” distinction made the following division: for “the one of us” with same nation-state, we enjoy the same civil rights and have a specific moral obligation to each other; and for those “outsiders”—who even if the geographical location is only a few kilometers away in the territory of other countries, we do not have to bear any moral responsibility or only assume more limited moral responsibility. According to Giddens, nationalism will have a strong enlightenment in a society where citizenship is highly developed. However, this enlightenment has a natural boundary, that is, nation-state boundaries. Nation state “operates only in limited communities, which requires citizens to regard national boundaries as a symbol of moral obligation (Kymlicka, 2002).” It is clear that this view of moral responsibility and obligation only to the citizens of the country is contrary to the liberalism “universal rationality” that aim to eliminate the influence of nationalism and realize cosmopolitanism, and has the characteristics of ethical specialism—Citizenship only has a specific moral responsibility and obligation relationship for a particular group of people. Here, we do not have to explore the specific historical reasons for the formation of modern state borders and the question of global justice, but we need to get a clear answer: why the national frontier rather than culture, language, history and other factors to define the nation-state membership and their rights and obligations? It is clear that the formation and existence of this boundary cannot be explained by the principle of neutrality ideal of liberal cosmopolitanism or civic nationalism—It seems too far-fetched on the grounds of human reason.

Although the 18th century activists had favored the principle of open borders in order to realize the individual liberty and equality of the unruly, nationality and descent of their demands, the subsequent liberals did not advocate this. Like Rawls, they usually acquiesced in the right of a person to liberty and equality within their social culture.

In addition, the welfare state is often faced with the blame from a moral obligation that citizenship, democracy and welfare are all closely linked to “exclusivism” based on nation-state. The high cost of the welfare state determines that the present stage can only exist within a limited, well-defined organization within the multi-national state that is guarded by civic nationalism. Only those who agree with the civic nationalism advocated by the country, which are loyal to the principle of liberal democracy and have citizenship, can enjoy their welfare rights. For example, the level of welfare attained by European countries is currently open only to persons with national membership, and the groups covered by them are not random and can not be arbitrarily expanded. As a special form of nationalism, civic nationalism’s special demands of nationalism can not be completely concealed. As a multi-ethnic “adhesive” with “artificial” characteristics, civic nationalism is enlightening. At the same time, it is also with a natural exclusion, that is, only as members of the nation, to be able to enjoy the rights of national members, but also bear the other members of the national sacrifice obligations.

In any case, civic nationalism did not actually break through the “moral exclusivism” of the liberal democratic countries, nor did it fundamentally ease the logical contradiction of liberalism on cosmopolitanism, but rather its nationalistic character strengthens the limitations of the community. In the Greek debt crisis, the European Union public opinion has questioned—“Why do we pay for the ‘lazy’ of the Greeks?” Can be seen, even if the degree of cooperation has been quite high in the EU, we still can not produce a community that superior to nation-state. Under the conflict of interest, national interests and national sovereignty are constantly strengthened, and civic nationalism will rapidly evolve into other forms of nationalism, the most serious of which is the birth of aggressive nationalism.

#### **4.4 The birth of aggressive nationalism**

Giddens argues that there are two factors that directly influence the orientation of civic nationalism: national sovereignty and citizenship. If it is citizenship-oriented, it will lead to the enlightenment of nationalism. And if the combination of civic nationalism and highly centralized national sovereignty, it may produce a strong exclusion, and the resulting great aggressively. Nationalistic sentiment will quickly dominate the “patriotism” as the core of political ethics. Under the condition of the normal operation of representative democracy, nationalism still shows a strong external aggressiveness. In other words, civic nationalism can simultaneously combine the enlightenment and the external offensive. For example, in the history of the United Kingdom, the parliamentary system is an important guarantee for the domestic democratic life, promoted the

development of democratic politics, promoted the flourishing of the liberal idea. In the foreign war, the parliament served as a democratic way of foreign aggression mechanism. Inward democracy and foreign aggression promote each other, and the proceeds of the war greatly contributed to the British national economy leap. With the continuous strengthening of national leaders, the decision-making power of domestic democratic decision-making institutions has been weakened, and finally civic nationalism has become aggressive nationalism. Giddens discusses this change:

The fascist state is a successful combination of two: first, aggressive or exclusive nationalism, followed by universal loyalty to the countries that are the ultimate arbiter of the community's interests (Giddens, 1995).

In addition, civic nationalism often leads to internal oppression, and ethnic chauvinism raises ethnic conflicts within multi-national states. In general, the so-called Western liberal democratic countries with cultural neutrality are in fact strongly favored the culture of mainstream groups. In the 18th and 19th centuries, under the influence of the Enlightenment and the monistic thought, many Western countries tried to force all nations within their national borders to form a unified national identity by force or high pressure. They call it the "nation-building" process, mainly implementation of a unified language in the legal, economic and educational institutions, shaping national history and symbols, and sometimes also adopt a number of specific ethnic and religious, ethnic and costumes elements. For minorities in these countries, the "nation-building" movement is unfair because the culture, language, national history and ethnic identity that have been adopted and widely used in public and private areas are majorities'. All the accessible history, symbols and culture that citizens know are belonging to the majority. It is undeniable that the construction of national identity in some modern countries has achieved considerable success and established a model of the so-called "civic nationalistic state", but this success is based on the destruction of the national identity of the existing minority groups. It is the deformation of national chauvinism. It can be seen that civic nationalism is not as tolerant, equal and open as imagined, but often uses a unified public culture to integrate pluralistic ethnic culture and requires ethnic groups to abandon their ethnic identity, and this requirement is often strictly and uncompromising, and sometimes even let people pay the price of bleeding.

In many cases, the emergence of aggressive nationalism in minority groups within a multi-national country was largely due to the attempt of merger and assimilation of minorities. For example, one of the longest ethnic conflicts, Turkey's Kurdistan riots is not caused by ethnic exclusion, but because of the majority of Turkish groups trying to force assimilation of the minority, aroused the resistance of the minority group. In other words, the Kurdish nationalism is not the question of the Turkish government denying its Turkish citizenship, but the Turkish government forcing them to regard themselves as Turks, refusing to recognize the Kurds as an independent ethnic group, but rather as "mountain Turkey people". For the forced assimilation of the Kurds, the Turkish government hasn't lifted the ban on the Kurdish until 1990. This coincides with the analysis of the important factors of Isaiah Berlin's nationalism: like the bends of the branches, its ethnic groups against and rebound are caused by the long-term suppression of national culture, the serious frustration of national self-esteem and the strong national humiliation.

## 5 Conclusions

In the tide of globalization, the tide of national pluralism and cultural diversity is on the rise. In general, civic nationalism plays a dual role in the process of multi-national liberal democracy. On the one hand, it is an important force in the nation-state construction, with the national identity of this moral carrier will be members of the national unity in a country, and through a common national culture to maintain social members of the liberal democratic system of identity and loyalty. On the other hand, the national character of civic nationalism determines that it can not completely deny the special appeal of the nations. When the environment at home and abroad fits, it will lead to radical national sentiment, and even quickly evolved into aggressive nationalism or Populism, and thus cause the nation-state fascism.

Civic nationalism and liberalism are parallel political principles that recognize differences in

ethnicity at the collective level on the basis of recognition of individual indifferent rights. Civic nationalism is not immutable; it is a concept of continuous evolution, with the political environment at home and abroad, economic conditions, cultural backgrounds and other changes. In considering the positive effects and negative effects of civic nationalism on state construction, we also need our comprehensive consideration and positive guidance. Successful use of civic nationalism to promote the construction of multi-national liberal democratic countries, there is no fixed pattern, and ultimately depends on a multi-national state to use local experience and conditions to find the wisdom of localization solutions.

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## A Research to Increase Public Credibility of Community Health Service in Sichuan Province, China

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**Abstract** Since the reform and opening up, the urban health service cause has made great development in China: its service scale has been increasingly enlarged; scientific and technological level has got continuous improvement; medical condition has obviously been enhanced and disease prevention and treatment abilities have been significantly strengthened, thus it has been playing an indispensable role in enhancing people's health status. Meanwhile, when the urban health service cause is highly developed, a number of problems have arisen, for instance, the community health service centers lack corresponding resources and medical care capacity to meet people's basic requirements. These problems cause distrust from the public which is one of the reasons leading to difficulties and high expense in medical care. In order to find out the public credibility situation of community health service in Sichuan province, this paper adopts random sampling method. The author has made questionnaire investigations and field interviews towards citizens coming from different regions of Sichuan province. By analyzing the data, this paper aims to find out the reasons of public discredit towards community health service, what is more, proposing suggestions and strategies to improve public credibility.

**Key words** Community, Health service, Credibility, Reason analysis, Strategies

### 1 Introduction

Community health service is a general term which means that, in a certain community, the health departments and their related institutions provide the public with health care activities such as disease prevention, treatment, rehabilitation and health promotion. The community is the base for community health service whose implementation subjects are community health service institutions or the alleged community health service centers (also called stations and bureaus). The community health service ultimately aims to protect public health and promote their living quality. It is an essential requirement and important element for economical development of the society and civilization construction of the community. It is also a basic insurance for human resource production and reproduction of social development. what is more, it embodies the prosperity of our country and all of its nationalities. (Liu Chang, Zhou Li, 2009<sup>[1]</sup>)

Along with the fast economical and social development in Sichuan province, the local governments in various levels pay more and more attention to health services, thus the community health service also got a great opportunity to develop. Statistical Bulletin for the Health and Family Planning Development of Sichuan Province in 2016 states that: there are 79,516 medical and health institutions at the end of 2016. Among them, there are 2067 hospitals and 951 community health service centers or stations. There are 0.7613 million health workers and, compared with last year, 23,700 new workers has joined this field. Among these health workers, there are 384,000 people working in hospitals, 242,700 working in primary-level medical and health care institutions and 41,700 working in professional public health care institutions. To be more specific, 4,643,267 million people have got diagnoses and treatments in the medical and health care institutions of Sichuan Province, 1,724,218 million people have gained treatments in hospitals and 235,918 million people in community health service centers or stations. There are also 16,549 million patients were hospitalized in varied medical and health institutions in the whole province, including 112,912 million patients in hospitals and only 266,500 of them in community health service centers or stations. (Xu Wen-rong, Bao Yong, 2014<sup>[3]</sup>)

Judging from the development status of medical and health service in Sichuan Province, we can see that the Chinese government has attached great importance to community health service

development. The number of community health service institution is increasing and the corresponding policies have also been gradually increased. However, compared with the big hospitals, the community health service institutions have got less diagnosis and treatment patients, inpatients and lower growth rate. (Chu Gang, 2011<sup>[2]</sup>) By analyzing the in-depth reasons, the author finds out that the public has insufficient trust and credit towards these primary level medical care institutions, such as community health service centers. Thus, no matter minor illness or serious illness, the public intend to choose big hospitals to seek medical advices, even these hospitals are more expensive and distant.

Thus it can be seen that the increase of public credibility of community health service is an essential strategy to solve these problems, such as, health resources are highly focused in big hospitals, to optimize health resources structures, to distribute these resources to various institutions and to ultimately increase health resources to the primary level health service. (Xu Wen-rong, Bao Yong, 2014<sup>[3]</sup>)

## **2 To analyze the matter of lower public credibility of community health service in Sichuan Province**

When people intends to seek a medical institution, he or she has to gain some useful information about it. In other words, only when people get full knowledge of the medical institutions, it is possible for them to choose a suitable one. Thus the degree of understanding is the basis for public to make choice. The satisfaction degree is produced from people's previous health seeking experiences. when they are satisfied with the technological level and service quality of a certain institution, they will trust this institution. Therefore, the satisfaction degree is another basis for credibility production. Specifically speaking, only if the public have satisfied experiences in this medical institution, they will choose this one the next time and accept it, thus public credibility can be generated during this process. To sum up, we think that the understanding degree, satisfaction degree and recognition degree are the essential standards to judge public credibility or trust degree.

### **2.1 Low understanding degree of the community health service centers (stations)**

As we can see, the public understanding towards a community health service institution and its relevant services directly determines whether they will choose it to seek medical advices. In this questionnaire survey, about 16.4 percent respondents totally do not know the existence of medical service institutions, such as community health service centers or stations. As it is shown in Figure 1: as for the public understanding towards main responsibilities and working tasks in community health service centers or stations, this figure displays that there are 26.6 percent of respondents fully understand it, 59.6 percent of them choose "little understanding" and 13.8 percent of them have no idea of it. As for the question: why did you choose the community health service centers or stations before? There are 74% respondents said they intended to choose a medical institution which is close to home, so it would be convenient and efficient to seek medical advices. About 33.9 percent of respondents agree that the community health service centers or stations have the advantage of being cheap. Only 16.7% choose "great service attitude". Finally, 53.8% of respondents said they have not chosen the community health service centers in the last two years. Thereby, to some extent, the survey data above explain that the public understanding degree needs to be improved further. Convenience, reasonable prices and high quality services are the most important considerations when people choose community health service centers or stations. Therefore, we have to enhance the publicity and distribution of community health service from now on, establish the brand image and devote energy in improving patients' initial cure rate.

### **2.2 Low satisfaction with community health services**

Satisfaction and credibility are closely related with each other and show a positive correlation. Nowadays, the health human resource does not fit the development of community health service. Most of the doctors in community health service centers are coming form primary level medical institutions. There are few general practitioners in medicine. These centers have a lower proportion of doctors who have postgraduate degrees and senior titles. What is worse, these doctors get a few chances to take refresher courses and have less experience with the treatments of difficult diseases, therefore, their general professional abilities are not strong. With lower income and narrower promotion space, these

doctors' work ethic and attitudes are inevitably be influenced. Medical personnel in community health service stations play an important part in community medical service system and their service attitudes have determining impact on people's assessments and opinions. As for the question: please explain your reasons that you have never thought about seeking health advices from community health service centers or stations. There are 16.4 percent of interviewers choose the answer "bad attitudes". Judging from this, we can see that people do not have favorable comments on these medical staff working in community health service centers. So we should also put in sufficient energy and time to enhance their working attitudes. (Zhao Liang, Huang Bei-bei, 2010<sup>[4]</sup>)

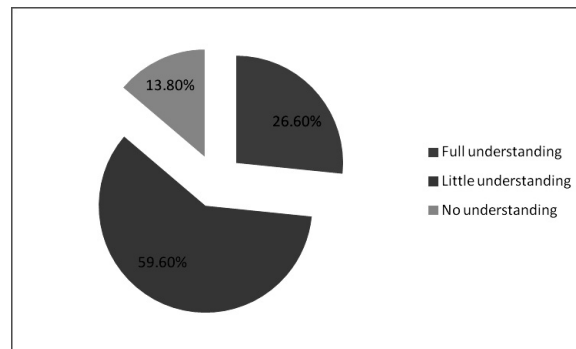


Figure 1 The conception situation towards community health service centers or stations

### 2.3 Low approval degree towards community health service centers or stations

As it is shown in Figure 2: the public approval degree towards medical service capacities and levels is not very high. There are only 6.1 percent of respondents hold that the community health service centers or stations have strong service abilities and levels. 31.7 percent of them choose "relatively high" and 53.2% choose "relatively low". But 9% of them think that these medical institutions have low service abilities. Figure 3 displays the research results concerning the question: what are the restrictive and influential factors in the development process of community health service centers or stations? For this question, 74 percent of respondents choose "low credibility from patients", 61.9% for "insufficient funds input from the government", 53.6% for "propaganda is not enough" and 47.2% for "insufficient policy motivation". The data also shows that the reasons why some citizens have never been to community health service centers or stations are because it is highly related with their public credibility. About 70.6 percent of respondents choose the answer "limited medical technology", 54.8% of them choose "simple devices", 29.7% for "relatively poor environment" and 28.8% for "insecure medicine". All these research results explain a phenomena: the public prefer to see doctors in big hospitals with advanced medical technology, although it costs them more money. They do not believe in the facilities and skills and hold low credibility towards community health service centers or stations.

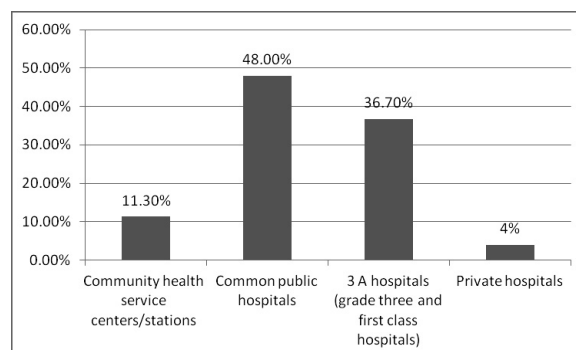
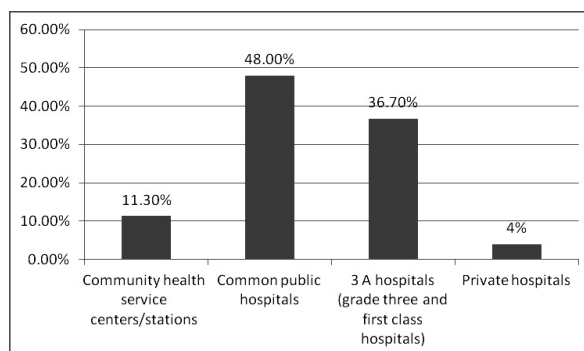


Figure 2 Approval degree towards the service capacities and levels in community health service centers or stations



**Figure 3 Restrictive and influential factors in the development process of community health service centers or stations**

### **3 To analyze reasons why the community health service in Sichuan Province gets low public credibility**

#### **3.1 The policy system in community health service and its implementation degree**

The healthy development of community health service should take a complete policy and regulation system as its foundation. However, the community health service system in China has got a late start and fragile foundation. What is worse, some related laws and regulations are desperately needed. Thus the government should take more supportive measures. When the local governments set out to implement these policies, they try to make some local documents according to the political call from central government one after another. But in some distant regions, the local governments do not take any actual actions except making documents. Especially, these governments do not attempt to provide land and appropriation reimbursement for the local community health service centers or stations for a long time, therefore, these stations can only quench their thirst by thinking of plums; worse still, in some areas of China, the community health service stations do not deal with the urban employee basic medical insurance. So these sick workers, no matter they have got a minor or serious illness, prefer seeing a doctor in big hospitals. (Qin Huai-jin, 2012<sup>[5]</sup>)

What is worse, the implementation of the policies about resource allocation is not well settled. The high-quality medical resources are mainly centralized in some big hospitals. Meanwhile, the limited medical resources in community health service stations are sparely utilized, which hinder the function and development of community health service causes.

#### **3.2 The quality of medical facilities and workers in community health service centers and stations**

Here are some factors which play a decisive role for the development of community health service causes, such as the medical environment, hardware devices, workers' medical skills and their service attitudes. As for the question: the reason that you have never been to community health service centers or stations. About 70.6 percent of respondents state that they do it because of the "low medical technologies". For another question: in order to promote the development of community health service centers or stations, what kinds of strategies the government should take? There are 84.8 percent of respondents agree to improve medical skills and 79.0 percent people think the government should enhance medical conditions. Human resource is the first factor to get a smooth development of community health service. Doctors and nurses are the most important workers in these stations. Owing to the restriction coming from varied factors, the community health service stations need professional workers desperately, especially, general practitioners in medicine, which hinders the well function of the stations. At the same time, the medical workers in these community medical stations are not rationally arranged: the proportion of general practitioners of medicine is relatively low; the staff have fewer chance to get further education. To be more specific, the construction and implementation of the training system for general practitioners in medicine has already been a core factor in order to face new medical revolutions.

### 3.3 Citizens' hospitalizing conceptions and habits

The hospitalizing conceptions and habits of the community residents are formed eventually from a long time ago. They have such fixed ideas that community health service stations are bad at disease treatments. Therefore, whenever they are attacked by a disease, they often intend to seek health care in 3 A hospitals. This kind of hospitalizing behavior is hard to be changed within a short time. So it is really hard for community health service centers or stations to attract patients, even they have minor ailments. Figure 4 below shows the research results of the question: which medical institution below is the most frequently chosen one for you before? There are 48% for "common public hospitals"; 36.7% for "3 A hospitals" and only 11.3% for "community health service centers or stations". By investigating the service area of community health service centers or stations, we find out that there are 57.9 percent of respondents choose "medical service". For some services, such as special health care, prevention, health education, family rehabilitation and so on, they are scarcely utilized. This phenomena explains that the public lack right health concepts and health investment ideas. The community residents have a little knowledge of community health service. To be more specific, they are skeptical about its service quality, charging standards and skills. So they are more willing to see a doctor in big hospitals. Moreover, the public has not established the concepts of disease prevention and health protection. They will not pay for other health care services and do not want to join medical service activities. The government should organize varied health education propaganda in order to improve public awareness for health care and protection. Only in this way can we change the traditional public hospitalizing concepts and habits. The community health service institutions can gain public credibility sooner or later.

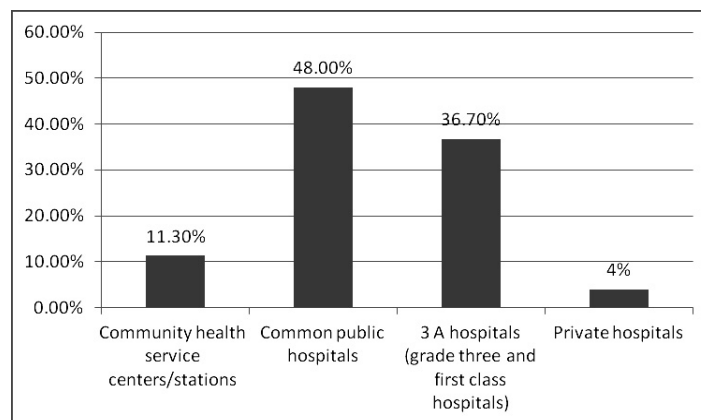


Figure 4 The most frequently chosen medical institutions before

## 4 Strategies and suggestions to improve the public credibility of community health service in Sichuan Province

### 4.1 To enhance the propaganda for community health service

The community health service is a relatively new thing for the public, thus we should take more publicity efforts to demonstrate its profound significance for the society and enhance its recognition and popularity rate. At the same time, it is also necessary to strengthen the public awareness that the development of community health service is very important. What is more, we should try our best to get more support from different social classes. To be specific, the government should take more publicity efforts to rebuild the image of community health service through media, such as newspaper, television, internet and so on. Only in this way can the awareness and participation rates be increased and public support be gained. The street office should provide guidance for residents to utilize the community health services through community publicity billboards or newspapers, thus reconstructing and upgrading the social cognition about them. (Ke Lin-dan, 2010<sup>[6]</sup>) The health administrative departments can print out these health-service-related policies and make some propaganda items. Through these measures, the community residents would get more knowledge about community health



service and they would also be more likely to participate in its varied activities. These departments can hold a lot of activities such as health education meetings and various propaganda activities. By joining these activities, the public can realize the functions of community health services and benefits that they will bring to the public. Last but not least, the government can attempt to increase the scope and proportion of reimbursement for medical insurance, leading the public to seek health care and prevention in community health service centers.

#### **4.2 To increase fund inputs of hardware facilities for community health service centers or stations**

The hardware supporting facility in community health service institutions is an essential associated factor for their public credibility. It needs to be actively supported by the government. The government should provide capital and financial supports to make sure the construction of some basic devices in community health service institutions. In addition, these allocated devices should be more reasonable, personalized and humanized according to residents' varied requirements. These practical measures would make sure the sustainable development of community health service. A well-developed community health service institution ought to have some basic medical examination equipments and instruments. While some community health service institutions are very convenient for the public and have pleasant environments, they do not possess the matched medical examination devices to diagnose some difficult diseases. As a result, the patients can only choose to get further diagnoses in big hospitals. The community health service centers should strengthen their improvement efforts for the medical instruments and update these devices regularly. To solve the problem of medical instruments shortage, the community health service centers should cooperate with some big hospitals by sharing their special medical devices and specialized examination instruments. (Lin Han-lei, Lin Ai-hua, 2012<sup>[7]</sup>)

#### **4.3 To strengthen talents team construction in community health service centers or stations**

Firstly, the standard training mechanism for general practitioners in medicine should be established soon. The physicians should get standard trainings for three to five years as resident doctors after they have graduated from medical universities. Once they pass these professional examinations, they are qualified to be a worker in the community health service centers. The Office of Academic Degree of State council should establish a master degree programme for general practitioners in medicine and provide them with new approaches to get advanced education. These resident physicians of different majors from the clinical medicine departments are qualified to apply the master or doctor degrees after completing the standardized training. It has positive effects for these community health service centers to encourage and select excellent resident physicians. What is more, the government should provide the doctors working in community health service centers with more policy support from the perspectives of payment and promotion.

Secondly, to construct a long-term training mechanism for the general practitioners in medicine. The on-the-job training is a essential way to enhance workers' service quality. There are few doctors in community health service centers engage in advanced studies and trainings in some 3 A hospitals. On the contrary, most of these doctors intend to improve their skills by reading professional books or joining training activities. Therefore, we need to change the training mechanism for these general practitioners in medicine quickly. We should send them into some integrated big hospitals with high medical technologies to get further education and trainings. For these on-post medical workers working in community health service centers, they have the chance to get off-duty and mid-career trainings. For these workers who have already got the qualifications to general practitioners in medicine, we should devote to strengthen their service qualities by offering them further education. (Chen Jun, 2013<sup>[8]</sup>)

## **5 Conclusions**

One of the most important factors which affect public hospitalizing choices is these medical institutions' social credibility. Public credibility is decided by varied factors, such as medical technology level, service attitude and quality, the previous treatment effects and so on. Through this investigation, we find out that the public credibility of community health service in Sichuan province is relatively low. Here are some reasons leading to this phenomena: insufficient publicity efforts from the

government and investment in basic hardware facilities; relatively low service quality and medical treatment level. These factors have brought about some bad influence on community health service, for instance, the public have little knowledge about it and they have no confidence in the service quality of these stations. Therefore, the government should put in more publicity efforts by combining both above and below the line. For the patients coming from varied age groups and education backgrounds, different popularity measures should be taken. We should try our best to update people's existing hospitalizing concepts and habits, thus improving their public credibility. In addition, when these community health service institutions serve the public, they should get full knowledge of patients' requirements and take patients as centers. During the diagnosis and treatment processes, the medical workers should sincerely consider patients' suggestions and try to maximize public satisfaction degree. Because patients would believe in the service quality of these community health service stations after they have got satisfying diagnosis and treatment experiences. Thus the community health service stations should strive to improve their service quality and level. By proving some preferential policies, these stations will attract more hi-tech medical talents, thus the public credibility level of community health service will be improved.

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## Value of People's Democracy of Leninism in Public Participation in Social Governance \*

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**Abstract** Based on construction of the Soviet regime, democracy of Leninism was the theoretical summary and in which, people's democracy played an significant role. In the new period of building socialism with Chinese characteristics, public participation in social governance is the policy of the Communist Party of China to ensure the full play of people's entity. In people's democracy of Leninism, the possibility of public participation in social governance is theoretically supported by the essence of people's democracy. To realize people's democracy in Leninism, public participation in social governance is necessarily required. Paths to ensure people's effective participation are provided by people's democracy of Leninism construction. Thus deep understanding of people's democracy of Leninism is helpful to further improve the validity of people's participation in social governance.

**Key words** Lenin, People's democracy, Public participation, Social governance, Value

People's democracy of Leninism was based on the public ownership of the means of production. He advocated that social governance rights should belong to all workers and it was also emphasized that the rights should be equal, universal and being protected. Public participation in social governance referred to "all activities through which citizens try to influence public policy and their own living. These activities include: vote, election, referendum, association, petition, rally, protest, procession demonstration, resistance, propaganda, mobilization, series connection, accusation, dialogue, debate, negotiation, lobby, hearing, petition, etc<sup>[1]</sup>." In this point, public participation in social governance was established on the state system of people's democratic dictatorship. Both of the two emphasized the entity of people and the democracy in decision-making on public affairs. Report of the 18th National Congress put forward that "Socialism with Chinese characteristics is belong to millions of Chinese people themselves", thus their participation is an integral part of the social governance. Naturally, proposal of the concept of social governance system gave an even more important position and political significance to the public participation in social governance.

### 1 Possibility of people's participation in social governance is theoretically supported by the essence of people's democracy of Leninism

According to Lenin, public ownership of the means of production was the premise of realizing people's democracy and the entity and creativity of people was being emphasized. His saying theoretically supported the possibility for people to participate in social governance in a new period. Public participation in society governance is a "from bottom to up" coordinative process aiming at promoting social development, which not only enjoys clear laws and regulations to standardized it, but also emphasizes people's positive attitude and consciousness to participate it. Only based on this foundation, can people's participation posses institutional guarantee and can the universal benefits enjoyed by people be ensured.

In people's democracy of Leninism, the entity of people gave a definition to people's role in participation in social governance. According to Lenin, main body of democracy should be the majority of social population, the masses, instead of the small number of people in interest groups. Essence of people's democracy lies in that people can express their willingness freely and participate in social governance consciously, thus they can be actually involved in the management of state affairs and social development. "The so-called democracy is to consider the wills and interests of most people, rather than that of the minority capitalists in the existing Kerensky regime<sup>[2]</sup>." Purpose of people's participation in

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social governance is to improve the scientificity and effectiveness of it. the masses exert their rights through the final sovereignty enjoyed by the whole society. China is a socialist country. Essence and core of the socialism is that people are masters of the country. With the public ownership as the main body of the economic system, the masses in China have realized the equality in economic base. “The dictatorship of the proletariat not only generally changes the democracy and democratic institutions, but also lets working class being oppressed by capitalists enjoy unprecedented widely practical democracy<sup>[3]</sup>.” On the one hand, public participation in social governance refers to activities of developing society and coordinating social relationships according to the social needs. On the other hand, public participation in social governance is the embodiment of the principle of “people are masters of the country” in socialist countries, truly ensuring that democratic rights belong to most people.

In people’s democracy of Leninism, creativity of people gave a definition to the function of public participation in social governance. Essence of people’s democracy of Leninism also emphasized people’s creativity when they facing their democratic rights. “The vibrant creativity is the basic factor of a new society... Socialism is not established according to orders from higher authority. It can’t coexist with bureaucratic mechanism in officialdom; the vibrant creative socialism is created by people themselves<sup>[4]</sup>.” The fundamental purpose of social governance is to realize harmonious social development, namely, to create a more developed and harmonious society. Because that according to the developing trend of democracy, the ultimate form of people’s democracy is that all members get rid of any higher authority and become the master of society with no classes and countries, thus all social members can freely participate in the governance and creating of society.

## **2 Necessity of public participation in social governance is objectively required by the realization of Lenin’s people’s democratic thought**

Implementation of the socialist system is the premise of the realization of people’s democracy because that the liberation of the proletariat is premise of the liberation of the whole human. Therefore, in order to achieve people’s truly democracy, the bourgeois state apparatus must be firstly broken. Lenin pointed out that “The so-called revolution should not be that the new class uses old state apparatus to command and govern, rather, the old apparatus should be broken and new ones should be created for new class<sup>[5]</sup>.” In this new machine, people’s democracy truly becomes the democracy belongs to most people. The democracy is also created and enjoyed by people themselves. With socialist system, public participation in social governance is not only a reflection of people’s entity, but also more of a premise of socialist dictatorship. Therefore, in the view of state nature, necessity of public participation in social governance is objectively required by the realization of Lenin’s people’s democratic thought.

According to Lenin, the fundamental reason of their opportunism which failed the Second International lied in that they didn’t think historically and got to know that democracy may have different forms and utilization in different historical stages. In fact, from history, democracy is a developing process. The rights were first grasped by a single person, then a minority group of person, finally all the people. People’s democracy is exactly the inheritance and transcendence of the phenomenon that the rights are grasped by a minority group of person. In bourgeois society, the idea of “people’s sovereignty” can only stays in sloganeering, becoming stunt to stable people’s hearts. Because of the irreconcilable conflict between production participated by majority people and democratic rights enjoyed by minority people, capitalists “have to regarded their own interests as the common interests of all members of society, in abstract, they give their own ideas a universal form and describe that as the only reasonable idea of universal meanings<sup>[6]</sup>.” In fact, in most cases, capitalist democracy is still belonging to a minority of people, which means that the development of democracy has not be completed. According to people’s democracy of Leninism, once capitalist ownership exists, the democracy couldn’t develop into the most complete level. When capitalism cannot support the developing of democracy, the democracy process will exceed the scope of bourgeoisie and achieve another democracy with a greater scope, namely, the proletariat democracy. Proletarian democracy is one of the political conditions of the proletariat liberation and a necessary phrase to realize radical democracy. Public participation in society governance is the specific appearance of proletarian democracy in society development. The level of people’s participation depends on the level of the

democracy development. Ultimately the thoroughly democracy will appear in a democratic environment which attracts more and more, even all the society members to participate in social governance willingly in a convenient way. And proletarian democracy can only come true in the socialist system, thus a new social form will appear at the right moment.

In the process of socialist modernization, public participation in social governance has political significance in the expansion of the scope of right subjects, which is similar to the economic developing path in some extent. In the early stage, relatively more concentrated rights can quickly and effectively change the economy, culture, and people's behavior in traditional society. With deeper and deeper gaps between classes because of economic development, rights concentration, and the transformation appearing in the development, people start to have democratic consciousness and more democratic needs day by day. Especially in China, which is in the period of development and transformation, large-scale population migration has weakened people's feeling as the strangers. What's more, the class differentiation also stimulated the political participation consciousness and the needs of some marginalized groups because of society development. Facing China's huge population base, direct political participation by all people is obviously unrealistic. Solving complex interests conflicts based on ensuring citizens' democratic rights is the necessity of social development and also the premise of social stability. "History powerfully proves that when the proletariat have no political freedom or only have limited political rights, the political struggle needs to be the top priority<sup>[7]</sup>." For these reasons, public participation in social governance has gradually become a trend. Especially promoted by Internet information, the masses' awareness of democracy, participation, fairness and rights is growing. In fact, public participation is an important social capital for social governance. The state should provide a platform and improve citizens' participation consciousness. Also some non-institutionalized participation need to be avoided to promote orderly participation.

### **3 Paths to ensure people's effective participation are provided by the construction of people's democracy of Leninism**

When it comes to construction of people's democracy, Lenin thought socialist national system needed to ensure that people enjoy democratic rights and promote people to actively use and create democratic rights, thus the society can develop and people themselves can get all-round improvements through the participation in social governance with democratic rights.

First of all, allow the masses to fully enjoy the right of participation in social governance. In modern governance system, public participation is an important dimension while the democratic rights are the political guarantee of public participation. Lenin thought that compared with capitalist democracy, socialist democracy is different not only in its quantity, but also in its essence. Change in essence lies in that "The dictatorship of the proletariat changes not only generally the democracy and democratic institutions, but also lets working class being oppressed by capitalists enjoy unprecedented widely practical democracy<sup>[8]</sup>." People's widely participation requires improvements of public participation system to ensure the effective exerting of democratic rights. China is a country with large population and rich resources. With the increase of social fortune, citizens enjoy complex and diversified interests. Increasing consciousness of public participation and weak participation are hindering the effectiveness of governance. Thus, incorporating the masses into social governance community is an effective measure to solve social conflicts and promote harmonious society development.

Second, strengthen the democracy system construction and deepen the thoroughness of mass' participation. The ultimate result of democracy is the vanishing of the state thus all the society can be governed by all members. In Lenin's review, he hold the idea that the premise of this state was to build a socialist system with which most citizens can enjoy the democracy. "Without full democracy, victory of socialism can not remain and the state will finally disappear<sup>[9]</sup>." Public participation can be deepened in both subjects and objects. In terms of subject construction, public participation in social governance can not exist without subjective intention. Only participation according to the needs of people can ensure the thoroughness and only participation of their own can truly exert the initiative of every subject. Thus, in order to improve the participation thoroughness of public participation, consciousness of the masses should be improved. In terms of the object construction, though public participation in social governance

is the express of the subjects' requirement, the participation paths and scope need to be orderly and regulated. Institutionalized the participation to ensure the effectiveness and benign results of the participation. Positive effects from the public participation can promote more people to be involved in this activity. All these are helpful to increase the thoroughness of public's participation, thus the good governance can be achieved.

Third, adhering to the leadership of the communist party of China is the principle of the public participation in social governance. In the construction of the Soviet regime led by Lenin, in order to overtake the shortcut of bureaucracy from indirect democracy, he constantly expanded people's democratic rights of governing the country. Because of the special historical background and the national conditions at that time, Russian couldn't pursue the most thoroughly democracy in the largest scope. That's why in Lenin's old ages, his assumption of people's democracy construction was to insist on the unity between the party's leadership and the people's supervision. In this unity, when people supervise the work of the party and the government, they can also gradually participate in the governance of the party and the government. "This embodies the combination between the indirect democracy characterized with the party representation system and the direct democracy characterized with people's direct participation in state governance." Public participation is an public activity with common and extensive purposes and benefits. Leadership of the Communist Party of China is the core of the masses. On the one hand, the Party can consider the ideas from the masses and corporate the ideas in the state polices to advance the Party's leadership. On the other hand, the leadership of the communist party of China is also helpful for ensure the constructive and scientific participation.

In short, Lenin's people's democracy is the first practice and trial of Marx' democratic thought, realizing the theoretical supposition of that democratic rights are grasped by most people. For today's China, Lenin's people's democracy thought gives a theoretical guidance and practical references for insisting the principle of "people-oriented" and improve the consciousness and ability of people to participate in society governance. into effect, enhance the consciousness of public participation in social management and the ability to provide the theoretical guidance and practical reference.

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# Research on the Effective Supply of Basic Public Services for Persons with Disabilities in China

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**Abstract** Basic public services for persons with disabilities play an important role in China's basic public services. The basic public services enjoyed by the disabled embody social values such as fairness, rights and obligations. Due to China's large population base of persons with disabilities, however, such basic public services for the disabled as underemployment, rehabilitation and education cannot meet their needs in general. In the face of particularity and diversity of persons with disabilities, their demands are usually generalized and averaged as a result of people's neglect. The supply of basic public services for persons with disabilities should be guided by the needs of the disabled, and diversified supply model should be improved, thus gradually improving the supply effectiveness.

**Key words** Persons with disabilities, Basic public services, Effective supply, Demand orientation

## 1 Introduction

China currently has about 85.02 million persons with disabilities in different kinds, accounting for 6.34% of the total population, which involves the relative population of about 280 million<sup>[1]</sup> and carries the world's most disabled people<sup>[2]</sup>. The basic public services for persons with disabilities are the most basic items or services that the group should enjoy, covering all aspects of life of the disabled. At the same time, it is an essential part of China's basic public services system. With a large population base of persons with disabilities, however, China's construction of the basic public services system for the disabled is still in its infancy. There is still a big gap between the supply of basic public services for the disabled and the special needs of the disabled. The supply of basic public services for persons with disabilities still stays in an extensive stage.

It is of great theoretical and practical significance to study the supply of basic public services for the disabled. It helps not only promote the innovation of China's public management and policy theory, but also improve the quality and supply level of basic public services for persons with disabilities in China.

In order to alleviate the supply-demand imbalance of basic public supply for persons with disabilities in China, this paper, through literature review and data analysis, explains the present situation and existing problems of the effective supply of basic public services for the disabled in China from a normative perspective, analyzes the reasons, and then puts forward some countermeasures and suggestions for improvement of supply efficiency.

## 2 Status quo and existing problems of the effective supply of basic public services for persons with disabilities in China

### 2.1 Short supply in total amount

Although the basic public services for persons with disabilities was included in the 12th Five-Year Plan of the National Basic Public Services System during the 12th Five-Year Plan period, the coverage of basic public services for the disabled in China is still relatively narrow and overall in a state of short supply. Especially for rural persons with disabilities, the basic public services they can enjoy are of desperate shortages.

From the point of view of the disabled development in China, which is the most responsive to the special needs of the disabled, the overall development situation of the disabled is 56.6% in terms of rehabilitation, education, employment, social security, information level and social participation. Specifically, in 2013, the coverage of rehabilitation services for persons with disabilities was 58.3%. 72.7% of school-age children with disabilities have received compulsory education, and the proportion of school-age children with no compulsory education is as high as 27.3%<sup>[3]</sup>; however, China's

non-disabled school-age children have basically received compulsory education. China's urban unemployment of the disabled resisted rate is as high as 10.8%, but the real unemployment rate is more than that, which is much higher than the national average. The employment situation of persons with disabilities is still grim, which also reduces the overall participation opportunities of disabled society and social integration. In 2013, 5.4% of the urban persons with disabilities did not participate in any kind of social insurance. As of the end of 2016, urban and rural residents with disabilities who participate in urban and rural social endowment insurance reached 23.706 million with the rate of 79.0%. These data shows that there is a considerable number of persons with disabilities in China have not enjoyed the basic public services entitled, and the supply amount of basic public services for persons with disabilities are relatively in shortage.

### **2.2 Low integral level in supply**

At present, China's basic public services system for persons with disabilities is still in its infancy, and the basic public services for the disabled are mainly deemed as a survival relief concept, which cannot meet the multi-level development needs of the disabled.

The demand for social security for persons with disabilities is particularly urgent. Due to various factors, however, the gap between the overall living standard of the disabled and the average level of the whole society is still large. Persons with disabilities also face many difficulties including basic living security, rehabilitation, education and employment. In 2013, the per capita disposable income of China's disabled households was RMB10,541.1, 56.7% of the per capita disposable income of the national households, and the gap was still large. The Engel's coefficient for disabled families is 48.5%, which is 12.3 percentage points higher than that of the national residents' Engel's coefficient of 36.2%. Obviously, the quality of life of the disabled households is obviously lagging from the national level. Although the State Council has established a system of subsidy for persons with disabilities and the subsidy system for severely disabled persons in 2015, both the coverage of these two subsidies and the level of social assistance for severely disabled persons are limited. China's education level and employment rate for the disabled are to be enhanced.

### **2.3 Low quality in supply**

Basic public services quality refers to the end user obtains and enjoys the actual level of public services, availability, timeliness, economy, accuracy and responsiveness<sup>[4]</sup>. Quality serves as an important factor in judging whether public services are effective<sup>[4]</sup>.

For the time being, both the accessibility and the satisfaction of basic public services for persons with disabilities in China are in a low degree. The government should not only expand the number of basic public services for the disabled, but also need to improve the structure of the basic services for persons with disabilities and improve the quality of basic public services for them. The public service of persons with disabilities should not only consider the question of fairness and efficiency, but think about whether the disabled can really enjoy the public service, which is an important criterion for judging whether the basic public services supply of the disabled is really effective. However, some Chinese government departments are not responsive to the needs of the disabled. The way to provide basic public services for persons with disabilities is a one-way output, lacking of two-way communication with the disabled, and public services do not match the needs of the disabled. This kind of groundless basic public services supply does not really benefit to persons with disabilities that have multiple needs.

### **2.4 Low supply efficiency**

The special institutional arrangements for the basic public services tilt of the disabled are dependent on the specific delivery mechanism to be implemented. However, the main body of the basic services provider for persons with disabilities in China is mainly the government. The participation of the social forces from the third sector and the market is less, and the over top-down administrative management style also led to the lack of energy on the basic public services supply style. The mechanism of basic public services provision in China depends mainly on the provision of government and the lack of effective public-private cooperation tools. The technical support system provided by the basic public services for persons with disabilities is relatively weak, and there is a lack of pluralistic and two-way interaction between the government and the disabled. In the process of



supply, the resources of the basic public services do not achieve effective docking with the needs of the disabled, and the resources shortage and waste both exist in China. Moreover, the supply efficiency is low and the timeliness is not high. Therefore, the supply of basic public services for persons with disabilities in China is in an extensive state.

It can be seen from the above problems that the scale and quality of basic public services for persons with disabilities in China are also difficult to meet their special needs. There is a certain deviation from the demand preference of the disabled. The effectiveness of the basic public services supply of the disabled is not high.

### **3 An analysis of the causes for the problems in the effective supply of basic public services for persons with disabilities**

The supply of basic public services for persons with disabilities in China is a short board in the basic public services. The reasons for the low supply of basic public services, the low level of supply and the lack of supply and demand are complex and diverse.

#### **3.1 Deficiency of advanced concepts**

In the case of the public sector, due to the concepts overlook of some China's public sector, the diversification and multiple level of special needs for people with are easy to be generalized and averaged<sup>[5]</sup>. Coupled with the influence of traditional commanding Chinese administrative culture, in determining the provision of public services for persons with disabilities, some government sectors are driven by its own interests, favoring the provision of public services for easy performance, which lacks flesh and blood links with the disabled. The starting point of the public sector is mainly management, rather than serving the disabled, ignoring the most concerned, the most realistic and most direct demands of the disabled, which shows that the public service concept for persons with disabilities of some Chinese government departments has not yet been the disabled oriented and the will of the main body is not strong. Secondly, some Chinese government officials have conception deviation on persons with disabilities and hold the thought that disability equals to deformity, and the rights and interests of persons with disabilities have not been given enough attention. The disabled are a part of the entire human society, and persons with disabilities are also well-off society participants and the builder, which should have equal rights with sound people. Moreover, at present, the basic public services concept of the disabled in China is mainly a kind of relief and gift-like concept for survival, which considers that the disabled themselves are a vulnerable group who are entitled to other's help. Yet, persons with disabilities need not only compassionate sympathy and charity, but feel to be needed and respected.

As far as the social environment is concerned, the social atmosphere beneficial for persons with disabilities to live and get employed in China is unfavorable, which poses a greater obstacle to the disabled. From the situation of enterprise employment, due to certain degree of conception deviation on competence of the disabled, enterprises have repulsion on the employment of persons with disabilities. Only a few enterprises are willing to provide employment opportunities for the disabled, but wages are relatively low.

#### **3.2 Incomplete legislative system**

China's legal protection of the rights and interests of persons with disabilities started late, and the current legal system for the protection of persons with disabilities has been initially formed and made some remarkable achievements, which education, employment, rehabilitation for the disabled has already had relevant special legislation. However, there are still many defects in the legal system of persons with disabilities in China, and there are still no special laws in the aspects of social security, care, culture and sports for the disabled. The existing special legal program is the principle document, lacking of clear definition on responsibility main body for basic public services, effective guidance rules for the management system and operation mechanism of the basic public services for the disabled, which makes the basic public services of the disabled lack the effective legal system guarantee at the practical level.

The concept of legal protection legislation for persons with disabilities lags behind, and the legislations are roughly formulated at a low level. Due to insufficient government's propaganda about

the protection of legal rights and interests of basic public services for the disabled, many persons with disabilities (especially in some rural areas of China) even do not know these laws and policies. Grassroots local governments cannot accurately understand and implement the relevant laws and regulations, thus the existing basic legal system for the disabled does not form the effective protection of persons with disabilities enjoy the basic public services rights.

### **3.3 Governmental incompetence in providing public services**

Some Chinese government departments do not have sufficient abilities to collect and analyze the needs of persons with disabilities. With a large population base, different needs of the disabled in different degrees, types, ages, genders and regions in China although have things in common, particularity is more important. China began construction of the National Population Database for persons with disabilities since 2008, and the monitoring of the well-off work of the disabled started relatively late. The database of the disabled population was the most basic decision-making basis for the government to provide important public services for persons with disabilities, as well as the basis for dynamic management of the needs of the disabled. The lag of the construction of information platform led to the disabled cannot fully express their own interests, and government departments cannot fully tap and accurately analyze the multiple needs of the disabled, so the effective supply of basic public services for persons with disabilities is difficult to achieve.

Followed by the lack of long-term public service financial investment mechanism, the government's financial investment does not match the real needs of persons with disabilities. In 2013, the overall development of the disabled in China was 56.6%<sup>[3]</sup>. The basic public services coverage of the disabled in social security, rehabilitation, education and employment was relatively low, and there was still a big gap between the ordinary and disabled people. The demands for persons with disabilities in these areas, however, is relatively large, especially for three-quarters of the total number of persons with disabilities in rural areas, of whom only about 41.1% of the rural poor persons with disabilities were absorbed into the minimum living security, 36.9% were supported by relatives, 9.9% received government subsidies, 2.5% enjoyed five guarantees, 0.7% obtained centralized support, and 20.2% were out of any form of living security. These data reflect China's channels of basic public services funds for persons with disabilities are insufficient, and there is contradiction between the supply of public services for the disabled and the special needs of the disabled, and the balance between supply and demand.

### **3.4 Single supply mode**

At present, the main provider of public services for persons with disabilities in China is the government, which plays a decisive role, but the effective pattern of government-led, social participation and market operation has not been really formed<sup>[6]</sup>. Affected by the traditional planned economic system, the whole society has not paid enough attention concern for the disabled, and the atmosphere of helping the disabled is not concentrated, which recon the care for persons with disabilities is only the responsibility of the government. Overly-single public service supply main subject and channel lead to a single expression channel for the needs of the disabled.

First, the non-governmental organizations in China have problems of less independence, loose internal management and few professional personnel etc., which play a limited role in the field of public services for the disabled. By contrast, foreign non-governmental organizations are relatively mature with more professional social work talents and independence, becoming the complementary formation of non-governmental supporting network for the disabled community.

Second, in China, family support is the most important force of social support for the disabled, especially for rural persons with disabilities, and assistance from charitable organizations is limited. In some developed countries, persons with disabilities can take the initiative to choose the main service body, such as the US public transportation has a barrier-free bus service, which specifically sets up barrier-free bus, low floor wheelchair pedal and other convenient services for the disabled, and provides telephone booking rehabilitation car door-to-door service<sup>[7]</sup>.

### **3.5 Ambiguous division of responsibilities between supply subjects**

At present, China's main responsibility subjects to provide basic public services for persons with disabilities involve the Ministry of Finance, the Ministry of Education, the Ministry of Civil Affairs,

the CDPF and other departments. Rights and responsibilities unequivalence between departments and serious crossover of service functions can be the important reason for low accessibility of the public services for the disabled. Issues, including whether the rehabilitation of persons with disabilities should be the responsibility of the Health and Family Planning Commission or that of the Federation of persons with disabilities, whether the employment of persons with disabilities should be the responsibility of the Ministry of Human Resources and Social Security or that of the Federation of Disabled Persons, to what extent should government and other public departments be involved in the basic public services of the disabled, have not been clearly defined, indicating that the government lacks a unified understanding of the organization and management of basic public services for the disabled. Therefore, despite the fact that China has incorporated the basic public services of persons with disabilities as sub-projects into the basic public service development plan, this sloping special policy arrangement is not operational at the practical level. The lack of effective cooperation between the departmental entities due to differences in interests, and the non-standard behavior of government departments, some policies are often difficult to be effectively implemented in real practice, the quality and efficiency of the basic services of the disabled is not high.

## **4 Countermeasures for improving the effective supply of basic public services for persons with disabilities**

### **4.1 Change the service concept**

Advanced concepts can improve the quality and level of basic public services for persons with disabilities. Varied disability categories, levels and age groups of people with basic public services needs are showing diversity. Therefore, the establishment of a sound service system to meet the special, diversified and multi-level needs of the disabled can directly determine the basic public services supply for the community is effective.

In design and provision of basic public services, China's government departments, in particular, should give full consideration to the needs of different categories of persons with disabilities, adhering to the human nature to enhance the lives of persons with disabilities and quality of life as the core concept based on the actual needs of the disabled. Differentiated and targeted to provide basic public services, so that the limited public service resources should maximize the benefits and the most urgent need of the disabled get benefits. At the same time, we should pay attention to the personalized service so that the disabled can get the basic public services suitable for their special needs and improve the effectiveness of the basic public services supply of the disabled.

### **4.2 Perfect efficient special system arrangements**

In China, the effective supply of basic public services for persons with disabilities depends on the protection of policies and regulations. The system arrangement of inclination is the key to determine whether the basic public services of persons with disabilities are effective. Based on the special needs of the disabled, we need to differentiate the basic public service needs, establish and improve the basic public services system for the disabled.

In formulating public service development plans, China should clarify the development strategies and basic objectives of basic public services for persons with disabilities. By adhering to the combination of generalized and preferential treatments, it refers to providing fair treatment of persons with disabilities through generalized system arrangements to protect their basic survival and development needs on the one hand, and giving special assistance to persons with disabilities and priority protection to solve their special difficulties and needs through preferential system arrangements on the other hand. At the same time, China should increase investment in financial capital to protect the public supply of funds for the disabled.

### **4.3 Establish a two-way demand communication mechanism**

The effective supply of public services involves three aspects: the expression mechanism of public service demands, the decision-making mechanism and the supervision mechanism. The rational expression and transmission of public service demand are the basis for making the right decision.

According to China's actual situation, first of all, the government and other public departments need to accurately and timely understand real needs of a public service for persons with disabilities,

and then make a decision on whether to supply, how many to supply, and how to supply. To achieve this goal, we must establish a bottom-up basic public service demand expression mechanism for the disabled, and fidelity and effectiveness of information transmission mechanism is a key factor to determine whether the government and other public departments can effectively provide public service. Second, we must improve the democratic decision-making mechanism through the establishment of multi-dimensional “people-government” communication system to timely collect public demand preferences, docking supply and demand and adjusting the supply structure. We need to strengthen the basic public services supply decision-making participation and supervision to improve decision making transparency. Finally, we should establish and improve the basic public services evaluation mechanism for the disabled to strengthen the supervision of the basic public services operation of persons with disabilities, and enhance the access and satisfaction of the disabled to the basic public services.

#### **4.4 Improve diversified supply model**

Combined with the actual situation in China, we need to take additional regulation of the way the allocation of special public services according to the differences in disability categories, improving the service supply model of “government-led, social participation, market operation”. We should actively guide the participation of social forces, and vigorously exert functions of various disabled social organizations in the disabled public service supply. We need to focus on increasing the construction of weak links in the public service system for persons with disabilities. We should give priority to the construction of urgent needs of the disabled services by considering supply order of demand trend for persons with disabilities, such as care services for the severely disabled, personalized rehabilitation services and ancillary delivery services, assessment referral services, information accessibility and targeted employment services etc. China should pay attention to the standardization of public services construction to develop and improve service industry standards and norms for the disabled, introducing market competition mechanism, thus forming the restraint mechanism of disabled service industry access and withdrawal, punish and discipline.

#### **4.5 Define the responsibilities of supply subjects**

The supply of basic public services for persons with disabilities in China involves multiple supply subjects. The diversified supply patterns determine the diversity of supply subjects, and whether the cooperation of the diversified supply main subject affects the supply efficiency of the basic public services of the disabled. Therefore, we should reasonably define responsibility and authority of multi-supply subjects to straighten out the supply mechanism.

Public interest is the ultimate goal of public management, and public managers should establish the concept of co-governance<sup>[8]</sup>. On the basis of main responsibility definition of supply subjects and clear division of responsibilities for government departments, CDPF, social organizations, we should establish multi-public service coordination mechanism to coordinate major issues in cross-region, cross-sector and cross-industry implementation.

## **5 Conclusions**

Persons with disabilities play a part in constructing China’s well-off society. The status of basic public service supply is directly related to the supply level and quality of basic public services in China. For the provision of basic public services for the disabled, we should not only expand the public services supply scale, more importantly, take the needs of persons with disabilities as a guide and a special system as the protection to establish a two-way demand communication mechanism. We need to reasonably define responsibility and authority of supply subjects to improve the diversified supply model and reform supply method, thus gradually enhancing the effectiveness of supply.

We discussed the problems of effective supply of basic public services for persons with disabilities in China and put forward corresponding countermeasures and suggestions. Due to the lack of accumulated practice, however, the author can not make an accurate analysis of the demand for basic public services for the disabled in China, which needs to improve in follow-up research.

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## Educational Technologies in Employee Training: Take Research on the “Blue-collar Talent” Project in Xiasha Economic and Technological Development Zone of Hangzhou as an Example\*

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**Abstract** Modern educational technologies have been playing an important role in “blue-collar talent” staff quality education and training project in Xiasha Economic and Technological Development Zone of Hangzhou. The theoretical part of this article has explored the features and connections between the educational technologies and instructional system design in the “blue-collar talent” project, and has proposed the employee training model in this development zone according to the constructivist-based instructional system design theory. For this case, this article has made an in-depth analysis on the educational resources and performance evaluation in employee training in the development zone, and has also put forward the corresponding suggestions in accordance with the theme of educational technology in the “blue-collar talent” project.

**Key words** Educational technology, Instructional system design, Blue-collar, Employee training

### 1 Introduction

With the development of social productive forces and extensive applications of science and technology in production, labor-intensive industries have been gradually transformed into capital-intensive and knowledge-intensive industries, and knowledge-intensive industries will become the pillar industries. The roles of information, education and knowledge in economic development will also be highlighted. Therefore, the urban industrial sector needs to develop skilled and educated blue-collar workers with the knowledge of management. Seen from the situation in China, employee training is facing new tasks and challenges. On the one hand, the life cycle of knowledge and skills of workers is being rapidly shortened, and there has also been increasingly high demand for workers from enterprises. On the other hand, with the optimization and upgrading of industrial structure, enterprises have been continuously producing new needs for a worker’s knowledge structure, skills, quality and so on. However, due to the acceleration of social mobility for workers, enterprises are only willing to bear part of the employee training. The overall promotion of the quality of workers requires the trade union in the region to integrate various types of educational resources, set goals and start training.

A number of high-tech industries such as electronic information, machinery manufacturing and biological medicine have been formed in Xiasha Economic and Technological Development Zone of Hangzhou, with the employment of 165 thousand people. This not only marks that all kinds of undertakings in the zone have entered the rapid development track, but also means higher requirements for the quality of employees. “Blue-collar talent” is a training project to serve enterprises and employees which is started by the development zone. It is implemented by Xiasha Employee Quality Education Engineering Society, and relies on the educational resources in Xiasha college zone to carry out special training for front-line employees, so as to bring up educated and skilled employees and improve their competitiveness. Major colleges and universities in Xiasha college zone actively integrate into the “blue-collar talent” project of the development zone, and serve employees in Xiasha with excellent education. The “blue-collar talent” project uses the modern educational technologies to train employees, and actively adapts itself to the requirements of the era of knowledge economy to use the theory of constructivism for instructional system design, so as to achieve connections between

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theory and practice.

## **2 Enterprise educational technologies and instructional system design in the development zone**

### **2.1 Educational technologies in the “blue-collar talent” project**

ACEC (1994) believed that, educational technology was the theory and practice, which was used to design, develop, utilize, manage and evaluate relevant processes and resources for learning<sup>[1]</sup>. In narrow terms, educational technology refers to the application of audio-visual means, and especially refers to computer multimedia technology in modern society. At present, employee training mainly uses three modes: (1) Computer assisted instruction (CAI) mode. Human-computer interaction is the significant feature of CAI. In the interactive training environment, employees can carry out their self-learning and training based on their own abilities. (2) Network-based multimedia training mode. Establish a network-based multimedia classroom, which is generally made up of the server, workstation, network communication equipment, shared input and output devices, etc. In the classroom, teachers can use webcast for teaching, and students can use the Internet for collaborative learning. (3) Network remote training mode. This mode achieves new breakthroughs in training object, training time and training space, and people can study independently through the Internet<sup>[2]</sup>.

Education and training in the “blue-collar talent” project is divided into two aspects: academic education and skill training. For academic education, college and university education is offered by Zhejiang Technical Institute of Economics, Hangzhou Vocational & Technical College and Hangzhou Knowledge Personnel Further Education College. Skill training mainly includes Japanese, English, graphic design, mechanical drawing, network office, electrician and NC engineer. What is common between the two educational technologies is the full use of the teaching facilities provided by the college. Teachers create courseware with rich teaching contents, and provide laboratory equipment such as computers for students to learn online. The application of the multimedia technology in academic education effectively improves the students’ learning interest, and maintains good interaction between teachers and students. Hangzhou Knowledge Personnel Further Education College even introduces distance education training mode, so that employees can obtain the course information through the computer. Skill training emphasizes the mechanism of earning certificates, which takes “double promotion of knowledge and skills” as the carrier to strive to attain “a success in mind and certificates” for employees. In the actual teaching process, language training makes full use of the multimedia technology to provide audio-visual materials for employees. Network office and human resource management courses require the establishment of a network-based multimedia classroom, and then people can operate in a virtual environment. Graphic design and NC technology require good use of the CAI system, so that knowledge can be consolidated with the software.

### **2.2 Instructional system design in the “blue-collar talent” project**

Constructivists believed that learning was a process to construct the inner mental representation. Learning environment of constructivism can be summarized as: taking “learning” as the center, provide students with information resources, cognitive tools, teaching equipment and other hardware resources, as well as real social activities, social collaboration and other software resources. Students become the main part of information processing, and teachers are considered as the collaborators in meaning construction of knowledge. Constructivist-based instructional design theory can not only be used in school education, but also in the blue-collar project based on employee training. The “blue-collar talent” project is in essence a process of education, and is also a regional educational system. In addition to the application of the multimedia technology, instructional system design and learning resource development are both important areas for the theme of educational technology in the development zone. In reference to studies by Huang Min (2009)<sup>[3]</sup>, this article has proposed a training model for the development zone. instructional system design in the “blue-collar talent” project is divided into the following 5 steps.

(1) Demand analysis: The development zone adopts a scientific approach to carry out requirement survey and data analysis. They find out the demand directions of knowledge and skills of enterprises and employees, and often start interviews in enterprises and communities. Then, demand information

from these enterprises and employees is fed back to the Association for Quality Education. With their joint efforts, the pertinence and effectiveness of running a class can be strengthened, so as to cultivate knowledge and skill-based staff for business development and expansion.

(2) Design: The development zone has identified in succession Hangzhou Vocational & Technical College, Zhejiang Sci-Tech University and other colleges for degree granting institutions. Employees can enter colleges through the college entrance examinations for adult education, and obtain the corresponding degrees. Apart from college and university degrees in adult education, Zhejiang Sci-Tech University also sets up a Master class for employees. In addition, the development zone has committed itself to professional skill training. Combining professional and technical qualification examinations, they carry out skill appraisal body construction in each training organization, and also build up matched state-level skill training bases.

(3) Curriculum development: Each university creates machinery manufacturing, business administration, accounting and other majors, organizes relevant personnel to write course books, and requires teaching staff to make good use of multimedia educational facilities. In terms of skill training, the development zone has introduced a number of practical subjects. "Toshiba School" sets up Accounting Qualification Certificate training, Vehicle Maintenance and Repair, Computer Operator (Intermediate) and other subjects. Hangzhou Vocational & Technical College continues to offer group leader training in 2010, and provides a training platform for hundreds of group leaders in the form of training classes, lectures and forums. Zhejiang Technical Institute of Economics offers orientation training for new employees, and also special training for the promotion of the top management team. The Foreign Language College of Hangzhou Dianzi University gives full play to its advantage of language training, and creates English training courses specially for Bayer Biological Technology Co., Ltd.

(4) Organization and implementation: Adult education in colleges and universities is carried out orderly, where pre-examination course services are also offered. For example, Zhejiang Sci-Tech University sets up an intensive training class for adult education, which makes reasonable arrangements for study time after students are enrolled, and helps employees overcome contradictions between work and study. Hangzhou Dianzi University implements small class teaching. 109 employees are divided into four classes, and they can select the most appropriate class time according to their work schedules. Skill training institutions will release information in advance. Employees can register through their trade union, and then set their own learning cycles. For example, Zhejiang Yuying Foreign Language Training School provides "order" training for software companies, which dispatches excellent teachers for half-year intensive audio-visual training.

(5) Result evaluation: Information communication and exchange among the development zone, colleges, enterprises and employees is the foundation for the smooth implementation of Staff Quality Education Project. Staff seminars, on-the-spot consultation meetings, college-enterprise seminars and district-level promotional meetings have formed a series of exchange platforms, so that the Zone government can further understand the results achieved. The development zone adheres to quality education, improves the management system, and establishes a talent bank of trained staff. Through the result evaluation system, the development zone also further improves the training program.

### **3 Educational resources and performance evaluation in the "blue-collar talent" project of the development zone**

#### **3.1 Expansion of educational resources in the development zone**

Designing and developing learning processes and learning resources, creating a learner's initiative and constructive attitude towards learning and then expanding social educational performance, are the ultimate goal of educational technology. Therefore, instructional system design covers a wider range. Learning resources are not only limited to teaching equipment and materials, but includes all available elements in the social dimension. The general labor union of the development zone has introduced "Measures for Implementation of Staff Quality Education", and all the functional departments and enterprises have established the Staff Quality Education Association of the Development Zone, which is in charge of contacting all aspects of work as the third department. As the grass-roots organizations



of the Government, the general labor union and the group working committee of the development zone are playing a role of the overall leadership. With their own advantages in organizational network, they are responsible for education demand survey, educational item identification, teaching information release, teaching supervision and management, college-enterprise cultural exchanges, etc. Closely connecting with employees' different levels of learning needs, colleges and universities in the industrial area set course contents and training programs, so as to ensure teaching quality and issuance of diplomas and certificates. The Zone government has also introduced "Incentive Subsidy Schemes for Staff Quality Education", and has established a subsidy of 2 million for education awards. The Staff Quality Education Association is responsible for its specific implementation in the form of financial allocation<sup>[4]</sup>.

Xiasha is also a college zone, with 15 colleges and universities. The Zone government makes full use of the local teaching resources, allowing more colleges and enterprises involved in the "blue-collar talent" project. Many colleges and universities provide educational bases, teachers and teaching sites for staff quality educational programs. In terms of teaching contents, the "blue-collar talent" project takes both the needs of enterprises and employees into account, and has educational items implemented in a fixed time such as upgrading from a junior college student to a university student and college education, as well as computer, financial accounting, logistics management and mechanical skill training. From the point of view of the way the school is run, the "blue-collar talent" project has the feature of flexibility which education in the industrial area has. To facilitate employees, the teaching point is sometimes located at staff recreation and sports center of the development zone, and sometimes at the college adjacent to factories, or directly the enterprise. Enterprises have become an important supporter of the project. They formulate the matching system to encourage employees to participate in quality education, establish detailed implementation measures in tuition reimbursement and wage promotion after graduation, and eliminate in principle the impacts from "three shifts", "business trips", "overtime working" and other contradictions between work and study.

### **3.2 Performance evaluation in the "blue-collar talent" project**

AECT put forward the definition of educational technology in 2004, which emphasized the importance of improving instructional system design performance. The "blue-collar talent" project has achieved remarkable success since it was established in 2004. In terms of the number of trainees, by 2010, a total of more than 8000 employees have entered colleges and universities to participate in a variety of trainings for quality education. Among them, over 6000 are involved in diploma education (adult junior college, distance education, adult undergraduate), and over 2000 are involved in skill training (more than 30 items such as computer and financial accounting). A total of more than 20 classes have been opened, over 20 times in enterprises, which provide skilled talents for the further development of the development zone<sup>[5]</sup>. In terms of system construction of instructional system design, the project has always adhered to the principle of "serving the overall interests, serving enterprises and serving employees". A complete organizational structure has been formed. Colleges and universities, enterprises and relevant departments of Management Committee have constituted the Staff Quality Education Association, and a Staff Quality Education Base which takes training institutions as the main body has also been established. This coordination system has been widely praised in practice.

The implementation of the "blue-collar talent" project has built a career development platform for employees, and has reflected the "people-oriented" education concept. Through training, many outstanding students have promoted from an ordinary operator to a manager assistant or a technical backbone employee. Through the exemplary role of excellent staff, there has been an increasingly dense atmosphere of active learning among employees, and the social environment of "a learning society and knowledge employees" has been established. Constructive learning orientation is significant, which creates good conditions for better involvement of migrant workers in the development zone. From the enterprise perspective, through skill training, job skills of employees have increased significantly, and they are able to use computers to handle problems in industrial automation, which is beneficial to the improvement of the economic efficiency of enterprises. From the social integration perspective, employees have gained more cultural and social capital, mastered the modern educational technologies, enhanced their ability of active learning, and also broadened their horizons.

They have built positive interactions at all levels, and obtained effective social support, which has laid a foundation for their adaptation to city life.

## **4 Recommendations on instructional systems technology in the “blue-collar talent” project**

### **4.1 Increase investments in educational technology equipment and use diverse training methods**

Education cannot always follow the original technological means, and must use high and new technologies to equip itself. In updating of modern educational technologies, the “blue-collar talent” project contains multimedia tools, the founding of network-based classrooms, the development of all types of educational software and the establishment of college-enterprise local area network. Therefore, there is a need for servers, workstations, network communication equipment, shared input and output devices, printing tools and other automatic systems, and also updating of the original equipment in both hardware and software. Originally, the development zone used educational technology equipment in all colleges. But in reality, there is a certain gap between these equipment and the requirements of industrial automation. The Zone government needs to formulate corresponding equipment lists, and give some subsidies to educational institutions. Now, each training institution in the development zone has 30 items of training courses, but should still advance with the times to introduce new courses, together with the appropriate educational technology equipment. For example, industrial design requires some professional software and devices. In terms of training methods, flexible and diversified training and learning methods should be adopted in instructional system design. For example, the techniques of modern distance education in adult education can rely on the discipline and professional advantages of colleges to carry out multi-disciplinary and multi-type teaching, so as to avoid the limitations of a small range of courses. The “blue-collar talent” project still needs to further promote the teaching point to go to enterprises and communities, so that employees can join in learning immediately in the neighborhood. Enterprises are responsible for implementing the direction; employees choose training items; the Association offers advices; colleges provide teaching. Each section should closely integrate the needs of talent cultivation for employees.

### **4.2 Connect theoretical knowledge with practical operation and develop the overall qualities of employees**

Multimedia in modern educational technologies has advantages which those of a single media cannot compare with when it is applied in information transmission. Its interactivity, hyper-connectivity and other features will make the learning process more comply with cognitive rules. However, the “blue-collar talent” project is closely associated with the production and operation of enterprises, which focuses on fostering practicability and one’s practical capability. Therefore, instructional system design requires the integration and transformation of all kinds of knowledge, skills and technologies, and needs to connect the employee’s intrinsic learning motivation with the external market demand. Vocational colleges should make greater efforts to strengthen the teaching base construction, so that employees can learn all sorts of technical expertise and train a variety of professional skills in the real situation. On this basis, if they adopt the virtual work environment created by multimedia technology, the learning level can be further enhanced. For example, lathes require both the practical operation and product design of 3D technology. The “blue-collar talent” project focuses on vocational and skill training to achieve a specialty with two certificates (educational certificate and skill certificate), and effectively improves employees’ culture, skills and other overall qualities. The development zone needs to actively create a learning atmosphere for employees, fully utilize and strengthen a positive working mechanism of mutual trust and mutual help which has been established between the development zone and colleges, and vigorously establish a joint construction mechanism of mutual complements in knowledge, resource sharing, culture co-cultivation and civilization co-creation between colleges and enterprises. Through college-enterprise interaction, the development zone carries out professional ethics education, and uses comprehensive knowledge to plan staff career development.

### **4.3 Build a network information platform and share digital resources**

Establish a specialized network information platform, which can provide information about

vocational education and training, policy advice and employment, and can also be served as a platform for communications among training institutions, enterprises and employees. For the validity of information exchange contents, the zone government can create a special website for the “blue-collar talent” project”, set a homepage of staff quality education, regularly release information, and mainly focus on real-time and dynamic network consulting services and exchanges. The website is managed by the Information Center of the Management Committee of the development zone, which is also responsible for information release supervision. Following the progress and requirements of teaching plans, schools can select the best teachers, and combine teaching materials of these teachers, including sound, images, teaching plans and multimedia background materials, which then can be made into video courseware and sent out through network information communication channels. The website can also offer a special interactive area for teachers and students to participate in online discussions, so that the training contents for staff quality education can spread wider, with a larger range of audiences. As each college in the development zone has a large number of learning resources, it is possible to access the book resources of all colleges and build a computer system of public service through the network platform. Employees can access the electronic library system of each college through the external network, and download e-books, which can completely achieve sharing of information resources, help foster the self-learning ability of employees, and broaden their horizons.

## 5 Conclusions

As a case of instructional systems technology, the “blue-collar talent” project of Hangzhou Economic and Technological Development Zone has fully displayed the unique advantages of the educational technology in learning content, multimedia, training method selection and other aspects. It has also reflected that, only the full and scientific understanding of the instructional system can make training programs of employees more effective, and the employees developed can truly meet the requirements of modern transformation and the development of new and high-tech industries, who then become practical and skill-based special talents at the forefront of production, so as to form a stable class of blue-collar workers.

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# Research on the Demands of Using Mobile Phone to Call Community Home Care Service

## —Based on the Survey of Five Urban Communities in Wuhan, Hubei Province, in China

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**Abstract** Community home care for the elderly is the mainstream mode of social pension system in china. However, there are some problems in community home care service, such as poor information exchange, mismatch between supply and demand , lack of human resources, low efficiency of service management, single variety and low quality of service. While the Internet has great advantages in information exchange, through Internet platform, you can integrate the community old-age services resources and combined with the Internet of Things, thus to greatly enhance the community home care management efficiency and quality of service. From the perspective of the demand of intelligent service in community home care, by using practical smart phone call mode as a starting point, applying micro data of Wuhan city community home-based care services survey, building a binary logistic regression model to analyse the factors that affecting the elderly using intelligence to support themselves, the study found that the elderly with the following cases are more likely to make an appointment in Internet or call for a old-age service via a smartphone: female, those who own or once used smartphones or live with their children , those who have higher incomes. This conclusion suggests that Chinese government should subsidize the elderly , encourage them to buy smartphones; Then it should inspire enterprise' technology innovation through policy guidance, thus to produce and promote smartphones that suit the elderly. Besides, it should encourage the network operators to reduce the tariff for older customers through business innovation, to guide the elderly surf the Internet through the mobile phone. Lastly, the government should encourage multiple-generation living style through policy incentives.

**Key words** Community home care, Pension intelligence, Smart phone, Logistic regression

## 1 Introduction

### 1.1 Background

Under the influence of population aging, the weakening traditional family pension function and the underdevelopment of pension institutions, community home care combined family pension with community pension institutions through the ingenious integration of social resources and joint forces, it becomes the future trend of pension development. There are several problems in China's current community home care service: poor information exchange, mismatch between the supply and demand of pension services, shortage of pension service human resources, low efficiency of management services; monotonous variety and low quality of service, etc. With the advantages of information storage and exchange, the Internet can effectively solve the problems encountered in practice, combined with the Internet of things, it can also greatly enhance the community home care service' management efficiency and service quality.

The terminal of intellectualized pension service mainly includes intelligent monitoring device, wearable device, smart phone, computer or tablet computer. Intelligent mobile phones are portable, flexible and have complete functions; And the interagation of the Internet makes all operations achievable through a mobile phone just as computer does; moreover, as the deepening of population aging, many mobile phone developers continue to developing more suitable style and operating system for the elderly. Considering the popularity of smart phones and the current level of acceptance of technology among the elderly, mobile phones has become the main platform for intelligent pension

services. To understand the needs of the elderly using intelligent mobile phone to call or appoint pension services and its influence, to put forward some countermeasures and suggestions can better promote the development of intelligent community home care services, thus, it has great significance for improving the quality and efficiency of pension services.

## 1.2 Literature review

### 1.2.1 Intelligent pension service platform

Intellectualized pension service was first proposed by the British Life Trust, it was called “all intelligent elderly system” or “smart home system” then. It refers to using advanced information technology means to keep the elderly in a remote monitoring state, to make elderly and the community, medical Institutions, health care workers closely linked, thus to break the time and geographical constraints and help the elderly live a high quality of life at home. Intelligent pension is a kind of pension service which makes full use of the Internet of things, cloud computing and mobile Internet technology, it aims to achieve all-round, online and offline, comprehensive medical care for the old age. Intelligent pension is supposed to meet the physiological needs, security needs, spiritual needs and emotional needs of the elderly. Specifically, it should include emergency handling, understanding of indoor and outdoor environments, remote greetings, life care services, catering services, safety care, medical care services, spiritual support services and cultural and recreational services. Intelligent pension service platform contains three-tier system: the first layer is the perception layer, that is, a variety of things networking terminal that responsible for data collection. In the perception layer, GPS, camera, sensor and other tools should be installed to capture and measure the physical condition of the elderly and the environment anytime and anywhere. The second layer is the network service layer, also known as intelligent service platform, which includes a variety of cloud services infrastructure, intelligent computing, intelligent services and data storage and backup. The third layer is the application layer, the server provide the elderly with online or offline medical services through the use of Internet of Things and a variety of intelligent terminals. Smart phone, as the most popular and the most convenient communication tool, is the application layer of intelligent pension service platform and the main call platform of the current intelligent pension.

### 1.2.2 The needs of the intelligent pension service

Intelligent pension service belongs to the category of community home care service. In theory, the factors that affect the need of community home care also affect the need of using smartphone to call pension service by the elderly. Scholars divided the factors that affect the need of community home care into two categories: personal factors and family factors. Personal factors include gender, age, educational level, monthly income, health status and so on. Jia Yun-zhu, Zhang Wei-gong and others pointed out that compared with women, men have higher demand for community home care service; they also argued that aging led to physical decline, so the elderly' demand for pension services gradually increased. Jia Yun-zhu, Tian Bei-hai and Wang Cai-yun pointed out that the higher educated elderly are more likely to accept the social pension service as a new way of pension service, thus their demand for pension services are higher. Sun Yao also found in the study of the health needs of diabetic patients that, the older, the higher educated people have stronger demand for the “one-click call” service; Wang Qiong, Wang Wu-lin, Wang Xiao-feng, Liu Fan, Ma Yun-bo and others believe that income is positively related to the needs of the elderly for the pension service, the higher their income, the greater their purchasing power and the more options; At the same time, health condition and the needs of the elderly was negatively correlated, the healthier the elderly, the lower their demand. Zhang Yu-qiong, Xu Lin researched on the demand for intelligent service of the elderly in Xi'an, they found out that factors such as being a disability or not, the overall economic situation affected the elderly's attitude toward intelligent service.

Family factors include marital status, living arrangements, number of children, children's filial piety and so on. Since children and spouses may replace the market to provide old-age care for the elderly, those who live with their children and spouses may have lower need for community home care services. Zhang Wei-hong, Wang Wu-lin, Wang Xiao-feng and others pointed out that the elderly who live alone need the social pension service most, followed by those who live with the spouse, while

those who live with their children have relatively the weakest demand for the pension service. Sun Yao also believes that for the elderly who live alone, their support rate of the “one-click call” and other services is higher than other ways of service. Wang Qiong pointed out that too many sons may also bring about uneven distribution of property, the responsibility-shirking and other issues, these issues may increase the contradiction between the elderly and their children, thus the service needs of the elderly may increase; At the same time, children’s poor filial piety is more likely to force the elderly to seek community home care services.

The existing literature have deep and comprehensive studies on the the factors that influence the elderly’s need for community home care service, these studies laid the foundation for this article. Intelligent pension, as the mainstream of our country’s home care pension service model, have many difficulties on its development process. Although there are enough concerns about the “supply side” of intelligent pension, and the intelligent pension service has matured technically, the prospect of “demand side” of intelligent pension is not optimistic, the elderly live in community have low demand for intelligent pension. Therefore, using smart phone call platform as the starting point, this article try to understand the elderly’ needs of using smart phones to call or reserve pension services and its influencing factors, by doing that, specific measures can be taken to promote the intellectualized development of community home care service.

## 2 Research design

### 2.1 Research hypothesis

1. Body function hypothesis. Human aging begins with physical aging. In old age, the ability of adaptation and resistance is lower, and the ability to take care of oneself is weakened. Human body function determines man’s action and self-care ability. The body function of the elderly is closely related to sex, age and health status. Therefore, this thesis applies 3 indicators—gender, age and health status—to reflect the respondents’ body function, and it puts forward the hypothesis 1: the elderly with poorer physical function have more intense demands of using mobile phone to call for pension service.

2. Economic and cultural competence hypothesis. Community home smart care services involving payment programs. The better the economic situation of the elderly, the stronger their purchase intention and purchasing power; Besides, the more educated old people have stronger abilities to learn and accept new things, so their demands for the use of intelligent mobile phone to call or to appoint the pension services are stronger. In addition, China’s urban-rural dual structure resulting in the economic and cultural differences between urban elderly and rural elderly and it also impacts the demands of the community elderly for intelligence pension service. Thus, this thesis applies 3 indicators—places of domicile, educational level, personal monthly income—to measure the old man’ economic and cultural ability, and it puts forward the hypothesis 2: the higher the education level and economic status of the elderly, the stronger demands they have for using mobile phone to call or appoint pension service.

3. Generation interaction hypothesis. In the family intergenerational support theory system, the old age can be divided into the feedback mode and the relay mode, which represent the Chinese and western social pension model respectively. In China, children have the responsibility and obligation of supporting the old, it belongs to a kind of “feedback endowment” that emphasizing the importance of parent-child relationship (mainly covers the intergenerational interaction between support and maintenance in two directions) in family and social life. Good intergenerational interaction will provide more economic, cultural and emotional support for the elderly. Similar to other types of community home care services, intergenerational support within the family may reduce the elderly’s needs for intelligent care services. However, the characteristics of intelligence pension services may leads to good intergenerational interaction, it will help the elderly receive more information, and better adapt to the convenience of the pension service that has brought by Internet. We don’t know which of these two has more significant influences. However, we still assumed hypothesis 3: living with children and having more children will affect the elderly’ use of smart phones to make call or appoint for pension services.

4. Empirical impact hypothesis. Lewin proposed the psychological dynamic field theory: the psychological field is the core of Lewin’s theory, he believes that a psychological field is the

combination of a person's life experience and the idea of future events desire, that is to say, the past experience will influence one's attitude toward a behavior or things. Lv Xue-jing, Ding Yi pointed out that whether use the Internet, whether use the pension services through Internet are key factors when analyse the elderly's demand for Internet pension service. This article use 3 indicators to measure the influence of experience on the elderly's intelligence pension service needs, the indicators are as follows: whether using the intelligent mobile phone, whether once used smartphone to surf the Internet, whether have broadband service at home. Thus, hypothesis 4 is proposed: the use of intelligent mobile phone, having experience of using smart phone to surf the Internet, having broadband service at home will increase the elderly's needs of use intelligent mobile phone to call or make the demand for pension services.

## 2.2 Data sources and sample features

In August 2016, the group using stratified random sampling method to randomly selected 5 streets from Wuchang district and Qingshan District in Wuhan and then randomly selected an urban community from each street, then randomly selected 60 community residents that over 50 years old from each urban community and gave them questionnaires on home-based care services. On this survey, 300 copies of questionnaires were handed out, 282 copies of questionnaires were retrieved, 251 questionnaires are valid, the effective rate was 89%. The data were analyzed by SPSS 13.0 software. The basic features of the sample are shown in Table 1 and Table 2:

**Table 1 Overall characteristics of samples**

Variable	Variable range	Frequency(%)
Gender	Male	71.3
	Female	28.7
Age	50-59	19.6
	60-69	48.6
	70-79	15.9
	Over 80	15.9
Health Condition	Healthy	27.1
	Almost healthy, have certain visual-audio problems, no chronic diseases	21.5
	Have one or more than one chronic diseases	48.2
	Unhealthy, have serious chronic diseases and visual-audio problems	3.2
Address	Down town	82
	Rural	6
	Other cities	6.8
	Rural area in other cities	5.2
Education	Junior school or below	53.2
	High school or secondary technical school	34.6
	College degree or above	12.2
Monthly Income	Below 1000	9.6
	1000-3000	66.5
	3001-5000	20.7
	5001-8000	3.2
	8000above	0
Numbers of children	None	2
	One	52.2
	Two	23.1
	More than two	22.7
Living conditions	Alone	15.2
	With spouse but not children	37.8
	With children but not spouse	22.7
	With spouse and children	23.9
	With relatives	0.4

From the gender structure's point of view, men accounted for 71.3%, women accounted for 28.7%,

men account more than women. From the age distribution's point of view, the proportion of 50-59 years old age group accounted for 19.6%, 60-69 years old age group accounted for 48.6%, 70-79 years old age group accounted for 15.9%, over 80 years old age group accounted for 15.9%. Most elderly people have one or more chronic diseases. From the point of education level, the proportion of junior high school and below accounted for 53.2%, high school and secondary school accounted for 34.6%, college and above accounted for 12.2%. The average monthly income of 1000-3000 yuan accounted the highest, and the overall income of the elderly is relatively low. From the point of living style, most of the respondents lived with their spouses or children, which accounts for 37.8% and 22.7% respectively. 98% of the respondents had children. Generally, the sample is highly representative.

**Table 2 Statistics frequency of variables with regard to empirical influence hypotheses**

Variable	Range	Frequency(%)
Using smartphones	No	45.2
	Yes	54.8
Using a smartphone to surf the web	No	61.4
	Yes	38.6
Have broadband installed at home	No	29.2
	Yes	70.8
Whether call for life service, pension service and medical service through your smartphone	No	86.3
	Yes	13.7

As can be seen from Table 2: More than half of the respondents were using smartphones (54.8%), and more than 3/5 did not have access to smartphones. More than 70% of the elderly have broadband installed at home, and the vast majority (accounting for 86.3%) said they would not make an appointment or call for life services, care services and medical services through smart phones.

So, with the phenomenon of the general coverage of broadband services in urban families and more than 50% of the elderly have intelligent mobile phone, why the vast majority of the elderly still refused to call the pension service through intelligent mobile phone platform?

### 2.3 Model and variable setting

We sought to examine the effects of various factors on the demand for Smartphone calls or appointment care for elderly people. The dependent variable of the model is two variables, so the Logistic regression model is used. The basic equations of the model are:

$$\text{Logit}(y) = \ln\left(\frac{P}{1-P}\right) = \beta_0 + \beta_1 x_1 + \dots + \beta_i x_i = \beta_0 + \sum \beta_i * x_i$$

The dependent variable is the elderly's use of intelligent mobile phone to call or make the demand for pension services in the future (=1, not using =0); P represents the probability of use, xi represents all of the individual characteristics, beta I is the regression coefficient of each variable. The independent variables includes gender, age, health status, residence, education level, monthly income, numbers of children, living conditions, whether using the intelligent mobile phone, whether have the experience of using mobile phone to surf the Internet, whether have broadband installed at home. As can be seen from Table 3:

**Table 3 Introduction and definition of variables**

variable	Definition
Dependent variable:	
Y: whether it will book or call life services, pension services, medical services be through smart phone	1=yes 0=no
Independent variable	
Gender	1= male 0= female
Age	1=50-59 year old
	2=60-69 year old(Reference group)
	3=70-79 year old
	4=80 Over 50 years old



Health status	1= well 2= good 3= ordinary 4= poor(Reference group)
Domicile	1= Wuhan (Reference group) 2= Wuhan countryside 3= Foreign city 4= Foreign countryside
Education level	1= Junior high school and below 2= High school and secondary school 3= College and above(frame of reference)
Monthly income	1=1000yuan or below 2=1000-3000 yuan(frame of reference) 3=3001-5000 yuan 4=5001-8000 yuan
Numbers of children	0= No children(frame of reference) 1=One children 2=Two children 3= Two children and above
Living condition	1= Living alone(Reference group) 2= Live with a spouse, not with children 3= Live with children, not with spouse 4=Live with spouse and children 5= Live with relatives
Whether using a smartphone	1= yes 0= no
Whether had smartphone online experience	1=yes 0=no
Whether have broadband installed at home	1=yes 0=no

### 3 Result analysis and discuss

**Table 4 Logistic analysis result**

Variable	Coefficient estimation	pr(> Z )
(Intercept)	-10.375	0.999
Using smartphone*	1.823	0.079
Once using a smartphone to surf the web*	1.636	0.059
Whether have broadband installed at home**	-2.687	0.006
Gender**	-2.149	0.017
Age between 50-59	-0.384	0.571
Age between 70-79	-0.461	0.742
Age above 80	-19.709	0.993
Junior school or below	-0.146	0.883
High school or secondary technical school	-0.152	0.858
Wuhan down town	-17.599	0.997
Other cities	1.197	0.250
Rural areas in other cities	-2.140	0.282
One child	17.678	0.998
Two children	16.162	0.998
More than two children	-4.425	1.000
Live with spouse but not children	0.614	0.619
Live with children but not spouse	3.100	0.021
Live with spouse and children	1.806	0.131
Live with relatives	24.340	0.999
Very healthy	17.030	0.997
Healthy	15.325	0.998
Almost healthy	16.526	0.997
Monthly Income below 1000 yuan	1.254	0.474
Monthly Income between 3000-4999 yuan	0.592	0.466
Income between 5000-8001 yuan	2.770	0.037

(p<0.01,p<0.05,p<0.1)

The regression analysis showed that whether use the intelligent mobile phone, whether have experience of using mobile phone to surf the Internet, whether have broadband installed at home, gender, living conditions, the average monthly income, all these variables have passed the significant test of regression coefficients, so it proved that they have significant effects. Specifically speaking:

### **3.1 Empirical influencing factors**

From the perspective of experience influence factors, other variables controlled, the occurrence of the use of smart mobile phone of the elderly to call or appoint pension service is 6.19 times higher than those who haven't used smart mobile phone. That is to say, those elderly who have the experience of using smart phone are more likely to call or appoint pension service through smart phone in the future. Therefore, to solve the problem of intelligent pension needs, we should encourage and guide more middle-aged and elderly people to start using smart phones. Smartphone users may become potential customers of intelligent care.

Other variables controlled, the occurrence of the elderly using smart mobile phone (who had used smart phones to surf the Internet) to call or appoint pension service is 5.13 times higher than those who haven't used smart phones to surf the Internet. That is to say, the elderly who have used smart phone to surf the Internet are more likely to call or appoint pension service through smart phone in the future. So, increasing the Internet experience for the elderly is conducive to promoting the popularization of intelligent pension. Besides, Preferential policies for mobile Internet access for older people may play a positive role in the development of intelligent pension.

The interesting conclusion is that, other variables controlled, older people with broadband installed at home are less active in using smartphones to call or appoint pension service in the future. This shows that simply installing broadband at home does not increase the possibilities of older people using the smartphone platform to call for pension service or other services in the future.

### **3.2 Physical function factors**

From a physical point of view, gender have impacts on demand, while the effects of age and health status on demand is not significant, the local survey data did not support the hypothesis that with age increasing, health condition deteriorating, the elderly' demands for pension service will become stronger. From the point of gender comparison, other variables controlled, the occurrence of male respondents using smart phone to call or book pension service in the future is only 0.117 times higher than female, that is to say, female are more active in using smart phone to call or book pension service in the future.

### **3.3 Family intergenerational interaction factors**

From the perspective of family intergenerational interaction factors, the influence of the number of children is not significant, however, after controlling other variables, the occurrence of elderly who live with their children using smart phone to call or appoint pension service in the future is more than 20 times higher than those who live alone, this indicates that good intergenerational interaction will significantly improve the needs of the elderly. It also means, after controlling other variables, living with children can significantly increase the likelihood of older people using intelligent care services. Intergenerational interaction within the family can effectively improve the elderly's understanding of the modern pension service platform, and also can significantly improve the ability of the elderly to use the intelligent pension service platform.

### **3.4 Economic, cultural factors**

After controlling other variables, the occurrence of elderly who have incomes between 5000-8001 yuan per month using smart phone to call or appoint the pension service in the future is 15.96 times higher than those who have incomes of 1000-3000 yuan per month, this finding verified the hypothesis 2 : economic capacity has a significant positive impact on the needs of the elderly, the higher the income of the elderly, the stronger their demand for the pension services. However, the findings of this study show that the impact of education on the needs of the elderly is not very significant, so the positive hypothesis about education level is false.

## **4 Conclusion and suggestions**

Based on 251 sample data and using logistic regression model, we conducted the empirical

analysis on the influencing factors of the elderly call or appoint pension services through smart mobile phone. Through the analysis we found that the elderly with the following cases are more likely to use smartphone to call or appoint pension service in the future: female, those who have smartphone and the experiences of using smart to surf the web, those who live with their children or have higher monthly incomes (more than 5000 yuan). Accordingly, we suggest that:

#### **4.1 To increase the utilization rate of smart phones among the elderly**

The low popularity of smart phones among the elderly holds up the development of community pension intelligence. The government should encourage older people to use smart phones through policy incentives. On the one hand, the buyer can be subsidized, such as to offer smartphone-purchasing subsidies to the elderly to stimulate demand. On the other hand, the government can guide enterprises to carry out technological innovation through policies, to produce and promote smart phones that suitable for the elderly, and the government will provide appropriate subsidies.

#### **4.2 To guide the elderly surf the Internet through smartphone**

The government should encourage network operators to reduce the elderly customers online tariffs through business innovation and guide older groups to surf the web through smartphone, thus to increase the Internet experience of older groups. China Mobile, China Telecom, China Unicom and other network operators should customize the flow packages for older groups, reduce the Internet cost of older people, and encourage older people to access the Internet through smart phones.

#### **4.3 To promote the living style of multi-generations**

The state should adopt policies to encourage different generations to live together. Nowadays, most urban families in China adopt the living pattern of married children separated from their parents. In fact, the multi-generational model is more conducive to interaction between generations, and the intelligent pension can not completely replace the family pension function, but should be a useful supplement to the family pension. Under the guidance of their children, the elderly can get familiar with intelligent technology, and accept the community intelligent pension platform, have access to a variety of pension services information. When the children can not provide timely family care services, the elderly can use the intelligent pension service to ensure the seamless connection of the elderly care services.

#### **4.4 To improve the income level of the elderly**

Adequate financial support and protection is important factors affecting the elderly 'choice of intelligent pension services in the future, so the basic problem of realizing the community pension intelligence is the income problem. First of all, on the premise of economic development, the government should increase the endowment insurance and medical insurance investment, ensure the synchronous development of pension income and economic growth. Then, the government should solve the problem of difficulties and high expense in medical care of the elderly, and actively explore the establishment of long-term care insurance for the elderly in our country, thus to solve the elderly' troubles back at home. In order to alleviate the financial pressure of the elderly in the choice of intelligent pension services, the government can raise fund for the elderly intelligence service through social insurance payment. The government should also actively explore cooperation mechanism of the elderly intelligent care services, build the intelligent care service model of "the government purchases services and offers service vouchers while the market offers services", the range of service standard and service voucher should be determined according to the financial capacity.

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## Research on the Restraint Mechanism and Construction Path of Network Administration Ethics

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**Abstract** With the popularization of the e-government, the standardization and restraint of the network administration, as well as the construction of the network administration ethics' restraint mechanism become more and more important and necessary. This paper will analyze the existing restraint mechanism of the administration ethics from the following five aspects firstly: the main political thought of our nation, law system, social cultural value, administrative professional value and the code of conduct. Then analyze the internal mechanisms of the construction of the network administration ethics' restraint mechanism from the following aspects: the main political thought of our nation, law system, cyberculture, administrative ethics and the responsibility of the network administration. The next part will from the aspects of the law of administrative ethics, the system of ethical supervision, professional ethics, role interests and the responsibility of the administration to analyze the existing issues of the current network administration ethics, and this part will also talk about the handling method to deal with the failure in the administration ethics as well as the analysis of the "morality examination" of the foreigners. Last, this paper will present some specific measures of constructing the restraint mechanism of the network administration ethics, which will from the following five aspects: the main political thought of our nation, law system, cyberculture, administrative ethics and the responsibility of the network administration.

**Key words** Network, Administration ethics, Restraint mechanism, Path

### 1 Introduction

With the rapid development of computer network technology(CNT) and communication technology, especially the occurrence of Internet, people have encountered radical changes on their communication ways, working and life styles. E-government also comes into being at the aspect of government administration, which caused significant changes on administration ecology, and it mainly reflected in aspects like the organization structure, power structure, subjects of administration and the features of administration affairs. Those changes would must give a great lash on the different administrative levels, departments and regions of the government, as well as the relationship between the government and public, so the traditional restraint mechanism of the administration ethics has been unable to fit in the E-government's development in Internet age. So, besides the mandatory institutional constraints, we also need a new restraint mechanism of the network administration ethics to restrain the administrative personnel and avoid the deviant behavior during network administration. From above we can tell the importance and necessary of studying and establishing the restraint mechanism of the network administration ethics.

An American administration scholar, Terry L. Cooper pointed out that the thought of administration ethics originated from the western political theories at the earliest. And the basic social thoughts which including the political value, social equality, morality which including characters and public interest were all belong to the category of administration ethics(Li Wen-liang, Zhao Li-ping, 2004<sup>[1]</sup>). Cooper believes that the definition of administration ethics is just an actual process to sorting the administrative values based on the specific administrative decision-making.

The restraint mechanism of administrative ethics is the steady moral behavior patterns and criterions which formed during the working processes of administrators, those criterions mainly comply with the public administration itself's moral request, and also abide by the patterns and criterions of ethics. It mainly manifested in the following aspects: administrators' duty and responsibility, administrative discipline, administrative procedures, power relationship, technical specification, etc(Tan Gong-rong, 2007<sup>[2]</sup>). Through the construction of the restraint mechanism of

administrative ethics to make sure that the value ideas of responsibility, effectiveness, social justice and responsiveness get reflected in the government behavior, thus the government's abnormal morality can be significantly reduced, and that the capacity of government's public service can be improved.

All countries in the world are existing the growing corruption phenomenon which can not be completely eliminated only depends on laws and internal organization systems and policies. And events have proven that although every country have legislated various legal norms and systems to restrain administrators' behaviors, there are still many administrators have the problem of abnormal morality. So ethics being brought into the administration to reduce such problems. Because only the administrators internalized the good individual attributes can make sure the administrators' behaviors not only meet the government's organization goals, but also conform to the citizens' obligations in democratic society (Cooper, 2001<sup>[3]</sup>). It goes without saying that the exercise and application of executive power can not ensure its reasonability and effectiveness without the restraint of administrative ethics, nowadays the network administration is facing the same problem, so its very important and necessary to building the restraint mechanism of network administrative ethics to improve the reasonability and effectiveness of administration.

## 2 Analysis of the main administrative restraint mechanism

Before the invention of E-government, there are some administrative restraint mechanisms actually existing in administration, which can be seen from the following aspects:

### 2.1 Restraint on the country's dominating political thought

The country's dominating political thoughts are all having its invisible force of constraint to people in every country. From the idea of "to run a country with morality" in the ancient China's Yao and Shun Period to the prevail of the Confucian's "Virtue", Confucius believed in the thought of "If you administer a country by using tough policies and laws, then the people in this country will only seek for impunity and lost the sense of shame, while if you run a country with virtue and etiquette, then the people of this nation will be not only shame-sensitive, but also well-behaved". His thoughts played an important role in those political thoughts. Another important thought is the Mencius's idea of "policy of benevolence", he advocated to run a nation with benevolent government. Thus he said: "That one compels other people to obey him by using force won't be completely congenial, because he's only more powerful than others, while who compels submission by kindness would really get others' obedience, just like Confucius's 70 followers subject to him." ["*Mencius And Gongsun Chou, Part I*"].

Nowadays, our country's dominating political thought is socialism core values, and it mainly embodies at the maintenance of the fairness, equality and impartiality of our society, the ensurance of social stability and the elimination of the gap between rich and poor. In addition to this, the socialism core values also lays emphasis on the "rule by virtue" education, it believes that the subjective behavior can be restricted by internal control, and administrators' action can be restricted through self-discipline. By citing from the classics or ancient works to seek for the inheritance and development of the excellent historical cultural and value tradition. And the socialism core values never stop emphasizing the "fairness and justice" and "overall interests", hoping to achieve the administrative ethics and self-discipline through the personal education of moral and cultural quality.

The dominating political thoughts of the occident is the political ethics of the freedom and equality, as well as the philanthropism and human rights, thus the value of this kind of national mainstream political thoughts deservedly became the basic moral guidelines that administrators must follow with, and their daily actions must conform this s called political correctness.

### 2.2 The restraint of legal system

There are some special legal rules about administrative ethics at abroad, so all the administrators' ethics must meet the requirements of nations' lawful mainstream value, any official' biggest moral deficiency will be regarded as illegal. The civil servants' legitimate values contains three meanings: firstly, the civil servants must abide by the law and in accordance with the law. secondly, the civil servants must comply with the laws from not only the literal meaning, but also respect the constitutional principles and ideological value contained in our constitutions and laws, such as the value ideas of

“social democracy, freedom and justice”. Finally, the civil servants must never compromise to or agree with other people’s irregularity action, and always uphold the dignity of the constitutions and laws.

### **2.3 The restraint of social cultural values**

The restraint of social cultural values mainly embodied in the representativeness of the Confucian school which advocates the value of “loyalty, filial piety and benevolence, sense of propriety, justice, honesty and honour”, as well as today’s “eight do’s and eight don’ts”, those are all the moral standards that must be followed by Chinese administrators during their administrative process, as those standards provide certain restraints to our administrators. In some European countries, social members are all deeply influenced by the religious culture, like the christian ethics of “the major seven virtues”, which happens to be the European administrators’ ethical standards. Singapore, an Asian country, believes in Confucianism and comply with the Confucian culture. And this country also advocates the value of national and social interest comes above everything else, root in family and based on society; racial harmony and religious tolerance<sup>[4]</sup>.

### **2.4 The restraint of administrative profession its own**

Every walk of life, no matter at home or abroad, all emphasize one kind of professional ethics which contains the respect-work spirit and responsibility. Both two ethics require administrators must follow their professional code of conduct, like performing each duty of their clerical work carefully; strictly comply with the work time schedule; adhere to principles, and never bring personal emotions or feelings into work. Some countries regulate that if administrators cannot finish their own work timely and effectively, would be regarded as malfeasance. There are many countries ask civil servants for paying attention to their appearance, and have set many rules against their actions of smoking, reading or chatting at offices or during office hours(Yan Qing-yi, Li Chun, 1988<sup>[5]</sup>).

### **2.5 The restraint of the code of conduct**

The western administrative values with the theory of “original evil of human nature” as the core was formed through the classical liberalism’s argumentation about “human evil nature”. Thus David Hume come out with a correct political adage: “We must conceive everyone as a rogue”(Zhang Ruo-heng, 1993<sup>[6]</sup>). So the governments of developed countries have implemented some criterion limit to administrators’ behaviors based on the hypothesis of “human evil nature”, and have ruled some impose limits on what they should do. If someone go against these rules would be regarded as gravely immoral behavior even as violation of law. National government usually restrict the administrators’ behaviors from the following aspects: first, no operational activity. Officials are forbidden to engage in any operational activity or business deals. Second, no part-time job. Public servant are not allowed to take advantages of the convenience of public service, otherwise all his illegal labor income shall be confiscated<sup>[7]</sup>. Third, strictly forbid bribery. Almost all the civil servants’ ethics of western countries stipulate that officials are strictly forbidden to ask or receive any off-system things with monetary value. Finally, adopt the avoidance system. Some countries even set some limit rules within a certain period for the civil servants who’s already left his job<sup>[8]</sup>.

## **3 The internal relations among the restraint mechanism of network administrative ethics**

### **3.1 The national mainstream political thoughts regularize the network administrative ethics**

The national mainstream political thoughts have great influence on people, administrators must follow its value requirements during their administrative process, that means administrators must be guided and show these compulsory-guided values from their thoughts and behaviors. Each country’s mainstream political thoughts are all in the service of the ruling classes, thus must become a guideline for its citizens and reflect the values of this country, and once being disobeyed will have the power to execute appropriate punishment.

### **3.2 Laws guarantee the implementation of the network administrative ethics**

If we lost the guarantee of laws during the process of administration, people will implement administrations just according their own preference or feelings, which must cause negative impacts on our government. Only by some explicit legal rules to point that what administrators should do and what they shouldn’t can bring some positive effects on government and reduce or avoid the

administrators' arbitrary conduct. So, our laws play a mandatory role to guarantee the implementation of the administrative ethics.

### **3.3 Network administration culture influence the ethics**

The network administration culture have a strong influence on administration ethics value. And its environment has the following four effects: first, guiding function. Guiding the administrators' values through network administrative culture. Second, standardizing function. If nurtured by the network administration's cultural atmosphere must be influenced invisibly to make administrators follow the administrative rules. Third, guaranteeing function. The network administrative culture including the following factors: administrative morality, rules and principles, which provide guarantee for the execution of administrative action. Four, shaping function. The cultural environment of network administration have a relatively strong effect of cultivation to administrators' thoughts and behaviors, to help them accept the views of network administration culture.

### **3.4 Administrative ethics guide the network administration**

An administrators must form the right professional view of morality can correctly using the public power, that is administrative ethics. The right administrative ethics can clearly understand the ascription of public powers, and can also nurture the administrators' senses of responsibility and law-abiding, provide support for correctly using the public powers, correctly positioning the administrators' functions and eliminate the officialdom standard thought, cultivate the awareness of service and public mind. The right administrative ethics can also restrict the network administration to guarantee the fairly implementation of the network administration.

### **3.5 Network administration's responsibility assure the network administration**

The meaning of administration responsibility is the duty of supervision and cooperation, as well as the duty to supervise the behaviors of the other administrators who's facing opportunities or temptations. Ethics is a sediment of social culture, and as a certain kind of cultural phenomenon, responsibility ethics is a kind of moral consciousness, moral habit and ethical tradition which formed under the environment and system of responsible administration as well as its operation background though the certain mental set(Si Lin-bo, Meng Wei-dong, 2012<sup>[9]</sup>). Thus we can say that the network administrative responsibility ethics is a kind of sense of responsibility with inherent nature of consciousness which can guarantee the carry out of network administration.

## **4 Approaches to the existing problems in Chinese network administrative ethics and foreign failure in the administrative ethics**

### **4.1 The existing problems and relevant reason analysis of our administrative ethics**

First, we are lacking of systematic ethical legislation and institution. And the current relevant laws and regulations haven't wholly risen to national level. In recent years, China begins to attach importance to the enactment of the relevant laws about the construction of administrative ethics, but because our nation still at the primary stage of socialism, limited to the current situation of society, politic and economic, thus cause the construction of the current ethical laws and regulations also at the primary stage, and also leads to the its imperfection and faultiness. Which mainly highlights in that the relevant stipulations of administrative ethical construction can only be seen in some Party rules or the explanation of statutory regulations, and only talk about the corruption phenomenon of administrators who work in Party and government offices and the requirements to them, and the content is generally one-sided, not so systematic or complete, far from the legal level, thus we can say that it's just an incomplete administrative ethical laws lacks of unification, with so many areas need to be covered (Wang Wei, 2001<sup>[10]</sup>).

Second, lacking of efficient supervisory system to supervise administrative ethics. Just as lacking of efficient supervisory system, the administrative ethical can hardly play an substantive role during its practice process, even its construction has been formally finished. Our country's supervision to administrative ethics mainly depends on internal supervision of party and government administration but lack of an real all-around supervision system, just supervise by the internal forces is hard to avoid problems. These problems mainly be observed in the following aspects: much more superficial official supervision and less supervision with substantial content; officials in different administrative levels



supervise with different ways; in our country, one specific feature is on one can clarify who is responsible for the supervision to every departments' chief executives, during their supervision, then can be both sides, many supervisions towards these executives were formulated by themselves; and such supervisions always being delayed, severely lacking of antecedent or interim supervision(Wang Wei, 2001<sup>[11]</sup>).

Third, lacking of professional ethics' shaping and restraint mechanism towards administrators. Chinese have been influenced by the traditional ethics over a long period of time, which did play a certain role during the of administrators' moral level construction, but as deeply influenced by the supervision and theory of our federal rulers and political thinkers, the development of economic got negative impact. From the historical route of the development of administrative ethics we can simply find out that the route to make administrative ethics is to establish moral constraints firstly and then institutionalize morality.

Fourth, the roles transition in network administration has aggravated the role and interest conflicts among the administrators. Their roles have developed new characterizations in the era of e-government, which leads to the new role and interest conflicts. Which mainly embodied in: Firstly, the original diversified roles began to fuse together. The era of Internet did closer the distance of each other, and administrators is no longer an independent unit with only one single identity, they began to link their administrative work closely with citizens, and themselves also changed their identities from one specific role into diversified-linked character group, like one administrators might deal with public events as a public agent while he's working, but he can also look upon the event from the aspect of an ordinary netizen after work, even behaves totally different from while he's working. Secondly, the fuzziness of the boundaries between work and private sphere. Because of the development of internet technique, network administration has broken the limitation of territories has become its most important character, internet has made the using space domains of electronic devices like computers, phones and fax machines greatly expended. And the administrative works are no longer restricted to the specific office locations. Meanwhile, the normative work system became inattentive gradually, administrators might be in home, airport and other non-working places when he's facing some public emergency events. Finally, the otherness of social culture has been enhanced. We can surely to find out that our benefits are closely bound up to that of others who has different cultural background when we are trying to achieve our own interests(Cooper, 2002<sup>[12]</sup>).

Fifth, the ethical requirements are much clear than the boundaries of administrative responsibilities. As the traditional government has changed into the modern administrative and responsible government, the administrative responsibility has gradually changed into the core concept of the current administrative ethics, so, Frederick Mosher pointed that: the word of responsibility is the most important one among the all words linked with public administration and private departments". While as for the real situation in public administration is the much clear and specific ethical requirements with rather vague responsibility boundaries. Cooper had addressed that if one administrator didn't want to take the decision-making responsibility, then they would shuffling these problems to the higher authorities step by step, that mean even when they actually have the right and the obligation to make one certain decision, they choose not to do so(Cooper, 2002<sup>[13]</sup>). This phenomenon also exists in China. As a new type of administrative mode, the network administration' requirements to administrative ethics are still need to be completed, but the basic moral code of the network administration is fairly clear. Still its administrative responsibility can not achieve balance with ethical requirements. With the coming of the Internet era, the participation for non-executive—netizen became more and more convenient, which means the administrators will always facing the censure of those netizen, but who should take the administrative responsibility become another construction challenge that impeded on the way to establish the supervision mechanism of network administrative ethics, because nobody can clearly define it.

#### **4.2 Foreign solutions to the failure in the administrative ethics**

Cooper explored the administrative issues from the aspect of the practice of administration, so his ethical thoughts can often hit the nail on the head to point out where the shoe pinches are. As far as he can see, the emergence of the ethical conflicts is inevitable during the process of administration, while

administrators and administrative organizations is the principle parts of those ethical issues, they have unshirkable responsibilities to both the emergency and solution of the administrative ethical problems.

First, take officials' moralities seriously while selecting an official. To regulate the proper utilization of the official power, governments have set moral as an important test while selecting and hiring the administration officials. European countries' governments usually forbid the person who's having serious problems of morality to register or be hired. As the United States stipulates that: "Anyone who's been dismissed because of delinquency or malfeasance, or be notoriously known as had done things illegally, dishonestly or immorally, or once cheated on examinations or tenures, or once engaged in malpractices, or known as an alcoholics will be forbidden to register"(Tang Tie-han, 2005<sup>[14]</sup>). Singapore's government adopts the methods of examination just like Chinese "political examination" when hiring a civil servant, that means their governments will carefully check the applicants' former moral performance records, such as the behaviors like irreverence to teacher and elders, dishonesty or other insincere behaviors against the social morality. If the applicant can not pass the "political examination", he wouldn't be able to become a civil servant. In the France's *General Regulations of Civil Servants*, also set some moral preconditions for the applicants. So when the applicants are in the stage of the entrance examination of French National School of Administration, he would face the complete investigations to his morality, that means the applicants should first have good service spirit and mental qualities, then to take their intellectual level and other all kinds of abilities into account"(Pan Xiao-juan, 1998<sup>[15]</sup>).

Second, moral anomie should be punished accordingly. Thus the administrative department should take discipline actions according to the administrators's moral anomie. Many countries' administrative ethical rules have explicit provision about punishment institutions and disciplinary categories when officials against morality. The prominent example is Korean "Instructions and Quantitative Punishment Standards Running by the Commission for the Disciplinary Punishment of Public Functionaries"(Wang Wei, 1998<sup>[16]</sup>), in which what kind of punishment should be carried, by which department, how to punish and responsibility investigation according to the certain kind of moral anomie has been stipulated clearly, which should be learned by governments from all over the world.

Third, carry out special punishment for the special officials(officials who's in charge of selection or appointment) who's having issues of moral anomie. Because they cannot be punished directly by the ordinary management organizations, then we will take some specific disciplinary measures like "public opinion condemnation", "vote of non-confidence", "impeachment" and so on. Such special punishments have strong frightening function for those special officials.

Fourth, "Career reentry" limitations after the punishment of moral anomie. In many western countries, although an official can back to society and continue his career after being punished because of administrative ethical problems, he must pay an extra price for his mistake. In France, if the president, senators and other officials have issues of moral anomie, will be forbidden to campaign for one year. In the Republic of Korea, if civil servants being discharged, relieved or removed from his office because of corrupt behaviors during his tenure of office, as the "Korean Basic Law on the Prevention of Corruption" stipulated, "from the date of resignation to the following five years, you can not contact the private large-scale enterprises or legal persons, community employments that established out of the purpose of public interests and mutual cooperation for for-profits private enterprises, these enterprises mentioned above shouldn't have smooth business relations with the departments you've been worked for 3 years before your resignation."(Wang Wei, Zhao Ai-ling, Wang Yan-gong, 2011<sup>[17]</sup>)

## **5 The route construction countermeasures to the restraint mechanism of the network administration ethics**

To make network administration more reasonable and high-efficiency, nurture and cultivate the right administrative ethical values, strengthen the cultivation of administrative ethics, stress the importance of attaching the objectively external administrative responsibilities into the subjectively internal administration conscience, enhance the establishment of administrative morality and perfect

the nurturing mechanism of network administrators can be proceeded with the following five aspects:

First, strengthen the administrators' national mainstream political thoughts, and maintain the national administrative will.

The national mainstream political thoughts are guidelines for administrators, so we should vigorously promote the national mainstream political thoughts, indoctrinate those thoughts to administrators to make sure it will be internalized in their hearts and externalized in their behaviors. Network administrators must take the national mainstream political thoughts as the criterion and meet its requirements, try to make its ideological values been shown. On the contrary, administrative actions that run counter to national mainstream political thoughts must be punished accordingly.

Second, perfecting the laws of network administrative ethics, ensure the reasonable implementation of network administration.

Establishing and perfecting the laws and regulations of network administrative ethics as soon as possible, regularize the administrators' behaviors with laws and regulations to make them meet the requirements of ethical laws. The perfection of legal systems mainly includes the following aspects: moral legislation perfection, the establishment of professional standard, organizational changes, the regulation to network administrators at various government levels, as well as the establishment of a fairly standard judicial hierarchy with determinacy and pertinence.

Third, creating the specific network administrative ethical culture, achieve the restraint of network administration.

The construction of network administrative ethical cultural environment is the core of ethical supervision mechanism construction. A good network administrative ethical cultural environment can not only influence the traditional administrative ways, but also can implement the ethical supervision from the aspect of cultural environment construction. Shaping the cultural fashion of "people-oriented" vigorously can both achieve the internal restraint and guide administrators to nurture the good professional ethics and execute on the socialist core values. To establish the network administrative ethical cultural environment needs to carry out the propaganda works in an organized way, and also needs to reward the behaviors positively effect the network administrative ethical culture, whereas punish severely all the unethical conducts that harmful to ethical cultures.

Fourth, nurturing and establishing the administrative ethics, carry out the network administration equitably.

Strengthen the education of network administrative ethics, nurturing the network administrators to form the right administrative value. Perfecting the reeducation to administrators, carry out the educations and training of administrative ethics regularly. During the education we should make sure that they get the idea of serving people as the core, take collectivism as the principle and take integrity as the emphasis. And make sure that civil servants can form into the right outlook of moral, life and value.

Firstly, an network administrator should owns the basic legal accomplishment. Correctly understanding the public power distribution and nurturing the sense of responsibility and law-abiding; secondly, an network administrators should seriously studying the professional knowledge of politics, public administration, management science and legal science, to provide backup knowledge forces for the correctly use of pubic power; finally, an network administrator should establish a correct understanding of civil servants' function orientation, nurture the sense of service and public, to make sure that the network administration can be carry out fairly.

Fifth, constructing the responsibility ethics of network administrative, forming into the sense of network administration responsibility.

Because the responsibility ethics of network administrative can guarantee the carry out of network administration, thus the establishment of the responsibility ethics become more important. The first thing we need to do is to reinforce the restriction, because restriction is the precondition of responsibility, the primary task of the construction of responsibility ethics of network administrative is the responsibility control and responsibility restriction. The network administrative responsibility is the foundation to construct the supervision mechanism of network administration, and the administrative ethics is the pathway to achieve the administrative responsibility. The construction of administrative

ethics still requires to open the channels of network supervision and establish the specific ethical supervision mechanism of network administration during the process of responsibility identification.

## 6 Conclusions

With the popularization of the e-government, the standardization and restraint of the network administration, as well as the construction of the network administration ethics' restraint mechanism must be taken seriously. As the application of the network administration constantly goes deeper, the connotation of the network administration ethics must be continuously deepen, enrich and developing, the construction of the network administration ethics' restraint mechanism will be continuously improving and developing. Meanwhile, during the construction of the network administration ethics' restraint mechanism, our citizens also need to constantly advancing the moral accomplishment, deepen the understanding of the network administration ethics, to make sure that the its operation is reasonable and efficient.

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## Review on Equalization of Family Planning Basic Public Service \*

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**Abstract** In recent years, family planning basic public service has become a hot topic in the social and economic life. The “13th Five-Year Plan” also has made clear requirements for the basic public service. Promoting equalization of family planning basic public service is an important content in equalization process of basic public service. Connotation, content and evaluation system of equalization of family planning basic public service are of great significance to the right of all citizens in China. The study mainly selects the relevant literature on the equalization of family planning basic public service from CNKI, and summarizes the connotation, content, classification and appraisal approach, and provides a useful enlightenment for promoting the improvement of population structure and improving population quality and other issues.

**Key words** Family planning basic public service, Equalization, Review, Evaluation

### 1 Introduction

Family planning as a basic national policy of our country, in the course of more than 30 years of evolution, translating from the initial simple control of the population and solve the problem of resources shortage of to promote prenatal and postnatal care, focus on improving the quality of the population, and to alleviate the plight of China’s population aging. “13th Five-Year Plan” has put forward a clear requirement to basic public services, “improving the population development strategy, establishing and improving the population and development decision-making mechanism; improving reproductive health, maternal and child health care, child care and other public service level.” It is pointed out that it is necessary to focus on the aging of the population and combine with the actual situation of China in order to promote the equalization of family planning basic public service. This article researched the present situation of the equalization of family planning basic public service, and has positive significance to improve the equalization of family planning basic public service.

### 2 Connotation of equalization of family planning basic public service

At present, due to the large number of floating population and the large floating area, the academic circle divided equalization of family planning basic public service into two branches, one is for the equalization of the floating population, the other is for the equalization of household population. For the first branch, some scholars emphasize the equalization of the floating population in comparison with the household registration population, that the floating population to obtain the same publicity and guidance, reproductive health, incentive benefits and other basic public services in the current residence<sup>[1-2]</sup>. There are scholars from the perspective of maintaining the basic rights and interests of the floating population, that equalization of floating population basic public services refers to the government under the guidance of “basic, equal, universal, balanced” requirements, to stabilize the low fertility level, to solve the population problem, to promote the coordinated development of urban and rural areas and to maintain the legal rights and interests of floating population, to provide basic and secure basic public services or products for the main objectives of the organization and institutional arrangements<sup>[3]</sup>. For the second branch, under the guidance of basic public service equalization, the scholars defined equalization of family planning basic public service as “the whole people regardless of their geographical, national, gender, income.” And the difference in social status, can be fair and

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accessible to the level of economic and social development, the results are roughly equal to the basic public services<sup>[4]</sup>. This article defined equalization of family planning basic public service as: equalization of family planning basic public service is the important component of basic public service equalization. Improving equalization of family planning basic public service and protecting the legitimate rights and interests of population is an urgent requirement for stabilizing the optimum population size and solving the population problem, is an effective way to build a harmonious society and realize social fairness and justice. This paper combined with the equalization of the basic public services of the floating population and the household population, defined equalization of family planning basic public service as on the premise of admitting the difference of the area, urban and rural areas and the population, all nations have basic family planning service which above certain standards, the purpose is to meet the needs of citizens to protect the legitimate rights and interests of citizens, the bottom line is roughly equal, the government formulated and improve the basic public service policy of population and family planning, ensured the ability to provide this basic public service, to achieve the equalization of family planning basic public service.

### **3 Content of equalization of family planning basic public service**

#### **3.1 Current main content of equalization of family planning basic public services**

Equalization of family planning basic public service is rich, this paper is based on the actual statistics of equalization of family planning basic public service, and obtained main contents of the equalization of family planning basic public service. Mainly including free family planning technical services; free participation in family planning related knowledge popularization activities; free pregnancy and free medical services for married women of childbearing age; establishing reproductive health files or married women of childbearing age; implementation of hospital delivery, B ultrasound, Family planning and real-name system; implementing incentives and preferences for carrying out family planning actively; maternal prenatal and postpartum visit; neonatal visit; family planning statutory vacation; family planning insurance; free prenatal medical examination and prenatal eugenics test; and these aspects of the contents of family planning basic public services funds, institutions, personnel, facilities, and services, And so on.

#### **3.2 The future main content of equalization of family planning basic public services**

To strengthen family planning development and application of grass roots network, to provide family planning basic public services in government purchase is the trend of the new era. the study believes that to improve family planning basic public service equalization level in the future, The following aspects: First of all, with the blessing of committees and government, family planning departments has explored a series of conducive methods and methods for safeguarding national interests and the people's real interests in the more than 30 years. And gradually embarked on the road of service and management, formed a network combined with urban and rural family planning services and management, has become the most complete, the most extensive coverage, and the most effective social management and public services network, with organizational advantages, service advantages, practical advantages<sup>[5]</sup>. Under the new policy background and job requirements, grassroots organizations have been promoted to unprecedented heights. The transformation and development of family planning network is the inevitable choice to strengthen the social management and public service in the field of population development. Family planning grassroots network has made a positive contribution based on these advantages for our social management and public services<sup>[6]</sup>.

The national population development strategy will guide family planning work for a long time to come. To improve population quality, optimize the sex ratio at birth, improve population structure, reduce the aging of the population is the key content in family planning work; in addition, through family planning grassroots network, to promote the basic public services equalization of regions, urban and rural, group. Development family planning network should be focused on the following points in the future: Strengthening the construction of grass-roots network of family planning in the new rural construction, to build a platform which improves open, inclusive, comprehensive service. The problem of floating population in large quantities is serious, there is a certain gap of family planning basic public services between household population and floating population, the gap directly affects the

equalization level of family planning basic public services. Therefore, the primary users of the grassroots network should not only include the household registration population, but also improve the construction of floating population family planning basic public services.

Second, the Ministry of Finance, the Ministry of Civil Affairs, the State Administration for Industry and Commerce jointly issued the “Government to purchase services management approach (provisional)” in December 2014, proposed financial departments at all levels to make government procurement services guidance directory, which pointed out that family planning basic public services should be included in the guidance directory<sup>[7]</sup>. Academic circles generally believe that not all services are suitable for the purchase.

The first is based on the core functions of the government and the motives of the service providers; the second is the characteristics of the service itself as the scope of the provisions of the purchase criteria<sup>[8]</sup>; the third is the impact of government purchases<sup>[9]</sup>. Some scholars have proposed recommended items in government purchases including: maternal health, maternal health, family planning technical advice and guidance and technical services for family planning advocacy services etc.. By way of government purchase to provide family planning basic public services can alleviate the service demand increasingly diverse and local financial rigid constraints, improve the equalization of basic public services the level of family planning.

## **4 The principle and evaluation perspective of equalization of family planning basic public service**

### **4.1 The principle of equalization of family planning basic public service**

First of all, the indicators of equalization of family planning basic public service can be the original indicators, can be the original indicators of improvement, can be the creation of new indicators<sup>[10]</sup>. In the selection of indicators should generally follow the following principles: purpose principle, comprehensiveness principle, adaptability principle, guiding principle, focus principle, lag principle, feasibility principle and relevance principle. The above principles is used as a general direction, above principles should be taken into account and according to the actual work needs to select indicators in the actual choice<sup>[11]</sup>. The index system should be composed of multiple subjective and objective evaluations.

Secondly, the construction of the index system of equalization of family planning basic public services should not only follow the general principles of the design of the index system, but also follow certain special principles. These special principles include: meeting family planning policy principles, focusing on the coordination of policies and programs<sup>[12]</sup>; taking into account the principles of short-term and long-term<sup>[13]</sup>; based on external environment of the government principle; government functions principle.

In order to construct the evaluation index system of equalization of family planning basic public service, we should not only pay attention to the scientific and systematic, practicable practicability and maneuverability, but also pay attention to the combination of theoretical basis and practice, and accord with current policy and plan , in line with the current implementation of the family planning policy. In short, the construction of the evaluation system should be combined with the theory and practice, financial science, applicability, operability is one, simple and easy.

### **4.2 Evaluation perspective of equalization of family planning basic public service**

Evaluation perspective of equalization of family planning basic public service refers to from what point of view to research evaluation of family planning basic public service. Including administrative regions, urban and rural areas, groups and other perspectives to research generally.

#### **4.2.1 Equalization between administrative regions**

On the one hand, there is a difference in the basic public service capacity between the administrative regions, there are different reasons for the financial capacity of the equalization of basic services, as well as the reasons for the different costs of basic public services, the most important is that demand for funds has not established the factors of scientific evaluation methods. On the other hand, the floating population basic public services of different regions are also unequal<sup>[14]</sup>. As the

regional management model has its own characteristics, such as Shijiazhuang's "1+12+X" equalization service model, such as Chengdu's "N +5" family planning work mode; In addition, present situation and demand of different floating population regions family planning public service are different<sup>[15]</sup>. Therefore, in considering how to achieve the equalization of basic public services between the administrative regions and the family planning, it is necessary to take into account the equalization of the household population and floating population among the regions.

#### 4.2.2 Equalization between groups

Currently, China is in the period that family planning service by simply controlling the population number to improve the quality of the population, balanced gender composition, improve the aging of the population transition. From the point of view of the formulation and revision of the national family planning work regulations, family planning basic public service is one of the earlier public services that are equalized between the floating population and the resident population. Especially the floating population has an important impact on evaluation and influencing factor of family planning service, is an important basis to promote equalization of family planning services, improve the quality of life services. Because of the existence of household registration system, the group that enjoy family planning basic public services mainly divided into household population and floating population. Some scholars have shown that although the policy provides that the floating population to enjoy the same services, but because of the large number of floating population, management difficulties, coupled with service investment is limited, the floating population actually accepted family planning services has a certain gap with household population. Based on the above, China should focus on improving non-equalization situation of the floating population.

#### 4.2.3 Equalization between urban and rural areas

"China's floating population development report 2012" forecast, China's urbanization rate in 2020 will reach about 60%, in the middle of this century, urbanization development will also enter a stable stage. In the context of accelerating the transformation of economic development mode and vigorously promoting urbanization, it is of great significance to promote actively the urbanization of floating population and to build a localized population service management system. One of the main points of the current family planning work is to strengthen the management of family planning services for floating population, to improve the equalization level of floating population basic public services.

## 5 The method of equalization of family planning basic public service

In theory, the existing equalization of family planning basic public service evaluation and measurement methods can be divided into four categories: social science methods, public health care methods, economic methods, systematic analysis methods. The first three can be used to specifically evaluate a contraceptive measure. Some scholars in the field of family planning public service reference "standard" equalization distribution model, calculate the financial scale of equalization of public service needs. Some scholars try to use the fuzzy comprehensive evaluation method to quantify the various aspects of the end of the family planning work to conduct a comprehensive assessment<sup>[16]</sup>. There are also scholars to explore and construct the population development monitoring index system and evaluation model, and introduce the time series data and cross-section data of the relevant indicators of population development in 31 provinces in China from 1997 to 2005, weighted by entropy weight method, combined with factor analysis, the results show that the average life expectancy, the second and third industry population ratio, the per capita GDP, the average period of education and the per capita electricity consumption have a strong impact on China's population development<sup>[17]</sup>. There are scholars from the human development, population and economic society and population and resources to propose the comprehensive evaluation system of population development<sup>[18]</sup>.

## 6 Conclusions

This paper summarizes the connotation, content, evaluation principle, evaluation angle and evaluation method of equalization of family planning basic public service equalization. From the existing research, most of the research choice present situation of regional and group as research



emphases, neglect of the equalization level between the province . From the point of view of the research, most of the existing research has analyzed the causes from the relevant government aspects of the non-equalization of public services and put forward relevant improvement measures, such as improving the government management mechanism, but lack of empirical research.

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# The Construction and Innovation of Governance Mode of Farmers Centralized Resettlement Community in China —Taking Longquanyi District of Chengdu as an Example

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**Abstract** Traditional urban community governance mode does not qualify for governing today's complex community, so it is urgent to explore new community governance modes. At present, there are mainly two governance modes for farmers centralized resettlement community in China: the government-led governance mode and the villager autonomy governance mode. Compared with government's initial "one size fits all" governance mode, the two modes have greater improvement in their governance ideology and feasibility. Based on current situation and governance mode of Chinese farmers centralized resettlement community, and learning from the collaborative governance mode of Chengdu's Longquanyi District where exists typical government-led farmers centralized resettlement communities, this thesis aims to explore collaborative community governance mode so as to provide reference for construction of resettlement communities in other Chinese cities.

**Key words** Land-lost peasants, Resettlement community, Community governance, Collaborative governance

## 1 Introduction

With the acceleration of China's urbanization, the number of peasants who lost their land for city construction has also been increasing, thus a series of tough problems, such as the demolition, reconstruction, resettlement management, has ensued. China's initial urbanization is an obvious kind of city expansion, for it attaches too much attention on the "face project" of blindly building a large number of roads and houses, rather than on the resettlement and citizenization of peasants. Therefore, the adverse consequences resulting from urban expansion began to emerge in recent years. That forces government to turn its eyes on community residents and to care about their basic interests and the subsequent livelihood security. The new city theory "Smart Growth" requires to put people at first and fully consider community residents' feelings and their long-term development; the "New Urban Agenda" adopted on the United Nations Habitat III Conference emphasizes the basic concept "City of All People". All these provide right directions and advanced concepts for urban development in China.

The reform and opening-up in China remarks an important historical change, which also brought upside-down changes in people's thinking. The biggest one is that people no longer think government should be responsible for everything in social governance. Residents and social organizations also should participate in the management. Under the background of profound changes, the idea of collaborative governance came into being.

## 2 Community governance and collaborative governance

Community governance refers to applying governing theory to community management in respect of public matters. Compared with management by government or its agencies, Community governance has improved a lot in concept, for it lays stress on the shared governance goals, not that government must be governance body. Wei Na (2003) divides the evolution of China's urban community governance mode into three stages: the administrative community—a government-led mode of community governance; the collaborative community—the mixed mode of government's promotion and community's autonomy; the autonomous community—the mode of government's support and community's leading<sup>[1]</sup>. She puts forward that China's community governance mode is moving from the second stage to the third one. However, in reality, government has many advantages on the resettlement of land-lost peasants, so most resettlement communities are government-led or the

administrative ones.

“Collaboration” refers to collective effects produced by cooperation among different parts of system. This effect can promote the whole system to form a new structure which does not exist at an individual level.”<sup>[2]</sup> Collaborative governance does not simply means mixing “collaboration” and “governance” together. Actually, they need to be inflexibly integrated in a specific situation. Collaborative governance is the complement and improvement of general governance theory. In operation, it emphasizes the good order of governance process and the effectiveness of governance results. As its name suggests, collaborative governance is that multiple governance bodies in a system, through coordination and cooperation, tries their best to produce an interdependent relationship and an orderly governance structure so that the maximum public interests can be achieved<sup>[3]</sup>. These multiple bodies consist of government, citizen, social organizations and so on. According to citizen participation mode of community governance, collaborative governance can be divided into three types: citizen autonomy type, administration-oriented type and mixed type of the two.

### **3 The present situation and governance mode of China’s farmers centralized resettlement community**

Farmers centralized resettlement communities are residential areas constructed by government so as to exert centralized management to farmers whose production and living places are expropriated for advancing the process of urbanization<sup>[4]</sup>. Compared with the ordinary commercial community and the unit community, farmers centralized resettlement community is characterized by derivative formation, resettlement’s specificity and residents’ homogeneity. In addition, residents in settlement community are generally land-lost farmers, but in reality, many immigrant people are renting in the communities, which undoubtedly increase difficulty and complexity in governing resettlement communities.

#### **3.1 The present situation of China’s farmers centralized resettlement community**

Statistics shows that there are about 40 million landless peasants in China, and in the next five years, the average annual increase of land-lost farmers will reach over 2.6 million<sup>[5]</sup>. Such a large number makes landless farmers an important group that cannot be neglected in China. Consequently, their resettlement, which has aroused public concern, would exert a very important impact on city’s economic development and social stability. Recently, China has launched projects of exploration the practice in farmers centralized resettlement community in several provinces, including Beijing, Henan and Sichuan. Taking Sichuan as an example, by the end of 2006, the government has resettled 68,938 landless farmers, resettlement area reaching 10.87 million square meters, monetized resettlement funds reaching 553 million yuan, which basically make sure that land-lost people do not lose home.<sup>1</sup>

In terms of the current situation of farmers centralized resettlement community in China, the resettlement projects led by government, on the whole, are implemented better than other projects in many cities. Greatly to residents’ satisfaction, these resettlement communities provide a better living environment for them and helps to promote their citizenization. However, while advancing the resettlement project, government does not take full account of the actual needs and vital interests of the masses, which causes potential problems for future community governance.

#### **3.2 Analysis on governance mode of farmers centralized resettlement community in China**

There are mainly two governance modes of Chinese farmers centralized resettlement community: government-dominated mode and villager autonomy mode. Government plays an important role in both the modes, but its role is not the same. In government-dominated mode, government can directly order its relevant departments to participate in the community construction. To some extent, this mode fails to exert an incentive impact on those land-lost farmers, so their enthusiasm in joining the construction is small. But due to the large government support in policy and funding, government-led mode of community governance is still the predominant one. Yet, villager autonomy mode gives farmers more rights to participate in the management of community affairs and interests distribution. In this way, farmers realize governance is a matter of their own, so their initiative and enthusiasm are

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1 <http://www.doc88.com/p-808812036111.html>

greatly inspired.

To put the two modes in a brief way, the government-led mode features on administrative orders, while the nature of villager autonomy mode is that the government, through passing laws and regulations, gives villagers or community committees rights to manage their community by themselves. In order to better understand the two modes of community governance of Chinese farmers centralized resettlement. Their advantages and disadvantages are showed in Figure 1.

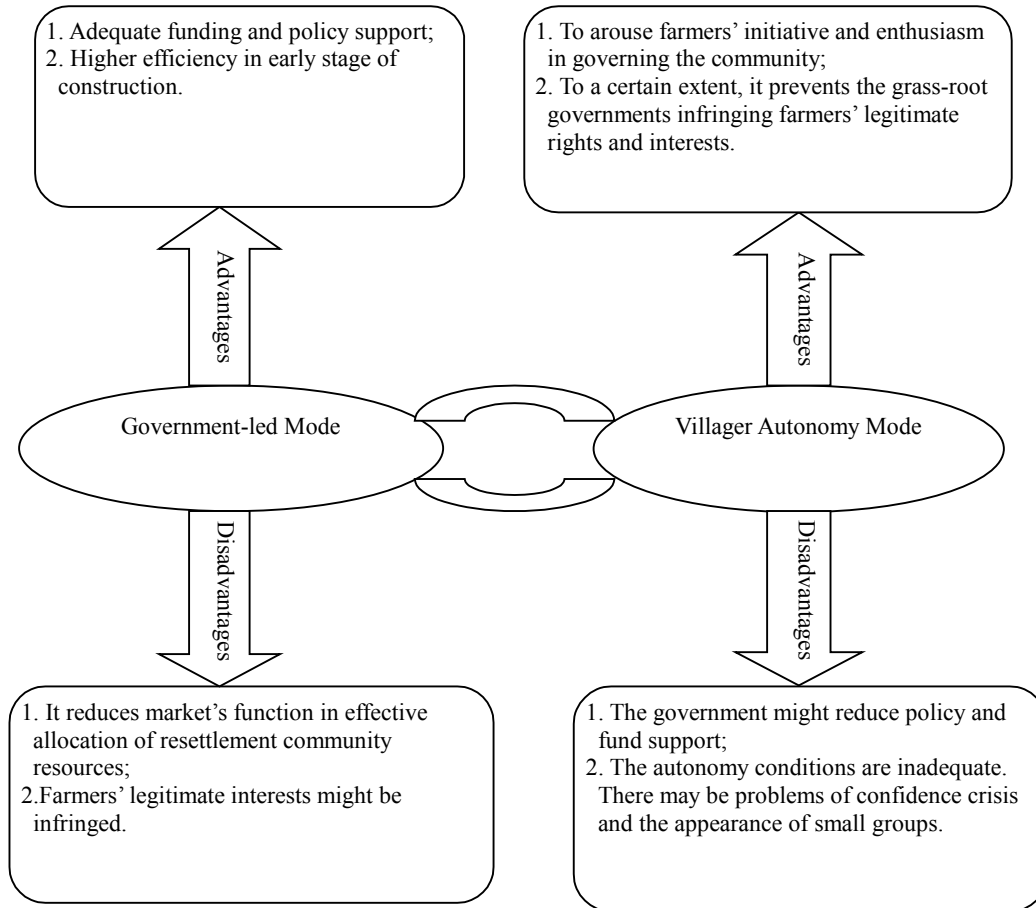


Figure 1 The advantages and disadvantages of two resettlement community governance modes in China

#### 4 A case study of centralized resettlement community governance in Longquanyi District of Chengdu

Longquanyi District of Chengdu is an area with the most farmers and thus produces a large number of resettlement farmers in process of city expansion. The community government has always been caring about the resettlement of farmers and actively sums up the past experience of community governance. Now a new typical mode, which can be followed and promoted, has been explored, providing reference to management to farmers resettlement community in other areas.

##### 4.1 The basic situation of farmers centralized resettlement community in Longquanyi District of Chengdu

The resettlement people in Longquanyi District is mainly land-lost farmers and mountain ecological immigrants. The community mainly follows the principle of unified planning and construction or the rule of unified planning and self- construction. With the continuous development of society, diversified governance method have been put up and used, bringing both opportunities and

challenges for the government in Longquanyi District.

The resettlement community construction of Longquanyi District started from the 1990s. Now 65 communities have been completed, including 29 rural communities, which accounts for almost a half of the total communities. Among the 29 communities, there are 8 communities whose households are up to more than 4 thousand, which has reached the upper limit of city community scale. The large number of people makes a more complex community and adds to difficulty in community governance.

Among the large number of farmers centralized resettlement communities in Longquanyi District, the most representative one is Chongde Community, which was built in December 2010, with a total area of 785 thousand square meters and 6,861 households. It is one of the largest-scale communities. In 2012, people from Longquan Streets and Luodai town successively moved to Chongde Community. It has four residential courtyards and 35 elevators. In 2014, the community held a general election, 24 community staffs were employed, including judicial mediators and workers in community residents committee and the Party branch committee. In addition, 34 community groups were set up and a number of social organizations has been built.

#### **4.2 Analysis on the collaborative governance mode of centralized resettlement community in Longquanyi District of Chengdu**

After many years of exploration, Longquanyi District has developed a multiple collaborative governance mode of government domination, community autonomy organizations' participation, social organizations' supplement, and residents' assistance<sup>[6]</sup>. The four aspects of this multiple collaborative governance mode are showed as follows:

(1) The government - leading role. In this mode, the government plays a leading role in governing resettlement community and is responsible for social management and public services. The crucial role of the government is that it should lead the community to follow the Communist Party and drives other organizations to gather social resources for redistribution. In order to further streamline administration and delegate power to the lower levels, improve management efficiency, and raise the level of service quality, the government of Longquanyi District has done the following works: the first is to set up a community management leadership team; the second is to establish a joint system of procedure; the third is to promote the overall development of community governance and community target management. In the process of exploring to strengthen the leading role of government, Chongde Community has summed up some aspects the Street Office needs to make improvement in. For example, the social function of Street Office should be strengthened and the economic function weakened; the Street Institutions needs to be restructured; its government administration should be separated from enterprise management and society.

(2) Community organizations-coordinating role. In the governance of resettlement community, Longquanyi District has been constantly establishing and improving the grass-root Party organization system. Besides, it attaches great importance on the improvement and standardization of community organizations, and actively explored the related management laws and regulations, because the improvement of community organizations can better coordinate with government in governance. The community organizations in Chongde Community include community Congress, community neighborhood committee and so on. These organizations regularly carry out various activities, and constantly improve the autonomous governance mechanism, having greatly enhanced their autonomous ability.

(3) Social organizations-supplementary role. For the current social governance, participation of social organizations has been a common phenomenon. As the third-party organization, social organizations act as a bridge between the government and the resettlement farmers. To register and sort out all kinds of social organizations and to authorize them to undertake some community responsibilities, Longquanyi District has built a "hub type" social organization work system. Take Chongde Community as an example, many social organizations have emerged in the process of exploration and practice, such as the Saozi housekeeping service center, "Red Sunset" art team and some elderly associations. These organizations greatly improve the communities' completeness and make up for government's deficiency in this respect.

## **5 The construction and innovation of collaborative governance mode of China's farmers centralized resettlement community**

There are mainly two governance modes of Chinese farmers centralized resettlement community, but viewed apart, each of them is relatively single and absolute, so in the actual application, they must be used in a flexible way. As Longquanyi District has a large number of rural population, it can provide reference for other cities about the governance of farmers centralized resettlement community. Looking the governance mode of Longquanyi District, we know that summarizing experience and building a broader collaborative governance mode are of great significance to achieve China's modernization.

### **5.1 The enlightenment of governance mode of farmers centralized resettlement community in Longquanyi District of Chengdu**

The staff of planning committee in Longquanyi District play a guiding role in governing farmers centralized resettlement community and they pursue for an innovative governance mode. At the same time, they encourage government, community residents and social organizations to participate in community construction. All the work has achieved good results. Through analysis, we can get the following revelation:

First of all, multiple governance concepts should be advocated. Through passing relevant laws, community neighborhood committee and village committee gives residents rights and guides them to participate in community governance. Beyond that, they allow social organizations to provide service in community and formulate relevant regulations to manage these organizations. .

Secondly, in terms of organization construction, responsibilities of governments at all levels should be clear. All the governments should manage to carry out their duties and strive to build a service-oriented government, then they can bring real benefits to community residents. Many contradictions in community governance arise from unclear boundaries of responsibilities. Once some trouble happens, the government, community neighborhood committee and property companies would "pass the buck" to each other, which may cause anger and dissatisfaction among residents.

Thirdly, for the operation mechanism, the architecture of autonomy organizations should be improved. It includes the basic system of consultation, the promotion of working methods and the unimpeded autonomous channels. The three parts are a continuous process, in practice, the failing of any one would affect the final effects of community autonomy.

Finally, the service concept should be improved. We should upgrade the community service centers to provide residents employment counseling, legal aid, and social assistance, improve community convenience services by supporting and encouraging legal organizations and individuals to carry out community service programs and perfect community management services through strengthening property services and financial supervision for the community.

### **5.2 The construction of synergistic governance mode of farmers centralized resettlement community in China**

According to the two main governance modes of China's farmers centralized resettlement community and the typical case of Longquanyi District, this thesis will put forward the multi-body collaborative governance mode: "governments' promoting construction + social organizations' governance+ community talented people's coordination + social organizations' supplement". This mode makes use of the advantages of government, community, talented people and the society. This can be said the integration of government-led governance and villager autonomy. Collaborative governance is a general trend and government is no longer the only governor. The difference is that in various governance modes, the governance bodies have different level of authority. The following table (Table 1) shows the responsibilities of the four governance bodies.

In the table, "community organizations' governance" means the community organizations, including the village committee, are the planners and executors of governance matters. "Government's promoting construction" means that the government, acting as a guide and pusher for the community, safeguards the basic rights of community residents and give their autonomy rights by making laws and regulations, so that the autonomous ability can be improved. "Social organizations' supplement" means that these organizations can provide all kinds of services for community residents, such as some public welfare services and legal assistance. Here, the social organizations include all sorts of organizations.

**Table 1 Introduction of collaborative governance mode of “Government-Community-Talented Person-Society”**

Governance body	Main duty	Participation form of governance
Government	Guidance	To give community and social organizations rights and duties by passing laws
Community organizations	Construction	To carry out self-governance according to rules made by community neighborhood committee and village committee
Community Talented People	Coordination	To play a coordinating role through organizing activities of awarding advanced or model person
Social Organizations	Improvement	To provide community services to enrich community life, such as professional services, artistic or public benefit activities.

There are three governance bodies having been mentioned above. This paragraph will give a detailed introduction to “the community talented people’s coordination”. In the resettlement community, farmers take up the largest proportion and they scatter in every corner of the community. They individual do not have much power. However, if someone, namely, the community talented person, unifies and leads them, they will become the most powerful force for developing the community. The community talented people usually have strong authority. In some case, they are easier to get people’s trust than the government. So they can act as a bridge between the residents and government.

## 6 Conclusions

With the advanced process of urbanization in China, the number of land-lost people is bound to increase. And the new concept of urban governance will make collaborative governance a general trend. In principle, the innovative governance mode proposed in this thesis can be applied to manage a variety of resettlement communities, but in the actual practice, whether all of the four governance bodies mentioned above play their functions are not sure. The proportion of community duties they need to take should be based on current situation. Therefore, community governance is a matter that is in line with local conditions. Thus it is important to learn the advanced governance philosophy. In the process of governing, we need to consciously use these social resources to achieve collaborative governance in farmers centralized resettlement community.

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## Legal Protection of China's Personal Information Security in the Age of Big Data

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**Abstract** With the advent of the age of big data and high-speed development of sharing economy and AI industry, industry upgrading is increasingly dependent on the support of big data as the core of personal information. Meanwhile, China's personal information leakage is getting more and more serious and personal information security is faced up to severe challenges. In fact, professional legislation on China's personal information protection makes slow progress, legal protection of personal information is principle oriented and relevant supporting protective measures are defective. Under the background that Chinese citizens and industries have a weak awareness of personal information protection, China should apply a state uniform legislation leading mode, strengthen personal information protection combining with industry self-regulation mode, formulate "Personal Information Protection Law", establish and improve obligate relief system to guarantee personal information security.

**Key words** Big data, Personal information, Formation security

### 1 Definition of age of big data and personal information

#### 1.1 Definition of age of big data

So far, big data has not been uniformly defined yet. According to the definition of big data in Wikipedia, big data is a term for data sets that are so large or complex that traditional data processing application software is inadequate to capture, manage, analyze, and process them into positive information helpful for enterprise's operating decision<sup>[1]</sup>.

In my opinion, the age of big data refers to an age when new cognition is acquired and new value is created by quickly capturing, processing and analyzing various mass data by means of cloud computing. In the age of big data, the artificial intelligence industry develops rapidly, and the upgrading of more and more industries depends on the support of big data with personal information as the core. Personal information collected and processed in various ways increases explosively, and personal information also flows faster and faster.

#### 1.2 Definition of personal information

The problem of personal information security protection is an outcome of the development of modern society, and, with the development of society and science, its connotation becomes more and more abundant, and its extension becomes wider and wider, so that personal information is not limited to in a certain field or a certain physical recording medium any more. Presently, the widely used words related to personal information include personal privacy, personal data and personal information, and so on. As far as I am concerned, either personal privacy or personal data is contained by the concept of personal information, and personal information is not limited to privacy or a certain recording medium in modern times. Professor Zhou Han-hua believed that "the difference in concept is mainly caused by different legal traditions and using habits, which essentially doesn't affect the contents of the law."<sup>[2]</sup> The term of personal information is more suitable for the social development direction in the age of big data, and the social life situation in China. Personal information refers to all information related to all materials and data of an individual based on which the individual can be directly or indirectly identified, covering physiology, mentality, intelligence, individual, society, culture and family<sup>[3]</sup>.

Some scholars insisted that personal information should be classified into three types: general personal information, important personal information and key personal information.<sup>[4]</sup> General personal information, also referred to as public information, means basic information on personal identity and property that is publicly available, say, via the Internet, including name, age, gender, place of birth, occupation, and so on. For example, with published papers, the name, gender, age, employer and research contents of the writer also are disclosed. General personal information is available and

accessible to any one legally, and no illegally acquiring behavior will be caused. Important personal information refers to information on personal identity and property required in a specific circumstance and situation of a small scope. For example, the following information is required for handling related affairs with financing institutions such as bank, including contact information, home address, ID card number, credit card number, and so on. Important personal information is available and accessible with the permission of information owner. Key personal information refers to important information related to personal safety and property security of a natural person that cannot be obtained in ordinary way or the natural person is unwilling to disclose, such as bank card password, online transaction record, and so on. For such information, the information owner will take certain measures for protection from time to time. General people are prohibited to acquire and use key personal information.

## **2 Situation of personal information security in China in the age of big data**

Big data induces application of new technology, and our lifestyle is changing unprecedentedly. Meanwhile, the problem of personal information disclosure in China is becoming increasingly severe.

In 2015, 30 units engaged in protection of consumer's rights jointly published the Report on the Status of Personal Information Protection in the Age of Big Data, which indicates that 52% respondents believe that personal information is disclosed, 40% don't believe disclosure of personal information, and 8% have no idea about it. About the question of "which personal information is disclosed most frequently", the survey shows that personal contact information, personal identity information and personal consumption information rank top three by the percentages of 33%, 28% and 20% respectively<sup>[5]</sup>.

In 2016, the Personal Information Security and Privacy Protection in China was published on the basis of more than 1 million questionnaires, which reflects the severity of personal information disclosure in China in the form of big data. 72% respondents consider that personal information is severely disclosed in China. In a month, 80% respondents received crank call, and 74% respondents received harassing text message, respectively. Up to 81% respondents received crank call from persons who knew their name or employer or such personal information, and they didn't know how their personal information was disclosed. 55% respondents never marked the usage of photocopy of personal documentation submitted to the competent authority<sup>[6]</sup>.

I searched the China Judgments Online with "personal information" and "internet fraud" as key words in November of 2016, and the results show that the number of cases related to personal information security from 2013 to 2015 reached 100, including 18 civil cases and 82 criminal cases, and the caseload took on a year-by-year increase trend.

The information above all reflects that personal information is severely disclosed in China in the age of big data, and the situation of personal information security is not optimistic.

## **3 Current situation of legal protection of personal information in China**

### **3.1 Protection of personal information by public law**

In 2003, the Act on the Protection of Personal Information (Expert Proposal) was drafted. The Expert Proposal was submitted in 2005, which marked that the legislative procedure of the first act on the protection of personal information was formally started in China<sup>[7]</sup>. The content of the Proposal mainly places emphasis on remedial protection by administrative law and criminal law. In the Amendment to Criminal Law (VII) adopted in February 2009, "the crime of selling and illegally providing personal information for citizens" and "the crime of illegal access to personal information of citizens" were increased. "The crime of illegal access to personal information of citizens" also was applied in juridical practice, for which measurement of proper penalty should be performed by criminal law. This suggests that personal information infringement has reached a serious stage. Besides, punishment is usually imposed in serious circumstances or on criminal behaviors having caused great harm. This indicates that personal information is being under tight protection. By the administrative law, administrative organs will become a natural carrier of personal information in many circumstances, who get mass personal information and data. In addition, the implementation of many administrative measures is based on the usage and alteration of personal information. Thus, it becomes necessary to

control and manage the personal information in the possession of such organs. If personal information security is violated, people's normal life will be disturbed, and the normal social order also will be disturbed. Under such circumstance, appropriate intervention with administrative means becomes rational and necessary.

### **3.2 Private law relief of personal information**

The handling of personal information, especially the handling of personal information by various non-public sections, relates to a personal relationship between such sections and the owner of the personal information, which essentially is a civil relationship between two equal parties<sup>[8]</sup>. Thus, private law relief appears to be particularly important.

#### **3.2.1 Protection of personal information by the General Rules of Civil Law**

In the General Rules of Civil Law, clauses related to "personal information protection" have been added, which provide that "personal information of natural person shall receive legal protection. Any organization or individual shall neither illegally collect, utilize, process and transmit personal information, nor illegally provide, disclose or sell personal information". The addition of the clauses related to personal information protection to the General Rules of Civil Law has defined the ownership of personal information, and emphasized that information is also personal property of an individual, and individual has the right to dominate it, which marks a great progress of China's civil law.

#### **3.2.2 Protection of personal information by the Law on Protection of the Rights and Interests of Consumers**

Article 29 of the Law on Protection of the Rights and Interests of Consumers makes provision for the protection of personal information. It provides the requirements that operators shall abide by while collecting and utilizing personal information of consumers; regulation that operators and their workers shall keep confidential of the collected personal information; operators shall take proper measures to ensure information security and shall not send any commercial information to consumers without the consent of consumers or if the consumers have explicitly expressed refusal.

#### **3.2.3 Protection of personal information by the Network Security Law**

On June 1, 2017, the Network Security Law was enforced formally, by which the existing effective system has been turned into law, and new security protection system and legal liabilities have been established. For example, Article 45 provides that the department and workers liable for network security supervision and management according to law shall strictly keep confidential of and shall not disclose, sell or illegally provide any personal information, privacy and business secret learned from during execution of duty; Articles 59 to 75 provide the legal liabilities of network operator, stipulating that any network operator who fails to protect personal information of citizens according to law will be imposed a fine of RMB500,000 at most, and a punishment of suspending business for rectification, shutting down website, revocation of related business operation permit, or cancellation of business license.

#### **3.2.4 Protection of personal information by the Tort Law of China**

In the Tort Law of China enforced in July 2010, privacy right is taken as an independent personality right in juxtaposition with portraiture right, right of reputation, and right of name, but the independent legal status of the right to personal information fails to be established. Besides, I consider even though the legal status of independent personality right has been established by the privacy right that is similar to the right to personal information, it is just to define the privacy right in legal form.

#### **3.2.5 Protection of personal information by other relevant laws**

In addition, the Law of the People's Republic of China on the Protection of Rights and Interests of Women, the Law of the People's Republic of China on the Protection of Minors, and the Civil Procedure Law of the People's Republic of China also contain principles on the protection of personal privacy of special groups, but there lacks corresponding operational rules.

It is thus clear that, on one hand, the laws and regulations on the protection of personal information are insufficient in China, so that the protection of personal information is just mentioned in some rules, and such rules are of weak effect; on the other hand, the connotation and extension of personal information fail to be defined and specified, and the concept of "personal information" varies from law to law.

## **4 Approaches of legal protection of personal information in China**

### **4.1 Selection of legislative mode**

America adopts the mode of combining industrial self-discipline with multi-legislative model in special fields for the protection of personal information. This mode is mainly intended to limit the rights of the government, give more autonomous rights to enterprises, and enable industry associations to establish their own code of conduct to provide guidance and example for industry development<sup>[9]</sup>. But America's legislative mode for the protection of personal information is not applicable for China, because there is no uniform standard on industrial self-discipline, and the codes of conduct established by industry associations also are on various levels. Most of China's laws and regulations are enacted in the uniform mode, which is more applicable for the competent authorities to protect and supervise personal information. Besides, America started early in taking measures for the protection of personal information, and American people have a strong sense of personal information protection, so the industrial self-discipline mode has achieved a sound development. Comparatively, China just started in taking measures for the protection of personal information, there are no relevant sound law and regulation, and the sense of Chinese people and industries of personal information protection is still weak. Thus, America's industrial self-discipline mode obviously is not applicable for China's current situation. Hence, I insist that the uniform legislative mode dominated by the country should be adopted for the protection of personal information, and industrial self-discipline can effectively make up the vulnerability and lag of the unified national legislation, because the uniform legislative mode and industrial self-discipline can mutually promote each other.

### **4.2 Enactment of act on the protection of personal information**

The General Rules of Civil Law is the first law in which the civil right status of the right to personal information is established, but its contents on the rights and obligations of related parties and liability relief system are not complete. In 2005, the Act on the Protection of Personal Information (Expert Proposal) was finished, but has not been formally enacted up to this day. The protection of personal information by civil law is basic. To put personal information under comprehensive protection, it is necessary to enact an Act on the Protection of Personal Information based on civil legislation. I think China's Act on the Protection of Personal Information should follow three legislative principles: public collection, benefit balance, and acting on international convention.

The principle of public collection refers to making public the situations of collection and utilization of personal information for guaranteeing the right for knowledge of information owner. Enterprises and the government should inform the information owner of the purpose and scope of application of information while collecting personal information.

The principle of benefit balance is for balancing the protection of personal information and industrial development, and harmonizing the protection of personal information with free information flow. Under the background of big data, personal information inevitably flows rapidly. The enactment of the Act on the Protection of Personal Information should be intended to put personal information under effective protection, rather than create barriers to hinder the free and legal flow of personal information. Meanwhile, it also should be clear that the protection of personal information and industrial development mutually promote and react with each other, both of which should not be ignored.

The principle of acting on international convention refers to that China should draw on the experience of other countries in legislation in the protection of personal information in the modern times when international communication becomes increasingly frequent and international cooperation becomes increasingly deep, so as to comply with the international requirements based on the national conditions of China.

### **4.3 Establishment of a sound liability relief system**

As mentioned above, personal information is classified into general personal information, important personal information and key personal information. On this basis, the utilization of personal information is classified into non-hazardous utilization (Class I utilization), slightly hazardous utilization (Class II utilization), and hazardous utilization (Class III utilization). User of personal

information should evaluate the usage of personal information first. If the usage is expected to be Class I utilization, the user may directly make use of personal information; if the usage is expected to be Class II utilization, certain protective measures should be taken for the personal information to be utilized; if the usage is expected to be Class III utilization, then the utilization should be evaluated, and measures should be taken to prevent or alleviate risks.

If any personal information is disclosed or infringed for reasons attributable to the user due to failure to evaluate the utilization of personal information or take proper protective measures after evaluation, the user shall bear legal liabilities therefor and make compensations. In the case that any one sells, illegally provides or illegally obtains personal information (important personal information and key personal information), and the infringer earns profits therefrom and the loss to the infringed is hard to recognized, a compensation equivalent to double of the profits or above earned by the infringer shall be made.

## 5 Conclusions

Under the background of big data era, with the high-speed development of science and technology, there constantly emerge new events of impacting traditional legal limits. Behind Xu Yu-yu and other precis-targeting telecom fraud cases, we can see some new changes of traditional crimes. This kind of precis-targeting frauds are getting easier with the help of science and technologies. Various precis-targeting personal information have been packaged for selling again and again. Personal information are exposed to everywhere due to different technical methods, the essential reason of which is because of the lack of effective legal protection for personal information. Therefore, it is necessary to consummate laws and regulations and supporting protective measures, improve legal system of personal information protection and comprehensively guarantee personal information security.

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## Research on the PPP Coordination under the Logic of Stakeholders

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**Abstract** The coordination of interest within the PPP model is the focus of the government and social capital as well as the foundation for long-term and stable cooperation between the government and social capital. Based on the *Stakeholder Theory*, at first, this paper analyzes relationship among these stakeholders within the PPP model and conflict of potential interest. Then, further interpretation is given on practical problems in interest coordination within the PPP model, and a feasible suggestion is put forward.

**Key words** PPP, Stakeholders, Interest coordination

### 1 Stakeholders and PPP

The *Stakeholder Theory* was introduced by Freeman in 1984, meaning a kind of management in business activities, of which the intention is to balance the interests of various stakeholders, in pursuit of the whole interests of the stakeholders rather than the interests of certain subjects.<sup>[1]</sup>

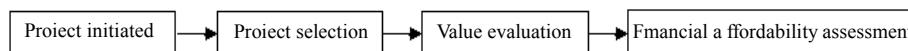
Public-private partnership (PPP), is a relationship in which via signing a long-term contract with the private sector, the public administrative departments construct and manage infrastructure in a comprehensive way to provide public services to the public through private sector.<sup>[2]</sup> Up to now, there is no consistent definition for PPP model, however, such key points as the provision of public goods or services, public-private cooperation, risk sharing, benefit sharing can be concluded.<sup>[3]</sup> PPP model is defined in broad sense and narrow sense. Based on public service improvement, the former refers to a certain kind of formal cooperation between volunteers and enterprises or local government officials. According to current situation in China, the basis for PPP model to develop is continuous improvement of socialist market economic system. In turn, the development of PPP model innovates the management mode of public services and investment and financing system. The latter indicates a new system, a project financing form, in which services and goods are co-produced and co-provided by private sector and public sector. Subsidy, franchise and contract are consistent with it.<sup>[4]</sup> Introducing PPT into infrastructure construction and public services is crucial to mobilize social capital investment and promote social management innovation. At the end of 2014, *Guidance on Encouragement from the Investment and Financing Mechanisms in Key Areas of Innovation to Social Investment* ([2014]60 The State Council) asked that based on the requirements to strategic adjustment of economic structure, the development and construction of weak links must be strengthened in order to promote healthy, good and sustainable development of economy. Therefore, what is urgent is to innovate the investment and financing system in infrastructure, ecological construction, resources and environment and public service, fully demonstrating the leading role of social capital, especially private capital. All levels of governments entirely respond to and promote PPP. By the end of May of 2017, there are 13,132 stored projects under the cooperation between Ministry of Finance and social capital with a sum of 15,849,200 yuan.

General speaking, there are five stages in PPP projects, falling into identification, preparation, procurement, execution and transfer. (Figure 1) The whole implementation of the project forms sophisticated subjective relationship. These subjects are actually stakeholders, mainly from governments (public administrative departments) and private investors. The former is administrative body with state power, including departments and organizations with administrative authorization, covering many functional departments. The latter is non-public organization in public-private partnership, in other words, private investors, which are private subject in partnership.

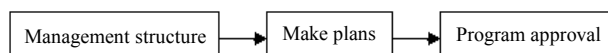
The common demands of multiple interest subjects are bound to affect the success of PPP operation. Such demands are complex power relations involving many subjects as well as collective selection process from stakeholders as well as a cooperation and interaction process between individuals and organizations who have direct or indirect interest association with conditions and

requirements of successful project implementation, needing stakeholders to consult mutually, enhance consensus, eliminate differences, collaborate and interact to solve practical problems.

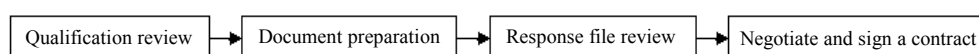
Step 1 Project identification



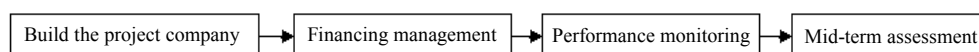
Step 2 Project preparation



Step 3 Project procurement



Step 4 Project implementation



Step 4 Project transfer

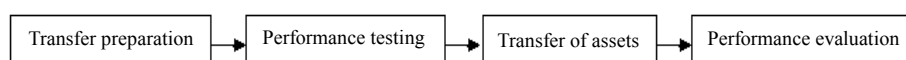


Figure 1 Five stages of PPP

## 2 The conflicts of PPP interest under the logic of stakeholders

Coordination of multiple parties in PPP is the focus of governments and social capital as well as the basis for long-term, stable cooperation between government and social capital. The core of stakeholder logic is to operate PPP smoothly.

As many participants are involved in PPP, and there is some uncertainty, it is inevitable to face the conflicts and coordination of interest. Analysis on the relationship among interest subjects leads to a summary of following types of interest conflict:

### 2.1 Interest conflict between governments and investors

In PPP, due to the involvement of social capital, participation of multiple subjects brings about the innovation of social governance. However, there then come problems of cooperation and coordination and interest sharing between investors and governments. The concern for investors is to achieve maximum profits based on this project. However, the main focuses for governments are public interest and possible social efficiency after the implementation of PPP. Obviously, different goals certainly result in practical interest conflicts.

### 2.2 Interest conflict between investors and project managers

PPP generally requires the establishment of project companies in project construction site. The stakeholders come from governments and social investors. Excessive stakeholders and decentralization of equity structure directly cause such conflict. As a result, control power and ownership are separated. At the same time, some governments do not directly fund, but entrust a social capital company to replace them to do so. In order to realize professional project management, the party of social capital may raise the question of principal-agent, which causes the interest conflict between investors and project managers.

### 2.3 Interest conflict between investors and contractors in terms of principal-agent

Substantially, the relationship between contractors and investors is a kind of principal-agent. As principals, investors sign explicit contract with contractors and entrust them to complete relevant tasks

at a specific stage on the basis of limited resource. As agents, contractors must fulfill the contract. However, uncertain environment and asymmetric information result in many problems for the two parties when coordinating.

### 3 The problems of PPP coordination under the logic of stakeholders

In the implementation of PPP, the problems of coordination among stakeholders are as follows:

First, at the early stage of project implementation, governments and social capital do not reach a clear, specific common goal and value orientation. The objective of governments is to innovate the way and mechanism to provide public services.<sup>[5]</sup> However, usually, the obtainment of profits is the ultimate purpose of companies. In order to achieve this goal, they tend to reduce costs and increase gains. It can be seen that there is fundamental distinction on the goal settings for the two parties. Hence, if the two parties do not reach consensus at the early stage of the implementation, equal and efficient communication is hardly built in project construction and management, then, the problems of corresponding coordination arise.

Second, governments and social capital do not reach consensus in terms of the principle of management and the implementation. When the project is under the construction, such risks as the progress of construction, quality and costs should be undertaken by social capital or project companies. Based on the PPP projects contract and relevant regulations, governments and their responsible organizations supervise the fulfilment of the PPP projects construction responsibility by the social capital or the project companies.<sup>[6]</sup> If the agreement on the control of contract is not achieved, there must be a coordination problem between the supervision of governments and the construction implementation of social capital. Therefore, the project may be deferred or terminated.

Third, governments have preference for the sectors, thus, the investment of private capital in all fields cannot be raised up comprehensively, of which results are the decrease of investment initiative of some sectors and the imbalance of public services provision. According to data issued by Ministry of Finance and the Cooperation Centre of Social Capital: by the end of the May of 2017, there are 13,132 PPT projects under the cooperation between Ministry of Finance and social capital, among which there are 4608 PPP projects in municipal engineering, accounting for 35% of all PPP projects, 1658 PPP projects in transportation, accounting for 13%, only 28 projects in forestry, and 111 projects in social security, accounting for only 0.2% and 0.85% respectively. It has been shown that PPP projects in municipal engineering and transportation occupy a greater proportion, while the proportion in agriculture, forestry, social security and other industries is smaller. Therefore, governments should lead appropriately to ensure the completion of PPP projects in municipal and transportation with sufficient quantity and high quality. At the same time, the concern on social capital such as agriculture, forestry, social security should also be enhanced. With the promotion by the general policy, the interest of social capital can be boosted by using patronage in different sectors. The data are shown in the Table 1:

**Table 1 PPP projects industry statistics**

Industry	Projects in entire China	Projects in Sichuan Province	Ratio of each industry in Sichuan(%)	Occupation of projects in Sichuan compared with entire China(%)
Energy	211	15	1.66	7.11
Transportation	1658	158	17.48	9.53
Water conservancy	619	27	2.99	4.36
Ecological construction and environment protection	788	35	3.87	4.44
Agriculture	134	6	0.66	4.48
Forestry	28	0	0	0
Technology	153	0	0	0
Housing securing	551	65	7.19	11.80
Health care	561	40	4.42	7.13
Pension	303	21	2.32	6.93
Education	621	61	6.75	9.82



Industry	Projects in entire China	Projects in Sichuan Province	Ratio of each industry in Sichuan(%)	Occupation of projects in Sichuan compared with entire China(%)
Culture	392	15	1.66	3.83
P.E.	233	15	1.66	6.44
Municipal construction	4608	344	38.05	7.47
Infrastructure	247	9	1.00	3.64
Comprehensive development in urban and rural areas	789	68	7.52	8.62
Tourism	809	8	0.88	0.99
Social insurance	111	3	0.33	2.70
Others	316	14	1.55	4.43

Fourth, complete trust between governments and social capital cannot be realized as well as the commitment of efficient cooperation. Some scholars believe that the high uncertainty and complexity of structural arrangements aggravate the difficulties of the success of PPP projects. In order to guarantee the success of PPP projects, the partnership and collaboration between the government and its partners should be improved. Moreover, the proportion of risk sharing should be distributed rationally, and scientific financial plans are supposed to set up. AUSTIN introduced 7 “C” of successful PPP projects cooperation, which are respectively the aim of clarity, the concept of harmony, strategy and congruency, the creation of value, connection between services subjects and prospect, communication among partners, continual study and commitment for partnership.<sup>[7]</sup> Due to incompleteness of explicit contract, the governance of the relationship among project stakeholders is not advised to entirely rely on the signed PPP projects contract. More important is to build connection on the basis of trust, which is also the most essential but difficult to realize in PPP projects management.

#### 4 Analysis on the reasons for interest conflicts

Reasons for interest conflicts are as follows:

First, the restriction of environment. As China is being at the stage of transformation currently, affected by many factors (such as term responsibility assessment, mechanism and system), preparation for the implementation of PPP is not accomplished by all levels of governments from Central government to local governments. Issues like the crucial reform of the government function, the cultivation of the subjects of the public service, and the corresponding laws and regulations, service standards, the establishment of the supervision and evaluation mechanism are still at the initial and exploratory stage.

Second, obscure orientation of the government role. As it has been at the leading role for a long time, the government is bound to come into conflict with social capital in PPP. As the planner, initiator, purchaser, guarantor and supervisor of the PPP projects, governments should play different roles at corresponding stages.

Third, lack of sophisticated screening mechanism for social capital inside the government. When it chooses social capital, it intends to impose restrictive conditions and require too much for qualification, both of which impede the access of social capital in some sectors.

Fourth, PPP projects tend to be long in the period of negotiation, interest return and have vast costs, therefore, continuous supervision is weak.

#### 5 Solutions and suggestion

When governments cooperate with social capital, the premise of interest coordination is efficient communication. According to Habermas, in order to realize efficient communication, the below must be involved. (1) Understandable standard, that is to say, the interpreter must make the description understood accurately by using expression that the other party can understand. (2) Authenticity standard, that is, the content of description must be authentic; (3) Sincereness standard, that is, the interpreter must express in faith so that receivers believe what the interpreter talks about is believable;

(4) Validity standard, that is, what the interpreter describes must be a certain kind of accurate expression.<sup>[8]</sup> With the deepening of the relationship between the governments and social capital, the coordination among stakeholders becomes more and more important, directly related to the smooth implementation of PPP projects. To sum up, there are following suggestion.

First, improving explicit contract continuously and setting up risk sharing mechanism. As PPP projects involve multiple participants, there are more uncertain factors. Signing explicit contract ensures that before the construction of project, each party is able to clarify their own rights and responsibility, and allocate potential gains and risks. Once contractual risks occur, explicit contract can be referred. If necessary, based on the written clauses, application for the mandatory operation of the third party (such as court) can be handed in. At the initial stage of approval of project, governments and social capital restrict mutual performance and lower potential risks for the two parties through explicit contract. Governments need to consider risk for social capital from many aspects like financing and management. Furthermore, governments need to continue improving explicit contract and take precautions for dynamic risk.

Second, focusing on management and establishing a platform for communication and mutual sharing. Once PPP projects start, contacts between private sectors and government authorities tend to normalize. At that time, communication in the contacts of the two parties is very important. Efficient communication propels sound development among organizations, otherwise, their relationship will be undermined. For example, at home, there is an official way of thinking. As a result, bad attitude of public sectors leads to psychological imbalance in social capital party, which may damage the relationship. Hence, society and governments must build a scheme successfully, in which information can be conveyed directly, smoothly and shared mutually to make sure that mutual information can be transmitted accurately and timely, and problems can be resolved immediately through timely communication.

Third, deepening mutual trust constantly and pursuing for mutual benefits and win-win. Compared with developed countries, the credit system in China is not perfect. When governments choose social capital, there is a lack of complete examining and evaluation system. Consequently, governments should deepen mutual trust when cooperating with social capital. If risk occurs, starting from the organization goal, they should solve problems together.

Fourth, strengthening the disclosure of information and social supervision. Except increasing government supervision in PPP, the third party, an evaluation and supervision organization, can also be introduced. Based on PPP projects platform, disclosing the information of project compulsorily can not only consider the interest demands of relevant stakeholders, but enhance the transparency of operation of projects against the possibility of the formation of corruption.

## 6 Conclusions

With the urbanization progressing in China, PPP model has been widely adopted in the project construction of public infrastructure. However, many projects fail. In consequence, this paper advises that at first, what should be clarified is that governments and enterprises who have participated in and reached consensus should follow understandable standard, authenticity standard, sincerity standard, validity standard; then, the two parties should build consistent objectives and value system, and establish clear rules and regulations; At last, they should actively maintain cooperation in the spirit of contract and credit mechanism. Through such kind of process of communication, it is beneficial to facilitate two parties realizing their own duty so as to better uphold cooperation spirit and promote the establishment and operation of public-private cooperation project jointly.

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## Review on Basic Public Cultural Services in China \*

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**Abstract** Basic public cultural services is becoming a hot topic of concern in social and economic life in recent years. The 13th Five-Year Plan for Economic and Social Development of the People's Republic of China also clearly pointed out that to build a modern public cultural service system. As one of the important components of the public service system, the basic public cultural service is conducive to the realization and protection of all citizens' cultural rights and interests. The paper summarizes relation research results from 2005 to 2015 by Chinese scholars ,reviews from the concept, content, theory origin and evaluation, and aims to provide beneficial reference for the next step to establish a scientific system of public cultural services.

**Key words** Basic public services, Public cultural, Service, Research review

### 1 Introduction

Our country is in a period of vigorous development of building a harmonious society, with the continuous improvement of material life level at present. Culture is increasingly becoming an important support for economic and social development. People are also increasingly eager to enjoy a rich and diverse cultural life. "13th Five-Year" plan explicitly proposed to promote cultural undertakings and cultural industries two-wheel driven and construct a modern public cultural service system to provide all the people vigorous, colorful, spiritual sustenance. It has great significance for promoting a harmonious society ,creating a sustainable modern system of public cultural services and to do a smooth joint between service and the public demand and improve the level of regional basic public cultural service ability. Based on the "basic public cultural services", "public cultural services" for the keywords, the paper collected in the CNKI from 2005 to 2015 of the relevant research literature and summarized the past research achievements of basic public cultural services from the concept, contents, theoretical sources and evaluation.

### 2 Concept of basic public cultural services

Now the research of basic public cultural service has made many achievements, but scholars haven't reached a consensus about the concept of basic public cultural service. To understand the concept of basic public cultural service, we should first define the concept of public cultural service, and then explore the relationship between them.

#### 2.1 Study about concept of public cultural services

As an important part of public services, public cultural services has positive externalities.It's provides public cultural products and services to promote the dissemination of mainstream ideology, enrich and improve people's spiritual life. Scholars study the concept mainly around the following three aspects: from the standpoint of public goods, public cultural services is a configuration of cultural resources for the society to provide the non-rival and non-exclusive cultural products and services in the non-profit activities. According to the public welfare level and whether is competitive and exclusiveness of public cultural services, Some scholars divided into pure public welfare, limited competitive and limited exclusive public cultural goods and services (Zhou Xiao-li and Mao Shou-Long, 2008<sup>[1]</sup>). Resources Shared and available highlight the publicness and public welfare characteristics of public cultural services. Scholars From the supply perspective emphasize the trend of

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diversification of public cultural services supply. Based on government responsibility and the functions of the government many scholars point out that the government is the main provider of public cultural services. Qi Yong-Feng considers that it is different from for-profit cultural industry, the public cultural service as a government behavior (Qi Yong-Feng and Li Ping-Fan, 2012<sup>[2]</sup>). Government provide or produce of public cultural products and services. Also some scholars discussed the necessity of nongovernmental organizations in public cultural services from two aspects of government failure and market failure. From the perspective of civil rights perspective, scholars emphasize that the public cultural service is of great significance to guarantee and realize citizens' cultural rights and interests. Public cultural services adhere to the principle of universality, and the essence is to realize people's basic cultural rights and interests and to ensure that everyone has the right to enjoy public cultural services.

## 2.2 Study about concept of basic public cultural services

With the deepening reform of cultural system, basic public cultural services has gradually become a hot issue of concern in academic area, but the concept of basic public cultural services have not yet mature concept definition. Scholars research the concept mainly from two aspects—public economics and cultural rights and interests.

From the perspective of public economics, scholars have discussed the basic public cultural services which has non-competitive and non-exclusive characteristics. Such as Wang Luo-zhong , he thinks that is the highest of public cultural services in the “purity”, and the change of per unit will be multiplied by the “multiplier effect” of the total service effect, and it can meet people in the low level of public cultural services with no differences of consumer demand (Wang Luo-zhong and Li Fan, 2013<sup>[3]</sup>). Qi Shu-Yu , moreover, points out the basic public cultural services should be generally adapt to the economic, social and cultural development level, roughly equal and adapt to the demand of the people's basic cultural public cultural services (Qi Shu-yu and Cao Wei, 2015<sup>[4]</sup>). From the point of cultural rights and interests, some scholars think that the standard of basic public cultural services is to match with minimum average cultural rights and interests of citizens. In the existing service ability and culture resource of affordable, we should carry out the cultural infrastructure construction, system construction and provide products and services and other activities (Chen Hao-lin, 2015<sup>[5]</sup>). It clearly emphasizes that the basic of public cultural services should meet the demand of the public culture, maintain and ensure the basic cultural rights and interests of citizens.

Public service covers medical, health, social security, education, culture and many other fields. But in different periods of development, the scope and standards of basic public services are different. The 12th Five-Year plan has incorporated public cultural services into the scope of basic public services. Whether it is a public cultural service or basic public cultural services, both private organizations and non-profit organizations to emphasize the cooperation in various cultural needs of the public attention based on the government's public sector, according to the needs of supply, expanding the service carrier and provide a rich and diverse public cultural products and services.

## 3 Content of basic public cultural services

Due to the impact of basic public cultural service level by the national, regional economic development level, educational level and other factors, the content of the different areas to provide basic public cultural services also has certain differences.

Many scholars put forward to build a system of basic public cultural services, as a safeguard of the rights on macroscopic system arrangement, considering the diversity of cultural needs and the differences of regional development. Ke Ping built a system of basic public cultural services including basic public cultural security system, basic public cultural organization management system and evaluation system (Ke Ping, Zhu Ming and He Ying-fang, 2015<sup>[6]</sup>). The system not only pays attention to the integration of internal elements, covering the process of basic public cultural services, but also emphasizes the coordination of external circumstance. The system of basic public cultural services is a unified and complete system which including specific services facilities and all kinds of products, policies, institutional guarantee, talent, money and technology and service faith. Also some scholars study specific services provided by the basic public cultural services, at the same time the government

has introduced the basic guidelines for public cultural services. Due to the regional actual development is uneven, the specific content of the basic public cultural services should be taken to render in a dynamic way. Zhu Hai-min puts watching TV, listening to the radio, reading books and newspapers, participating in public cultural activities and cultural appreciations as the basic requirements of the content of the basic public cultural services. According to the level of development in various areas and situation, a higher level of demand can take “six plus N” way to meet, which including movies, performances, networking, fitness, etc.( Zhu Hai-min, 2014<sup>[7]</sup>). In addition, some scholars from micro-level analyze and point out the outstanding achievements of Chinese traditional culture is the essence of culture; A democratic and scientific elements in the modern western culture and the pursuit of cultural spirit are the existence of the state; To the masses as the main part of the public cultural system is the realization of culture ; Planning, design, and determinated-type system culture is the power of culture.

What the basic public cultural services should offer is to face the world, face modernization and face the future. It is a national, scientific and popular socialist culture. Not only the extension of traditional culture, the inheritance of national culture, but also the protection and development of local culture. In the initial establishment of the basic public cultural service system, we need to constantly enrich the content of services, expand the service carrier, and make the basic public cultural services widely benefit the people.

#### **4 Theoretical foundation of basic public cultural services**

Studying the theory of basic public cultural services contributes to a more comprehensive understanding the theory for citizens to enjoy basic public cultural services and guide the practice of basic public cultural services activities. It mainly based on the new public service theory, public goods theory, etc.

##### **4.1 The new public service theory**

The new public service theory pays more attention to democratic values, advocates the pursuit of public interest and attaches great importance to the citizenship. It Highlights the governance system centered on citizen and government service function, and the government positioning is not the paddle or at the helm, but the service. As one of the government basic functions, public service involves in all areas.

##### **4.2 Public goods theory**

Public goods theory points out that the public goods is different from personal belongings, and it is for all members enjoy together. Public goods strictly have characteristics of non-exclusive to access and non-competitive to use. As a kind of “purity” of the highest public cultural services, Wang Luo-zhong thinks that basic public cultural services is not exclusive, competition and has the characteristics of strong surplus, so the government needs to provide services to the public to fulfill its duties (Wang Luo-zhong and Li Fan, 2013<sup>[3]</sup>).

##### **4.3 Other theories**

In information society, there are some differences of mastering and understanding degree about relevant information among people which are in different classes and different professions. And we master the information more fully often more beneficial. Digital inequality theory points out information differentiation, the digital dividing and digital inequality will directly affect the equal basic public cultural services in our country, resulting in region and group differences. On the other hand unequal service will add to the information differentiation and the digital divide (Chen Xin , Zou Jin-hui and Ke Lan-xin, 2015<sup>[8]</sup>). We recognize and follow *The Universal Declaration of Human Rights* involved in the various rights and freedoms, including all have rights to enjoy economic, social and cultural aspects of their own development needs .It means that the citizen culture rights become the important part of basic citizen rights and increasingly caught the attention of countries.

#### **5 Evaluation of basic public cultural services**

Scholars mainly use the indicators from different sides for integrated evaluation of the basic public cultural services in regional perspective, but at present, the academia has not yet formed a more

mature and with Chinese characteristic performance evaluation system of public cultural services. This article mainly studies from the perspective of the area, evaluation principles to summarize researches.

### 5.1 Perspectives of basic public cultural services evaluation

At present, the study of basic public cultural services evaluation is not yet mature and there is no authoritative evaluation index system and evaluation method. Evaluation of basic public cultural services is mainly the comparison between the provincial and urban and rural areas or case study. Scholars measure and compare basic public cultural services in the provincial resources distribution, service level, etc.

Some people selected several provinces (autonomous regions and municipalities) in the middle position of eastern, central and western provinces (autonomous regions and municipalities) as sample according to the GDP per Capita in 2008, using equalization coefficient and simple arithmetic average method to measure the level of basic public cultural services in China's eastern, central and western regions (Gu Jin-xi, Song Xian-long and Yu Ping, 2010<sup>[9]</sup>). Some scholars also selected the nine public cultural services, using the improved TOPSIS method from the input power, information power, benefit force in seven aspects and 36 secondary indicators to measure the public cultural services ability of country's 31 provinces, municipalities directly under the central government and autonomous regions. The comparison about provincial level of public cultural services and service capacity shows that the distribution of China's public cultural resources is uneven in space, and the level of service shows a decreasing trend in general from east to west; Many areas service condition is relatively backward and serious lack of the cultural resources, facilities, etc; Some provinces and regions service ability are disproportionate with its status of strong economic. Some scholars estimate urban and rural system of public cultural construction with equal level in Hebei province, and find the existing problems and point out that unbalanced operation mode of urban and rural public culture is the deep cause of the equalization. Also some scholars respectively choose Soochow, Taizhou, Suqian standing for the southern middle and north of Jiangsu, and compare to its culture and sports and media fiscal spending, public infrastructure pointing out the plight of the urban and rural equalization of public cultural services in Jiangsu province, putting forward suggestions for improvement from the financial input, regulations, rules, supply mode, talent team construction. And other scholars discussed the public cultural services of urban and rural integration. Public cultural services of urban and rural integration is to put the city and the country in the same system, integrating resources to ensure that the urban and rural residents can enjoy the same level of cultural products and services. Influenced by the development of urban and rural dual structure, the phenomenon of basic public cultural services in urban and rural areas is of polarization in our country. There is a large gap whether in the aspects of infrastructure, financial investment or in the public culture service policy. It is the necessary requirement of the urban and rural integration of public cultural services that achieving the comprehensive connectivity between urban and rural areas on the basis of equal basic public cultural service implementation.

As for the case study, scholars measure and evaluate a certain area present situation of basic public cultural services in many different ways. Such as Fang Biao-jun putting public libraries in Jiangsu Province as the breakthrough point, uses *Theil* index assessing the allocation of resources and services (Fang Biao-jun and Ding Hong, 2014<sup>[10]</sup>). Zhao Xin-feng and Wang Luo-zhong investigate public cultural institutions funds income, spending on public cultural institution and culture conditions nearly six years in A city in Hebei Province. After statistical analysis, they found that the level of products and services provided for citizens both in quality and quantity is quite different with the actual needs of urban and rural residents (Zhao Xin-feng and Wang Luo-zhong, 2013<sup>[11]</sup>). Tong Zhao taking Liaoning Province as an example joins some important measure indexes about the rural public culture service system construction in government performance evaluation in succession, through assigning points index, disintegrating task and inspecting periodically, so as to speed up the formation of the rural public cultural service system (Tong Zhao and Kang Er-ping, 2014<sup>[12]</sup>). The case study shows that the actual development situation and problems are different from region to region. Each region should adjust measures according to local conditions, analyzing specific issues, and improve

the ability by finding out the key of the problem in the range of affordable.

It is helpful for improving the system of basic public cultural services to find the problem and explore the improvement path based on empirical research in different parts in China. In fact unequal hidden behind the equal in form, so it is still need further research and practice about how to really implement the equal basic public cultural services in practice and narrow the gap between urban and rural areas.

### 5.2 Principles of basic public cultural services evaluation

Chinese scholars have their own different opinions on the basic public cultural services evaluation principles. Effectiveness principles mainly refers to the extent of the actual situation to imagine in advance. Li Shao-hui and Yu Jun-ping pointed out that adhering to people-oriented, the principle of incentive, objectivity and validity is beneficial to the transform government function and promote the interaction between the central government and local government (Li Shao-hui and Yu Jun-ping, 2009<sup>[13]</sup>). Scientific simplicity, availability, balance is one of the measure indicators. According to the principle of scientific, systematic, forward-looking and so on, Fu Li-ping comprehensively evaluates the urban public cultural services in theoretical analysis and expert investigation method (Fu Li-ping, He Yong-jun and Li Xiao-jing, 2013<sup>[14]</sup>). We should put problems on hold and support competition, through time and practice to verify, and adjust with the change of the situation, because within a certain time there is not exist a kind of theory or method which can adapt to all the system of public cultural services.

In addition, some other principles are also mentioned by the experts and scholars, such as feasibility, comparability, timeliness principle, systematic principle which means evaluation need be able to fully reflect the government public culture service.

## 6 Conclusions

Chinese scholars have done a series of studies on the concept, content and evaluation of basic public cultural services, but they have not yet formed a relatively mature system. Strengthening socialist cultural construction is the goal and task put forward by the party and the state in recent years. Adhere to the path of development of socialist culture Chinese characteristics, to meet the basic cultural needs of the people is the basic task of the construction of socialist culture. We must adhere to the government led, according to public welfare, basic, equal and convenient requirements, strengthen cultural infrastructure construction, improve the public cultural service network, so that the people enjoy free or preferential basic public cultural services.

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## Bibliometric Analysis on Domestic Big Data Governance

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**Abstract** The development of the times and big data, big data governance and modernization of national governance capacity have been deeply “inlaid” together, and the national governance capacity is changing in the situation of big data governance. Through the retrieval, we find out that our country has not carried out the quantification and the visualization analysis on the existing big data governance research. In this paper, the retrieval literature of the CNKI database is regarded as the data source. This paper will count and analyze the annual published articles number, the main authors, core research institutions, high frequency keywords in the domestic big data governance researches from 2010 to 2017. Finally, according to the results of bibliometric analysis, this paper will summarize the research status in the field of big data governance in China, and interprets the research hotspots. This paper also points out its future research trends in order to provide a meaningful reference for studying the future big data, the government and the social governance.

**Key words** Big data governance, Bibliometric, Research status, Research hotspots

### 1 Introduction

In 2011, Science launches a special “Dealing with data”, which discusses the challenges presented by Data Deluge<sup>[1]</sup>. If we can organize and use these data more effectively, people will get more opportunities to exert a huge promoting function of science and technology to social development. As a result, big data gradually arouses widespread attention and application in the scientific and technological field, the business field and the government, and the big data governance is the product of adapting the era of data on the basis of data governance. Since big data and big data governance together arouse the public’s intense discussion, as well as the national governance system and the modernization of national governance capacity. Yu Ke-ping<sup>[2]</sup> argues that the modernization of national governance system and governance capability is a new political concept. Big data is regarded as a national governance technology, and it is a positive governance resources and it provides an opportunity of comprehensively enhancing the national governance capability for the modernization of the national governance<sup>[3]</sup>.

Big data governance is still a new research and an application area, and there are few research results. Big data governance is essentially the data governance, which is a new stage in the development of data governance; methods of data governance also apply to big data governance. Taking into account the particularity of big data, we need to make appropriate adjustments in some aspects. Obviously, big data governance can’t be limited to the business field, and all the fields, departments, institutions in the era of big data should be included in big data governance.

The well-known expert Sunil Soares<sup>[4]</sup> publishing in his book “Big Data Governance” in October 2012 in data governance puts forward that big data governance is the continuation and expansion of the traditional information governance, which means that policies of data optimization, privacy protection and data realization related to big data. However, the scholar Zhang Shao-hua<sup>[5]</sup> in the country and other scholars believe that the definition of the big data governance given by Sunil Soares isn’t comprehensive enough and Sunil Soares doesn’t enhance big data governance to the height of the framework of the system; therefore, they give a more comprehensive definition on the basis of it: big data governance is a system framework that carries out the assessment, guidance and supervision on utilizing and governing the big data of the organization. Through developing the strategic principles, and establishing the organizational structure and determining a clear division of responsibilities, the risk control, security compliance, performance improvement and value creation of big data can be achieved and the constantly innovative big data services can be provided. Liang Zhi-ming<sup>[6]</sup> believes with the summary of different points of view that: big data governance is a behavior that different people or institutions in the era of big data use different technical tools to carry out the governance,

integration and analysis of big data to dig the value of big data, in order to cope with the various disturbances, difficulties and threats brought by big data.

According to the name of “Big Data and Bibliometrics” in the retrieval journals in the CNKI database, the search results are only 22 literatures. There are 9 and 3 retrieval journals with the name of “Big Data and knowledge map (Citespace)”. There is no literature with the name of “Big Data governance and Bibliometrics” (knowledge map or Citespace) in CNKI database. Therefore, it can be concluded that there are a small amount studies on big data and application from the perspective of bibliometrics and knowledge map in the current academic field. However, and there is no article which analyzes the domestic big data governance from the perspective of bibliometrics and knowledge map. Therefore, this paper hopes to fill the blank in the current domestic research, and from the perspective of knowledge map and the bibliometrics, this paper will carry out the the quantification and visualization analysis on the current domestic big data governance.

## 2 Data sources and research methods

This paper will regard the CNKI as the retrieval database, and the periodical retrieval conditions are set as follows: subject equals “big data” and “governance”, and time span equals the period from 2010 to 2017, and journal source equals core journals and CSSCI; exact match; retrieval time is in May 21<sup>th</sup>, 2017. Finally, there are 497 literatures that are retrieved, and 483 literatures are obtained by screening and eliminating useless news reports, comments and prefaces in periodicals.

This paper mainly uses the related tools and analysis methods of the bibliometrics. On the basis of statistics of annual published papers, main published writers, research institutions, this paper will grasp the research status of big data governance. By counting the high frequency keywords on big data governance, this paper further interprets the research hotspots and the research trends.

## 3 Research status analysis

### 3.1 Analysis on the annual published articles number

By using the method of bibliometrics to analyze the development procedure in a certain research field, the annual statistical analysis on the relevant papers can reveal the current development situation and forecast the research prospect and the developing trend [7]. Through the statistics on the annual numbers of the published literatures in the domestic big data governance from 2010 to 2017, we can clearly observe and analyze the current situation and the research process of big data governance in China. Through the statistics of all the annual published papers, it is found that the research literature on big data governance can be traced back to the earliest year 2010, and there is only one literature in the year. In 2011, there is no literature. In 2012, there are 4 literatures. The literature which is called “big data governance” first appears in 2013, and there are 10 relevant literatures in 2013. Until 2014 and after 2014, the domestic research on big data governance has developed into the period of rapid development, and the main performance is that there are rapidly increasing numbers of the published literatures. There are 52 numbers of the published literatures in 2014, and there are 155 literatures in 2015. There are 196 literatures in 2016. There are 79 literatures until May 21, 2017. The number of the relevant published literatures in 2017 is expected to surpass 200.

In short, the study of China’s big data governance can be summarized into three stages. The first stage is the embryonic stage from 2010 to 2013. This stage basically is in the early stage of exploration and it only has a few relevant research literatures. The second stage is the theoretical foundation and the exploratory period from 2014 to 2017. This stage takes the research literatures of exploring and demonstrating big data governance theory as the main literature, and the numbers of the published literatures are increasing after 2014, and it arouses a popular new wave of scholars’ researches. A number of theoretical explorations, the introduction and demonstrations to the mature theory are carried out by the academic field, especially the proposition of the big data, the national governance system and the national governance capacity. The third stage is expected in 2017 or later, and it will be the stage of the specific implementation and the application researches of big data governance. Scholars in this stage gradually pass through the early theoretical exploration and the demonstration stage, and they begin to shift to and increase the specific implementation and the deepening application

researches of big data governance.

Specifically, as for the research methods, the research literatures of the current big data governance is basically based on the qualitative researches, and there still are few quantitative and empirical researches. Next, as for the research content, the research literatures of the current big data governance is basically based on the theoretical values, and the construction and the exploration of the concept, mode, path and strategy of big data governance will be highlighted, and at the same time, and the specific implementation and the application researches of big data governance should be strengthened.

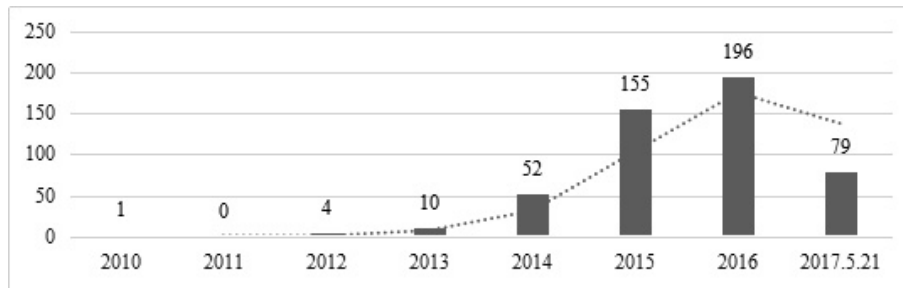


Figure 1 Statistics of annual numbers of the published literatures

### 3.2 Analysis of the main authors

The number of the published literatures represents the author's academic achievements and the size of his scientific research capacity to a certain extent, so it has an important meaning to the statistics of high-yield authors and their cooperation situations for grasping the research frontiers and the research trends in the field. We can learn about the output and cooperation of the major research authors about big data governance by using the CiteSpace 5.0 software, the detailed information is shown in Table 1.

Table 1 Output and cooperation of the major research authors

Author	Articles Number	Centrality	coauthor
Chen Tan	7	0	0
Huang Huang	4	0	0
Zeng Xiao-feng	3	0	0
Bao Zong-hao	3	0	0
Li Zhen	3	0	0
Liu Li-xiang	2	0.01	5
Zhang Li-yun	2	0.01	5

Through the statistics of the main authors of the domestic big data governance, we find that scholars in our country are still in the initial stage on research of the big data governance. there are 38 authors who publish more than two literatures, and the majority of other authors issue few literatures. Judging from the number of articles published, Chen Tan in Guangzhou University is the author that has published the most relevant literature, and the published literature number is 7. The second prolific author is Huang Huang, and the number of articles is 4. Zeng Xiao-feng, Bao Zong-hao and Li Zhen are tied in the third place, the number of articles were 3. Among the knowledge maps, centrality is a significant measure of the importance of an author in a cooperative network. From the centrality point of view, the centrality of most high-yield authors approaches zero, suggesting that there is little co-operation between high-yield authors and other authors in this field, and high yield authors do not play the role of lead and bridge. So, core authors and high-yielding author is not exactly the same. On the contrary, the centrality of some low-yield authors is not zero, indicating that these authors play a bridge role in this field. Such as Liu Li-xiang and Zhang Li-yun, their centrality is 0.01, indicating that they play a bridge role in their respective collaborative research teams. From the perspective of cooperation, most of the authors in this field are in an independent research state and have not cooperated with other authors. And the existing research team is also 2-5 small groups, and the number

of co-published articles is not large.

### 3.3 Analysis on core research institutions

The research institution is a specialized organization that conducts one or more disciplinary studies. By making the statistics of the number of the published literature in the research institutions, it is possible to grasp the institutions that have great influence on the research in this field so as to understand and grasp the research status and research trends of the main research institutions in the field. Using the CiteSpace 5.0 software, we get research outputs and cooperation of major research institutions in China about big data governance, and the details are shown in Table 2.

**Table 2 Major research institutions of big data governance**

Research institution	Articles	Centrality	Cooperative organization
Public Administration School of Guangzhou University	12	0	0
State Information Center	7	0	0
College of Public Administration, Huazhong University of Science and Technology	6	0	0
Tianjin Information Center	4	0	0
School of public administration, Tsinghua University	4	0	0
School of public affairs, Xiamen University	4	0	0
School of politics and public administration, Wuhan University	4	0	0
School of public administration, Renmin University of China	4	0	0
School of government management, Peking University	4	0	0
China Administration Society	3	0	0

At present, major research institutions in China is basically same with the high-yield author's institutions. There are the most number of the published literature on the domestic data governance in School of Public Administration in Guangzhou University, and the published articles' number is up to 12. Then National Information Center and Tsinghua University, School of Public Administration in Huazhong University of Science and Technology are followed by it, whose number of the published literature in these colleges is 4.

From the type of the research institutions, we can find that the researches on big data governance in China are mainly concentrated in the well-known colleges in China, which is closely related to the professional setting of colleges, the focus of research scholars and the reserve of the multi-level talents. It shows that colleges currently are more active in the field and these colleges play a main role. From the centrality point of view, the centrality of high-yield institutions are 0, indicating that the high-yield institutions in the field of research is not important, leading and the role of the bridge is not obvious. From the cooperation of the research institutions, there are a large number of institutions engaged in large data governance research, but the cooperation between institutions is relatively sparse, and only a few institutions have a cooperative relationship, which shows absolutely most of the institutions in the study are relatively independent and only a small number of institutions form cooperation. It can be concluded that the main research institutions in this field as a whole are in an independent state and the cooperative researches between the cross-school and cross-team research institutions should be strengthened and a breakthrough should be made.

### 4 Analysis on research hotspots and trends

The key word is the most direct expression of the content of a paper, which represents the academic thought content of a paper to a certain extent and which is a very important indicator of the researches of the number of the published literature<sup>[8]</sup>. Through the statistics of the frequent keywords, it is convenient to grasp the current research hotspots and the development trends in the field. At present, the distribution of the frequent keywords in the top 20 keywords of research the big data governance is shown in Table 3.

On the whole, the research hot topic of the current domestic big data is relatively concentrated and significant, and the "big data" word has the highest frequency, which is up to 212 times, and it can explain the current big data and the application is the ongoing research hotspot in the field; secondly,

the existing researches that focus on the improvement of governance capacity and the governance on country, government and society in the situation of the big data. The specific performance is that the frequency of keywords about the government governance, country government, society governance, government capacity is high; thirdly, the researches in this field also stress the internet of things, information technology, big data technology should be widely combined with the country, government, corporation governance and the innovative application should be carried out; at the same time, the present study also highlights some mature concepts such as the Internet plus, electronic governance, data governance, data opening, network public opinion analysis, smart city should be combined with the government governance and city governance.

**Table 3 Distribution of frequent keywords of big data governance (the top 20)**

	Frequency	Keywords		Frequency	Keywords
1	212	Big data	11	12	Information technology
2	25	Government governance	12	11	Big data technology
3	24	National governance	13	10	Network public opinion
4	23	Big data era	14	10	Internet plus
5	18	Governance capability	15	8	Internet
6	16	Social governance	16	7	Data open
7	16	Internet of things	17	7	National strategy
8	16	E-government	18	7	Smart city
9	16	Governance	19	6	Social management
10	13	Data governance	20	6	Government governance capacity

Specifically, from 2010 to 2012, the development of the domestic big data governance researches is in the bud and exploration period, and there is no relevant emerging keyword, which is closely related to the number of the published literature. However, in 2013, the relevant concepts on the big data and the internet of things become popular; in the following year 2014, the big data era, governance, information technology, government governance, country governance and the governance capacity and other frequent keywords appear and these frequent keywords increase rapidly, which is closely related with the political concept of “promoting the national governance system and the governance capacity modernization” issuing by the Third Plenary Session of the Eighteen Central Committee of the Party in 2014. It is shown that the big data governance and the national governance capacity has been raised to the level of the national policy. Therefore, the academic field begins concerning about and expanding the relevant researches on the big data governance, and this year mainly expands the theory exploration and the demonstration on the governance on country, government, society and city as well as the governance capacity, and it basically belongs to the qualitative research on the level of theory and proposal.

In 2015, the keywords such as the e-government, social governance, data governance, big data technique, internet public opinion, internet plus, data opening and the government governance capacity have become a research hotspot and a frontier in the field. As the annual statistics table on the number of the published literature, the number of the published literatures have began to increase rapidly since 2014, and the number of the published literatures in 2015 is about 3 times as more as the number in 2014. In 2015 or later, the period can be called the booming period of the researches on China’s big data governance. At the same time, our country’s big data governance developing rapidly, and there are more deep researches. On the one hand, we expand a research on the concept of the development strategy of big data, the action plan of “internet plus”, state governance system and the modernization of governance capacity put forward by our country. On the other hand, we continue to deepen the exploration on the level of the concept and the application to the innovative maturity concept. We mainly stand out the application of the concepts or the practice on the government governance and the society governance such as the e-government, data governance, internet public opinion and the data opening. In 2016, the “internet plus” continues to be the frequent keywords in the year, while there are a small amount of frequent words, such as the electronic governance, cloud computing, big data thought, path and ideology, innovation and data opening. These words become the hotspot in the

research, and the number of the published literatures in 2016 is up to 196, which indicates that big data governance in China continues to move forward and the research content continues to a deep level.

Until May in 2017, there are some keywords in this year, such as coping strategies, crisis governance, mechanism innovation, network governance, tax governance, city traffic and public opinion place, but the frequency is not high, and the future research is expected to continue to increase. However, through further analyzing the key words and focusing on key literatures, we can find that the current research hotspots gradually shift to the specific implementation and application in all aspects of the big data governance in the governance of government, society and city. We gradually pass through the period of the previous theoretical clicking and the value discussing and we begin to highlight that the big data governance and system framework, technical system and specific implementation strategies are applied to all the aspects of the government and social governance.

## 5 Conclusions

In summary, the research on big data governance in our country is still in the initial stage and the rapid development, the domestic scholars expand a deep research on the governance of the country, government and society based on the big data, and they have made a series of theoretical research results. In general, the research of big data governance in China can be divided into the embryonic stage from 2010 to 2014, the theoretical foundation from 2014 to 2017 and the stage of the specific implementation and application research of the management of big data from 2017. Since 2014, China's big data governance research has an explosive growth, but the current domestic scholars still mainly focus on the qualitative research, and they need to strengthen the quantitative and empirical researches in the field. we find that the current researches of domestic big data governance lack of cross-school and cross-team cooperative research, and the connection between authors and institutions that have already worked together is not close, and they are independent with each other. Through the deep analysis of large data governance keywords, we find that one the one hand, the current research hotspot mainly focus on enhancing the governance on government and society and the governance capacity in the big data governance to expand the theory and the value exploration. On the other hand, we also highlight the application research on the technology or the concept of internet, data governance and big data technique in the various fields of government, society and corporation governance. By the deep analysis, we find that on the basis of the existing theory and path research of the big data governance, the current hotspots shift to the specific implementation and application of research the big data governance in all links and all aspects of the government, society and city and network governance. We expect after 2017 that the domestic scholars' research will gradually shift to and increase the specific implementation and application research of big data governance.

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## Research of the Risks for Chinese and Foreign Governments Purchasing Public Library Service and Countermeasures

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**Abstract** This paper will make an analysis of risks to be undertaken by American and Japanese governments in the process of purchasing public libraries from perspective of government and countermeasures. After that, the author will make a risk analysis of the government purchase procedure model of Chinese government that covers how to purchase, way of purchase, post-purchase supervision and performance evaluation. Through proposing to complete the purchase procedure, introduce in a competitive mechanism, establish a performance evaluation index system with risk estimation and construct a multi-subject information feedback mechanism, the author aims at reducing risks of government purchase and making the government achieve effective purchase.

**Key words** Chinese and foreign governments, Risk prevention and control, Government purchase, Public library

### 1 Introduction

Public library, as an important component of public culture service, is also important content of government purchase. Since government is the only provider of “static” social management and social service, it does not have much energy to develop the modernization of public libraries or provide the public with more diversified public culture needs. Meanwhile, more services will be purchased by the government from social forces in the form of outsourcing. Here, social forces primarily include profitable social organizations and non-profitable social organizations. The importance of public library service has made risk management of government purchasing public library service particularly be worthy of attention.

Chinese scholars have made researches with different focuses after public library entered the list the government purchase. Chen Jun-qiao(et.al.,2013)made a definite analysis of overall outsourcing states of public libraries in countries like the United States, the United Kingdom and Japan from perspective of new public management and holds a sceptical attitude towards that overall outsourcing service of public library can reduce the cost, thinking that government outsourcing has certain cost risk<sup>[1]</sup>. Sun Rong (et.al.,2016) analyzed risks undertaken by government regarding drawn-up service content, tendering and bidding, formulation of contract, process management, supervision and third-party evaluation process in the purchase of public service and came up with relevant risk prevention and control measures<sup>[2]</sup>.

### 2 Analysis of risks undertaken by foreign governments in purchasing public library service

#### 2.1 American government's purchase of public library service

Management outsourcing of American public libraries began in 1997 and the patterns of government purchase are primarily purchase of curator functions and purchase of overall operation. American government does not set up an administrative management institution for managing libraries; instead, the libraries belong to the congress and governments of all levels. Due to financial strain and development of new public management, the idea of marketization of some government functions began to spread in the country, which enabled government purchase service to breathe a new life into American public libraries.

**2.1.1 There exist great risks for government purchasing public library service; in general, the risks include following three ones**

(1) Monopoly risk

So far the biggest risk of American's library outsourcing is monopoly risk. LSSI is the only



company that provides library purchase service in the United States. The number of public libraries that have signed management purchase contracts with LSSI is 29; even some have cancelled their contracts, management of 21 public libraries in the United States is still in the charge of LSSI<sup>[3]</sup>. The weak social forces have resulted in severe monopoly risk for the undertaking party in the United States.

(2) Public benefit risk

Social nature of the United States has resulted in extreme development of commonweal undertaking. Businessmen who look for maximization of interests seek to get more interest shares and initiative from the purchase market of public libraries, which deviates from the public-benefit nature of public library and goes to the extreme privatization of purchase. For example, Riverside County library of California outsourced all of its daily operation and business to a private business company in July, 1997 and that resulted in privatization of libraries<sup>[4]</sup>. Such privatization has changed the non-profitable nature of libraries and changed the publicity and openness principles of libraries.

(3) Policy risk

The purpose of government purchasing public libraries is reducing investment of energy and human power from the government so as to realize the service expectation of government about public libraries. When public benefit risk appears, however, government policies cannot be carried out smoothly and that will give rise to policy execution risk.

### 2.1.2 Risk prevention and control measures in the United States

(1) Legal guarantee improves risk prevention and control

First, laws and regulations that enhance government purchasing public library service provide legal guarantee for the purchase process. American government has made comprehensive reference to legal measures about content of outsourced public libraries, including strict measures for classifying purchased content. Content that belongs to “inherent government functions” cannot be made content of outsourced projects. In response to that, Purchase Policy Bureau of American federal government released No.92 document for defining the scope and definition of the so-called “inherent government functions”<sup>[5]</sup>. The defining of purchase content of American government has directly prevented the feasibility risk for blur border of government service purchase in future and avoided excesses of the authority resulted from government and service suppliers in exercising corresponding power on public libraries.

(2) Elaboration of government purchasing public library service model

Participating bodies of American government purchasing public libraries primarily include three one: the government (the buyer), social forces (undertakers of profitable and non-profitable organizations) and the public (the receiving party). In general, American government purchasing public library service can be divided into two types: soft service and hard service. Hard services include public library buildings, infrastructures and others that are primarily purchased with competitive model; soft services refer to intangible services without definite and unified service quality standard that are purchased through negotiation or cooperation model. There are different purchase models for different services and different contract models can be chosen according to different service content. Refined and reasonable purchase model and contract model have effectively avoided the increase of purchase cost risk caused by different content of government purchase and enhanced quality of follow-up services.

### 2.2 Japanese government’s purchase of public library service

In April 2005, many public libraries in Japan began to apply system of specified management for the purchase of public library service. System of specified management is a system that entrusts management authority of public facilities to specified body (company) by administrative organizations of local public autonomous organizations. Public service facilities can be run and managed by pure private enterprises.

According to statistics of “Heisei 23rd year social education survey” by Ministry of Education, Culture, Sports, Science and Technology of Japan, the implementation rate of public libraries in October of 2011 is 10.6%. Up until 2014 a total of 186 autonomous organizations and 426 public libraries in Japan had introduced in this system<sup>[6]</sup>. Under such system, the government alienates power through bidding and signing contracts with bidders. Current system of specified management is

different from previous government purchase in that Japanese government has completely alienated all power of public libraries, requiring only to meet indexes set by the government.

Currently, risks of Japanese government purchasing public libraries primarily include following ones:

(1) Information imbalance risk: government staffs do not directly contact citizens or participate in specific operation of libraries, so they cannot know or reflect the needs of citizens; meanwhile, they do not have any specific information about operation of a public library. When they cannot collect service needs of the public, they cannot analyze the needs of the public. About formulation of plans, there will be a great difference with goals provided in the contract. Maybe the attained service effect meets the goal set by the government but fails to meet service satisfaction of the public, which has directly resulted in declined satisfaction of government.

(2) Corruption risk: the government does not have experience on the outsourcing of public libraries, so risks like government corruption is likely to appear when there is no a fair competitive mechanism.

(3) Quality risk: whether the purchase of Japanese government can meet purpose and effect of government and improve the reader-serving level is a major quality risk for the outsourcing of Japanese government and source for quality risk of specified management.

### **3 Chinese government's purchase of public library service**

#### **3.1 Status quo of Chinese government purchasing public library service**

Chinese government's purchase of public library service originates from its strategies for dealing with functional transformation of the government. Appropriate government purchase can help the government achieve the idea of "small government, great service".

From perspective of principal-agent theory, government's purchase of library service has realized three types of agent models: the first is agency of government about service needs of the public, that is, the government undertakes the expectations of the public for services; the second is the buyer government wholly and partially entrusts public libraries that serve the public to social forces, but the government still keeps ownership over the public libraries and final right for assessing service quality; the third type is agency acts of government for the non-purchase party. Such agency relation means power grant of non-government party to government party, a kind of inter-government administrative power agent. The buyer party government, as core agent of agency by mandate, is undertaking greater risks. Hence, the government needs to transfer the risks to social forces and the public. Appropriate risk transfer can give social forces sense of belonging to public libraries and therefore improve service quality of social forces. For the public, certain risk undertaking can make the public play an active role in the supervision over and management of public libraries instead of being outsiders. In this way, a closed loop of multiple-subject co-supervision over government purchasing public libraries will be created.

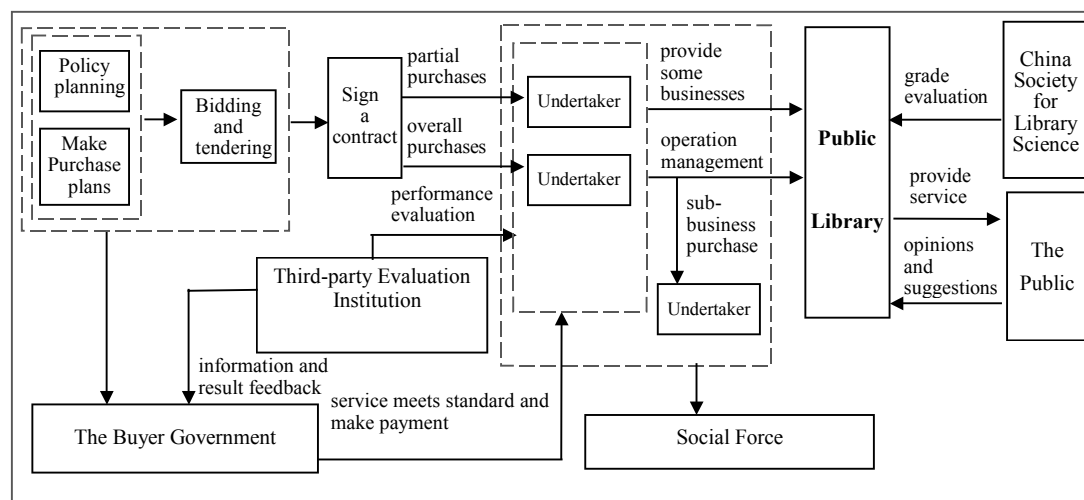
The following figure 1 shows that: the first thing absent for government purchasing service is analysis of public needs and coming up proposing of purchase content and plan. Second, government needs to check undertaker of service and pick up an appropriate undertaker to provide the public with public service. Third, the government needs to be responsible for quality of service enjoyed by the public, which requires the government to carry out effective performance evaluation and reward and punishment mechanism to complete our purchase. However, the three aspects are what are absent in current library service purchase procedure.

#### **3.2 Potential risks of Chinese government purchasing public library service**

##### **3.2.1 Information imbalance results in purchase risk**

First, unbalanced need information. Information asymmetry results in increase of purchase cost. First of all, the lack of understanding of government about public needs and collection of information on the whole purchase market, along with absence of information in need analysis, will result in wrong need customization and incomplete purchase plan. In that case, the government will be in a passive state and lose initiative of negotiation. Besides that, wrong information will result in a lack of definite and effective purchase goal for the formulation of bidding plan or purchase of service with low

demand degree and declined purchase efficiency.



**Figure 1 Current government purchase flow chart of China**

Second, the lack of full understanding about social forces and market information before purchase puts the government in the state of being withheld and face certain decision-making risk. Consequently, the government is likely to choose undesirable service undertaker and that will cause an unpredictable result for libraries [7].

### 3.2.2 Monopoly risk

In the stage of bidding and tendering, the government will face monopoly risk of undertakers. First, the incomplete development of social forces results in monopoly risk. The development of social organizations is incomplete in China, especially in the industry of overall public library purchase. In other words, the scope of social forces for the government to choose is not wide. In the industry of public library service there is a severe shortage of social forces that conform to government bidding qualification, which makes it impossible for the government to achieve effective competition in the purchase market. Second, dependency on social forces results in monopoly risk. Dependency inertia on services of social forces has always been existing in China. When choosing undertaker, the government does not stress effective market competition any more. When certain social force has successful service experience in certain industry, other district governments will have sense of trust in such social forces and be willing to choose them as cooperative partners, which will reduce effective competition of other social forces in the market. In comparison to other social forces, such social forces that have successful experience require the government to input lower capital, communication and time for outsourcing of libraries. In the long term, however, government purchasing public library service will result in the risk of monopoly social forces, which goes against the formation of a competitive mechanism for library purchase service and will constitute a reverse restriction on government purchase.

### 3.2.3 Risk of regulation failure

When the government is the only provider of public library service, it has the liability to provide the public with all budgets for library construction, various expenses for operation and operation management situation. Under such circumstance, public libraries need to be supervised and evaluated by the public and government. But after the government purchases public library service from social forces, the public will lose the right to require the undertaker party. Hence, the public will lose the source for public library supervision information and public supervision will become an empty talk.

In certain sense, awareness of public participation will directly affect the depth and width of interaction between government and the public and decide needs and effect of public services [8]. The reality in China is most government purchasing public libraries is in a state of information opacity for the public, that is, the public do not know that a library has been taken over by social forces and the government is viewed as direct provider of public service. The phenomenon directly proves

information block of the public about library public services. Out of trust on the government, the public will lose consciousness of supervising social forces and withdraw from supervision over social forces.

In most projects of overall government purchasing public library service, the government often places several institutional librarians in a library as communicators between the public library and government and supervisors of the operation in order to better supervise and make sure the public library is consistent with government policy. For example, Wuhou district library of Chengdu is representative government purchase project reconstructed upon an old library; the curator and one financial staff are institutional staffs while other staffs of the new library are recruited from social forces. Here responsibility of the curator is not practicing daily management over the library but working as a bond between government and social forces, that is, conveying policy trends of government and the supervision over general direction of the library through the curator. Similarly, the financial staff also works as a supervisor over daily expenses. Such arrangement will not put the government in a complete monopoly position over daily operation of the public library and stage dynamic goals of government can be conveyed in time.

### **3.2.4 Moral risk**

#### **(1) Profit-seeking moral risk caused for the undertaking party**

Since what purchased in the government purchase of public libraries is public service, it has to a great extent restricted limited profits to be attained by the undertaking party when providing service. Not all of undertaking parties are non-profitable organizations, only that the profiting way applied by social forces that provide services is very difficult to be attained through providing public service. Hence, once they fail to gain profits from capital disbursed by the government, the risk of seeking for profits will be caused. A series of moral risks will be caused through providing paid public services or monopolizing government information by reducing service quality or bribing government officials.

(2) Deviation from intention of entrusting party in the process of execution. In the public library service, the government needs to meet the free basic reading need for the public at first. Moreover, the government needs to increase cultural reading quantity of the public and propagation of cultural activities. To better fulfill such function of the government, the government entrusts the whole or partial services of the public library to the undertaking party with a view to better serving the public with advanced management means and emerging technologies. All of these are established upon that the undertaking party is a medium for realizing wishes of the entrusting party. Once capital investment of the government is inadequate or attempted by the market, the undertaking party is very likely to deviate from wishes of the entrusting party in the process of execution and that will lead to failed government purchase.

## **4 Enlightenment from comparison between China and foreign countries regarding risk management and countermeasures**

### **4.1 Complete the purchase process**

Analyze risks in China's purchase process through referring to purchase process of China and foreign countries, and improve risk avoidance of the government about public library purchase process through completing various purchase processes. Now we can construct a relatively complete ideal model diagram of government purchasing public library service to make up for defects of current purchase process, shown as Figure 2:

### **4.2 Enhance government's ability in identifying and managing risks when introducing in competitive mechanism**

In foreign government purchasing public library service, the undertaking party is social force. In the developed United States, the only service undertaker is LSSI. Under such monopoly, LSSI has got a foundation to negotiate interest with the government. To get aware of that, the government needs to pay attention to cultivate social forces in the early stage of government purchasing public library service so as to avoid development of monopoly enterprises. Besides, China has to introduce in competitive mechanism; though competitive mechanism can help the government exclude some undesirable organizations at the beginning, competition cannot help the government avoid risks appear

in the process of purchase or prevent the occurrence of risks like interest conflicts. When introducing in competition mechanism, therefore, the government should constantly improve its management ability and prevent the occurrence of uncertain risks in the process of purchase through high-level management and prevention.

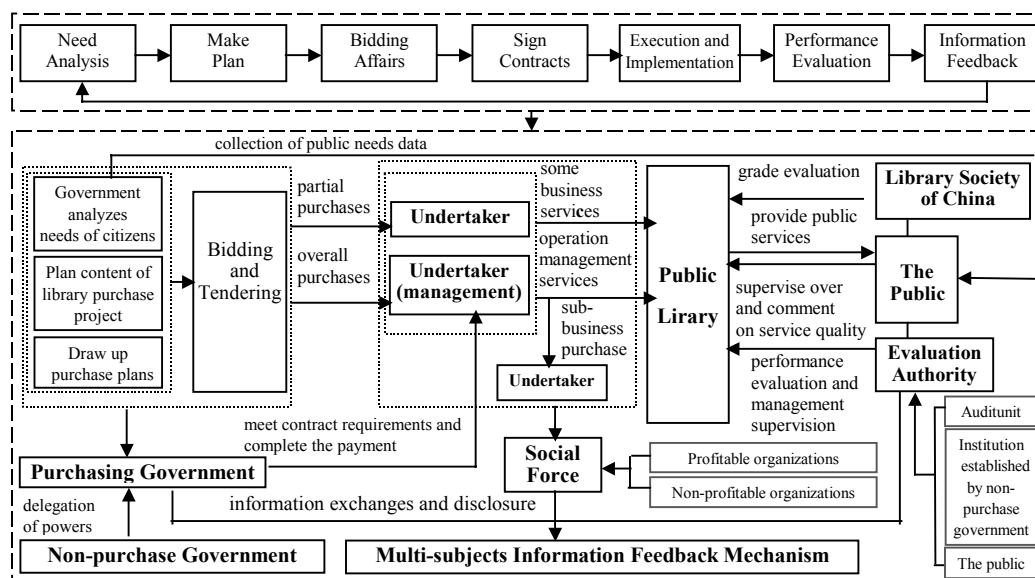


Figure 2 Complete model of government purchasing public libraries

#### 4.3 Establish a performance evaluation index system with risk estimation

The scientificity of index weight composition can predict occurrence of risks in advance and avoid the risks. Increase weights of internal management system of undertaking party and professional ability training of workers. The government should enhance internal supervision of undertaking party to improve management of the undertaking party.

Rationality of the composition of evaluation supervision institution. Evaluation institution can apply combination of various parties for evaluation, that is, it is composed of non-purchasing party government (upper one-level evaluation unit of purchasing party government), third-party financial audit institution, data collection institution and the public. Among them, the non-purchasing party government is the subject that strengthens power restriction on the purchasing party government and the convenience for attaining purchased information; the third-party financial audit institution and data collection institution can make up for the inadequate expertise of the government and attain more just and real data. The public, as the direct receiver of service, can accurately feel service quality of a public library and evaluate it in a better way. On the other hand, evaluation institution can evaluate service quality of the whole project of government purchasing public library service, ranging from service quality of government to that of undertaking party to that of public library. From perspective of supervision, it can reasonably avoid some risks of government purchase.

#### 4.4 Establish a multi-subject information feedback mechanism

The so-called three-party information feedback mechanism involves government, social forces and the public, including evaluation agencies. The government should establish information exchange channels with undertakers so as to avoid information and ineffective risk estimation. The government needs to have information feedback about performance evaluation result, daily service quality and other information of social forces and supervise social forces with the information to achieve better risk prevention and control and avoid information block of government about social forces resulted from information missing.

Meanwhile, the government needs to establish information mutual communication with social public and third-party evaluation institutions. Through social public, the government can get to know

real needs of social public so as to put forward purchase needs against social forces. Furthermore, the government can communicate with social forces in time and make amendments through information feedback after public participation, such as suggestions and opinions. Since third-party institutions have the final evaluation result and audit result of social forces' financial statements, government can get to know future operation risks of social forces through attaining such information and work out risk prevention and control emergency plan for having risk management. Besides that, social public and third-party institutions can know the latest policies and data through information feedback to better supervise the government and social undertaking parties.

## 5 Conclusions

As more and more social forces have undertaken the function of serving the society, service crises caused by various risks have also become our concern. Meanwhile, further improving the prevention and control of such type of risks for public libraries is something that cannot be delayed. Hence, it is necessary to implement and carry out risk prevention and control awareness and concept of Chinese government when purchasing public library service. Meanwhile, establish a down-to-earth performance evaluation system and a multi-subject information feedback mechanism through constantly optimizing and completing the purchase process. Furthermore, reduce deficiencies of Chinese government in purchase and enhance its ability in identifying and preventing risks so as to achieve scientific and effective purchase of public library service of Chinese government and make it conform to national conditions of China.

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## Multi-agent Cooperative Game of Public Goods Delivery in Rural China \*

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**Abstract** Based on theoretical analysis and case description, this paper analysed the multi-agent cooperative game of public goods provision, implying that the central government occupied the absolute dominant position, the county and township governments played key roles in the cooperative mechanism, and the strategy selection of farmers and third parties were determined by the actions of the county and township governments. A brief conclusion in this paper is that the central government, county and township governments, farmers, and third parties are important agents in the multi-player provision system of rural public goods in China, with various providers having mutual influence during the cooperation process. In the principal-agent relationship between the central government and county and township governments, the central government should transfer more authority and fiscal responsibility to the local government in the provision of rural public goods.

**Key words** Rural public goods, Multi-agent provision, Co-operative mechanism, Rural China

### 1 Introduction

In recent years, the Chinese government has encouraged the construction of rural infrastructure that utilizes private capital and the establishment of various public utilities in rural areas. For these rural public welfare projects and programs, which are led and financially supported by the government, methods such as government procurement of services and public-private partnerships can be used to guide the participation of businesses and social organizations in their construction, management, protection, and operation. Thus, such initiatives allow social organizations to take over the responsibilities of rural public services and social development. However, there are still numerous issues regarding the provision of public goods in rural areas, the most prominent of which involves the question of who will provide rural public goods most effectively. How do these different players effectively achieve the multi-agent cooperative provision of rural public goods through a cooperative game?

Prior studies have applied game theory to public goods and rural research fields<sup>[1, 2, 3, 4, 5]</sup>. There have been studies on multi-agent cooperation, and many scholars have extensively applied game theory to this field. From a theoretical perspective, relevant studies have mainly focused on analysing the relations of games among different providers in order to perform a comprehensive analysis on the cooperative performance of multiple providers. Colasante<sup>[6]</sup> analysed cooperation in a Public Good Game by applying an agent based model, they applied several distribution rules to verify the different influences of contribution in the simulated model. Luo Kai-yan, Zhang Xing-ping and Tan Qin-liang<sup>[7]</sup> applied a combined game theory of China's rural official organization-villagers' committee to evaluate biomass feedstock supply model's effectiveness. Chen Qiao, Chen Tong and Wang Yong-jie<sup>[8]</sup> studied the influence of exposing list of co-operators in public goods games, they found that published list can stimulate cooperation in southern rural of China. Jian Xue, Zhao Lai-jun, Fan Long-zhen and Qian Ying<sup>[9]</sup> proposed a game model in air pollution reduction among provinces. They found a significant benefit by applying their game model for local governments in pollution reduction. Sechi G M, Zucca R and Zuddas P<sup>[10]</sup> applied cooperative game theory to define solutions in water cost allocation among multiple parties involved.

In practice, the cooperative game among providers of rural public goods is a dynamic

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multi-player and interactive process. However, rarely studies have applied multi-player dynamic game analysis in rural public goods. This study uses the survey data from 1,167 rural households in 93 villages sampled from 19 counties (districts and municipalities) in five provinces, including Hunan, Hubei, Jiangxi, Guizhou, and Guangdong. Based on the results, we establish a game model of multi-agent cooperative provision in order to perform a theoretical analysis and confirmatory explanation of the game relations among the central government, county and township governments, and third-party organizations. The results provide micro-level empirical evidence for establishing a multi-agent cooperative mechanism for the current provision of rural public goods.

## 2 Theoretical analysis and case description

Since China's rural tax reform, the central and provincial governments have borne the primary responsibility for the provision of rural public goods; counties and townships have important responsibilities as well and the beneficiaries have assumed the corresponding responsibilities such as private capital investment and social sponsorship. These three parties have gradually formed a diverse and multi-agent system of provision. The provincial governments are subject to the central government's rigid constraints when assuming the responsibility for providing rural public goods, whereas county and township governments not only undertake the provision of funds, but are also the most direct organizers of production and supervisory bodies. Therefore, this study defined providers based on their provision of production funds for rural public goods, and it will not specially discuss the participation of provincial governments in the multi-agent game. Hence, 'local governments' refers only to county and township governments. In specific terms, the providers of rural public goods defined in this study include the central government, county and township governments, farmers, and third-party organizations. In this study, 'farmers' refers to investment bodies that follow the principle of voluntary provision, which involves the investment of money and labour by all residents organized by the village committee or the provision of funds from a collective economic organization in the village. It is, in essence, the organized participation of farmers who generally adopt the 'One Project, One Discussion' method of decision-making, which reflects the willingness of the majority of farmers in rural areas to undertake collective investment under the principles of democratic centralism. 'Third-party organizations' refers to investment bodies that follow the principle of contractual provision and are constituted of urban and rural non-profit organizations, professional farmer cooperatives, large-scale growers and breeders, individual farmers, and non-profit rural community-based enterprises (hereinafter referred to as 'third parties').

In dynamic games with complete information, each player's action is considered a one game stage. In contrast, dynamic games with incomplete information generally do not end after one or two game processes, instead involving multiple game processes. Hence, the model in this current study is a multi-stage game<sup>[11]</sup>. The most significant difference between evolutionary games and classical game theory is the players' bounded rationality in the former<sup>[12]</sup>. Evolutionary game theory is the expansion of classical game theory, whereby the pure payoff function (i.e. strategy) in traditional game theory is replaced by the fitness function, of the strategic fitness of the evolutionary game. This strategic fitness is determined by a strategy's expected returns and probability distribution<sup>[13]</sup>. The model most commonly adopted in evolutionary game theory is the replicator dynamics model, which is a non-linear equation with non-unique equilibrium solutions. Hence, the equilibrium solution of the replicator dynamics model often evolves into an analysis of its stability<sup>[14]</sup>, i.e. an evolutionarily stable strategy (ESS). By setting the attainment of maximum performance in the multi-agent provision of rural public goods as the target, this study will examine the ESS of different providers in multi-level and multi-agent games under specific environmental constraints in the provision of rural public goods.

### 2.1 Game between the central government and county and township governments

Since China's rural tax reform, the central government now holds the power of fiscal policy-making for public goods delivery in rural areas, while county and township governments are the most direct and important authorities in the provision of rural public goods. The government is unable to transcend social and economic interests and will have their own value concerns. The credibility of the government represents its legitimacy and this is a type of constraint mechanism imposed by society



on the government<sup>[15]</sup>. Among the various levels of government in China, the multiple principal-agent relationships in the provision of rural public goods are complex and intricate. In general, the central government will often be concerned about social credibility, while county and township governments will emphasize their basic financial constraints in the provision of rural public goods. Furthermore, within China's top-down administrative system, higher levels of government largely control the promotion of lower-level government officials. Therefore, higher levels of government occupy a dominant position in the power game and can easily make institutional arrangements that are beneficial to them. For example, by centralising tax power and decentralising authority, county and township governments often find it difficult to assume too much responsibility in the provision of rural public goods<sup>[16]</sup>. However, 'the upper levels have policies, the lower levels have countermeasures'. As there is information asymmetry between the higher and lower levels of government, lower levels can misrepresent the truth and fabricate false statements to deceive the higher levels into allocating more funds. To accomplish public goods delivery, assigned by higher levels of government, lower levels do not need to respect the actual demands of farmers and can adopt various 'irrational decisions', such as increasing the burden on farmers, passing on the financial burden, or even undertaking debt financing. This often results in a structural imbalance in the provision of rural public goods, thus reducing efficiency<sup>[17]</sup>. The central government often finds it difficult to pay high costs for supervision, hence it frequently fails to perform effective and timely monitoring of county and township governments, which bear the concrete responsibilities for public goods delivery in rural areas.

Case Study 1: In early March 2013, domestic and foreign media reported that a large number of dead pigs were found floating on the Huangpu River in Zhejiang, Shanghai, and other areas. The news became a hot topic of discussion and public attention. Under the direct supervision and guidance of the Ministry of Agriculture, the 'Huangpu River dead pigs' incident' was rapidly resolved. However, domestic and foreign media still had their doubts: What happened to the financial subsidies for the safe disposal of dead, diseased pigs? What is the disposal procedure for a large batch of dead, diseased pigs, and how many found their way to people's dinner tables? Based on these issues, our research group performed an in-depth investigation on the Huangpu estuary region in Zhejiang and Shanghai, which involved surveying consumers, pig breeders, government epidemic prevention organizations at all levels, and the workers who removed the dead pigs. The survey showed that the respondents' satisfaction of the current financial subsidy for the safe disposal of dead, diseased pigs was only 11.11%. The subsidy policy was difficult to implement for two reasons: the number of dead pigs was high and there was a gap in local finances' matching funds. The Circular of the General Office of the State Council (2011) No. 26 stipulates that the state subsidy for the safe disposal of dead pigs is RMB 80 per pig, which is to be shared proportionally between central and local governments. The proportion of subsidies in the eastern region is only 40%. However, the subsidies had low standards and complicated procedures, which led to severe difficulties during actual operations. The average cost for the safe disposal of dead pigs by pig breeders of different scales is RMB 100-120, hence a subsidy of RMB 80 is insufficient. The issuance of subsidies by provincial-level animal health and epidemic prevention agencies requires a number of complicated procedures, including reporting and registering the safe disposal of dead and diseased pigs, on-site transcription, videos or photographs, and numbering video and photographic data. Due to limited funds and manpower, the agencies are unable to process reports and perform inspections in time. Hence, in this situation the provincial-level animal health and epidemic prevention agencies reported false data on the number of dead pigs to the Ministry of Finance, and the Ministry of Finance then approved a subsidy for 50% of the number of dead pigs reported by the provincial-level agencies. Subsequently, the subsidies were issued in accordance with a proportion of 40%, as stipulated in the Circular of the General Office of the State Council (2011) No. 26. The minute sum of financial subsidies for the safe disposal of dead pigs implies that the provincial-level animal health and epidemic prevention agencies were unable to resolve the problem. The vast majority of breeders were not aware of this government policy and had never received any financial subsidy. Thus, they had no choice but to dispose of dead pigs in the river.

In theory, the game between the central government and county and township governments can influence the game strategies of third parties and farmers<sup>[18]</sup>. However, this type of influence has

significant lag time and information asymmetry. Moreover, county and township governments also implement the central government's policies. Hence, the game between farmers and third parties and the central government will evolve into strategic behaviour toward the county and township governments, thereby constituting a three-player dynamic game among the county and township governments, third parties, and farmers.

## **2.2 Farmers' motivation for game participation**

The scope of rural public goods provided by farmers and third parties mostly encompasses a rural community's local region. Therefore, only quasi-public goods or club goods can be included. The essential difference between farmers and third parties in the process of public goods delivery is that third parties provide rural public goods in accordance with contracts, whereas farmers provide public goods on a voluntary basis. Self-raised funds by farmers to provide quasi-public goods are not the mandatory enforcement of farmers to contribute labour and taxes, but instead voluntary participation by farmers. Farmers are self-governed in public goods delivery and invest in specific public goods that they believe will benefit them. The organized provision of community-based public goods by farmers has played a significant, even necessary and irreplaceable, role in various aspects of government-commissioned public goods delivery and the process of public goods delivery by the village committee acting on behalf of the farmers' decisions. However, the provision of rural community-based public goods occurs within specific rural environments. As 'rational economic humans', farmers hope to obtain the maximum benefit with minimum cost. Hence, they will spend the least possible amount of money to enjoy more rural public goods. As 'rational economic humans', farmers have the tendency to conceal their true demand preferences and become 'free riders'. Therefore, the variety, quantity, and benefit of rural public goods self-provided by farmers are strictly limited, and their provision performance is also influenced by the dynamic games between farmers, county and township governments, and third parties.

Currently, the farmers' organized provision of community-based public goods mainly takes two forms. The first is the self-governed provision by farmers within the community. A rural community formulates a provision scheme based on the voluntary and discretionary participation of villagers. Through consultations among the villagers, economic support is obtained from farmers based on the extent of payoffs received. At this point, farmers receive a stable payoff for their economic payments for the provision of community-based public goods. The second form is government-commissioned provision in rural communities. In reality, government-commissioned provision is the 'decentralization of authority' in public goods delivery and does not fundamentally change the structure of public goods providers. The government aims to maximize equivalence with farmers' demands for community-based public goods in order to increase provision efficiency. Hence, when providing community-based public goods, the government will also encourage supporting farmers' investments in labour and funds. At this point, farmers' economic payments in the participation of rural public goods delivery will receive a stable payoff while they will also obtain additional payoffs generated by community-based public goods.

Case Study 2: Our research group discovered this case study during a survey conducted in Dahua Yao autonomous county, Nanning City, Guangxi in June–July 2015. On 14 June 2015, a local pig breeding company suffered from heavy rains and more than 16,000 pigs drowned in two days, causing serious air and water pollution in the local area. The pig breeding company leased land from local farmers and disposed of the dead pigs through deep burial, which incurred considerable costs. Following this incident, the company intended to shut down its factory and dozens of dispersed breeders in nearby villages were on the brink of bankruptcy, which implied that more than a hundred migrant workers would face unemployment. The local government made timely investments into the development of carcass pits for the safe disposal of dead pigs within the township. The company contributed part of the funds, according to the required proportion, while the village committee organized local migrant workers to contribute labour and contributed part of the funds from the village collective economy. The carcass pits for the safe disposal of dead pigs were constructed within a short period of time. When our research group returned for a survey in July 2015, the company and all dispersed breeders in nearby villages were able to use the newly built carcass pits for safe disposal.

Thus, local migrant workers were able to return to their original jobs. The village collective invested in the construction of community-based public goods on behalf of the farmers and obtained stable payoffs. In addition, better safeguards were in place for the quality of air and drinking water in the local area, which had reached the required environmental standards. The company had also expanded its production scale during restoration, which increased the number of jobs for local farmers and promoted economic development in the local area. Thus, the farmers' investment in community-based public goods resulted in substantial additional payoffs.

### **2.3 Third parties' motives for game participation**

Third parties have their own value goals when participating in the provision of rural public goods, and they cannot transcend the constraints of social and economic benefits. Third parties always enter the domain of public goods delivery through specific contractual approaches. The motives behind the participation of third parties in rural public goods delivery are complex. Thus, here we discuss the objectives for the participation of third parties based on three levels of self-interest.

First, we consider third parties' 'social preferences' in the non-self-interest hypothesis of participation<sup>[19]</sup>. To achieve their own value goals, an increasing number of urban and rural non-profit organizations and social volunteers have begun participating in non-profit activities, such as rural disaster relief, poverty alleviation, and basic education. Under these circumstances, the stable payoff obtained by third parties is organizations or volunteers' achievement of expected value goals. However, when there is damage to their stable payoffs (e.g. diversion of third-party donations for poverty alleviation to other uses), third parties may reduce or withdraw their participation<sup>[20]</sup>.

Case Study 3: Our research group discovered this case in December 2015 during a survey in Huayuan County, Xiangxi Autonomous Prefecture, Hunan. A provincial key university in Changsha City, Hunan was a supporting counterpart in the National Poverty Alleviation of Key Counties, and a specific school at the university has been providing poverty alleviation to a certain township in the county. The school that undertook the task of poverty alleviation raised more than RMB 120,000 from teachers and students in its initial period, which it then invested directly in the construction of houses in the township under the 'Five Guarantees' rural social welfare system. The township also pledged to invest RMB 80,000 in the construction of a simple road in front of the new houses, also under the 'Five Guarantees' system. Thus, it seemed that the school's poverty alleviation task was almost complete. However, one year after the school invested the funds for poverty alleviation, the township still had not constructed the houses. Instead, the funds were diverted to agricultural production and invested in the development of ginger production. Due to the drastic reduction in ginger sales that year, all RMB 120,000 of the school's poverty alleviation fund went to waste and the road construction funds pledged by the township were also lost. The school believed that the development of the agricultural industry is a key program that should be supported by the local government, but that it is also an area that cannot be matched by the school's fundraising capacity. Therefore, the school had no choice but to stop their support for poverty alleviation in the township.

The second consideration is that third parties have different degrees of non-selfish social preferences (e.g. altruism, mutual benefit, etc.). In other words, third parties will always have a certain degree of selfishness. In repeated games, in the beginning third parties with given social preferences will opt for high contribution levels. However, experience with free riders will prompt them to gradually reduce their contributions.

Case Study 4: Our research group discovered this case study in July 2013 during a survey of Dalingshan Town, Dongguan City, Guangdong. A village in Dalingshan constructed a road using funds from higher levels of government and the village coordinated labour and financial contributions using the 'One Project, One Discussion' system. After road construction was complete, there were still 26 households in the northwest of the village that could not be accessed, and transportation remained inconvenient. The owner of a foreign leasing company situated in the northwest of the village invested in the construction of a slip road branching off from the main road, which fulfilled their dual objective of altruism and mutual benefit. After the completion of the slip road, the 26 households in the northwest of the village obtained convenient transport. The company itself not only had convenient transport, but also the additional benefit of reduced production costs. However, after two years, both

the village's main road and the company's slip road required maintenance. None of the 26 households were willing to pay for the maintenance of the slip road and the village committee was unable to raise funds to repair both roads. Therefore, in the interest of the whole village, the company owner once again invested a large sum of money to the repair of both roads. After another two years, the same situation arose, but the company owner was no longer willing to pay for road maintenance.

A third consideration is the participation of third parties under the complete self-interest hypothesis, which departs significantly from 'free rider' participation in the non-self-interest hypothesis<sup>[21]</sup>. The initial participation of third parties in public goods delivery stems from their self-interest. Not only do they expect their participation to achieve stable payoffs, they also expect to obtain additional benefits by hitching a free ride from someone else. At this point, their objectives for participation are 'mixed'. When they discover that others have been 'free riders', they will gradually reduce their participation. However, to obtain stable returns from their initial provision, they have no choice but to continue providing a positive amount. Due to information asymmetry, third parties are unable to clearly comprehend the 'same-stage actions' of the other players. Hence, they cannot implement the optimal strategy for participation in later stages, which often results in 'mistakes'.

Case Study 5: Our research group discovered this case study in June 2013 in Shuangfeng County, Hunan. A scale-up pig breeder constructed a biogas digester in a rural area, which was originally intended to avoid environmental protection fines (stable payoff). However, the pig breeder also expected to be able to discharge his wastewater into the surrounding fertile farmland without paying additional costs (additional payoff). The pig breeder signed a contract with the local villagers that stipulated that the villagers would receive free heating and electricity from the biogas and free use of wastewater from the pig farm. As the wastewater gradually increased, the villagers refused to allow the discharge of excess wastewater to their farmlands, hence the pig breeder faced an increased cost of transporting the wastewater out of the village. However, the villagers' demands for heating and electricity from the biogas were much greater than expected and they were not required to pay additional fees. At this point, the pig breeder was forced to consider reducing the number of pigs in order to reduce the amount of wastewater, which also reduced the amount of heat and electricity provided by biogas. However, compared to the rise in pig prices on the market, the pig breeder found it difficult to reach a cost-effective arrangement.

Therefore, we can see that third-party participation in the provision of rural public goods can be divided into two categories. The first is participation with complete non-self-interest, where the third parties can only receive stable payoffs under limited conditions. The second category is participation with different degrees of self-interest, where the third parties not only receive stable payoffs, but also additional payoffs. In comparison, the for-profit cooperative provision by third parties will result in more significant effects.

To simplify the issue, this study is limited to examining the strategy selection behaviours of each provider under the multi-agent cooperation model in the provision of rural public goods. Thus, cases of non-participation will not be included. Based on the above theoretical constructs, we propose the following five hypotheses:

Hypothesis 1: The actions of the central government, county and township governments, farmers, and third parties have bounded rationality.

Hypothesis 2: In strategy selection of the central, county, and township governments, the central government occupies a dominant position and county and township governments a subordinate position.

Hypothesis 3: The central, county, and township governments all have an impact on the actions of farmers and third parties. However, due to information asymmetry and information lag, the strategy selection of farmers and third parties are determined by the actions of county and township governments.

Hypothesis 4: County and township governments, farmers, and third parties do not completely comprehend the 'same-stage actions' of other players.

Hypothesis 5: The participation of farmers and third parties in the rural public goods delivery not only results in stable payoffs, but also additional payoffs.

### 3 Brief conclusion and policy implications

The central government, county and township governments, farmers, and third parties are important agents in the multi-player provision system of rural public goods in China, with various providers having mutual influence during the cooperation process. In the principal-agent relationship between the central government and county and township governments, the central government should transfer more authority and fiscal responsibility to the local government in the provision of rural public goods. County and township governments are the core agents to influence the participation of farmers and third parties in the cooperative mechanism of providing public goods. Hence, they should earnestly implement the central government's relevant policies and expand the scale of rural public goods delivery based on farmers' actual needs. With regards to the cooperation among county and township governments, farmers, and third parties, we should accelerate the relaxation of institutional constraints on the participation of markets and social capital in public goods delivery. Although farmers are the main beneficiaries in the multi-agent cooperative provision of rural public goods, they still occupy a relatively weak position in the cooperative game with the government and third parties. Farmers should strengthen their awareness of organized provision and strive to enhance their collective bargaining power. In addition, they should learn about the provision of public goods in their cooperation with third parties, expand their supervision of public goods delivery by county and township governments, and enhance their public governance capacity. As third parties participate in the provision of public goods through 'contractual principles', they should strive to find common goals with farmers and government in the provision of rural public goods. They should fully utilize their unique advantages, stimulate the market transactions of rural public goods, and effectively control their cost of provision. In conclusion, in the multi-agent cooperative provision of rural public goods, we should continue to maintain the dominant position of various levels of government while also fully utilizing the key impact of farmers' participation in the provision process. In addition, within domains with the required conditions, third parties, which represent private capital, should be actively introduced into the provision of rural public goods, while 'contractual regulations' of provision by third parties should be strengthened and 'contract failures' caused by information asymmetry should be effectively controlled. This will ensure the coupling of interests between each level of provision and the final beneficiaries, thereby achieving the fundamental goal of enhancing the provision efficiency of rural public goods.

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## Research on the Innovative Management System of China's Smart Community in the Context of Big Data

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**Abstract** Smart community as an important part of the construction of smart city has been increasingly focused in the context of big data. Smart community with the features of smart facilities, administrative efficiency, service refinement and management science has become the trend of community development. Smart community is a microcosm of the smart city, cloud computing, networking and other advanced technology are putting into application by big data driving, which helps to improve the community management and service level. Big data technology supports the foundation of building smart community. It explores the operation mode of smart community from terminal perception, network interconnection and smart application. The smart community management system is related to smart community's government management, cultural management, medical management, security management. The construction of these four aspects provides community residents with a quicker, comfortable and smart service. This paper tries to lay a certain theoretical foundation for the management and construction practice of smart community through the research of smart community's management system.

**Key words** Smart community, Big data, Management system

### 1 Introduction

In the process of urbanization construction in China, the tendency of community management will pay more attention to the management of smart community. The construction of smart community is the concrete embodiment of the smart city and the further sublimation of the digital community. Smart management of the smart community is particularly important in the process of building a smart city. It is of great significance to change the traditional management mode of grass-roots communities and promote the development and construction of grass-roots communities. In the era of big data, smart community management need use big data, cloud computing, the internet of things and other information processing technology in the management, so that managers can give rapid response based on data analysis, providing more refined service. The wisdom level of a city is manifested in the intelligence management of smart community. The smart community is a more advanced form of community management and service driven by big data, and also an innovation of social management.

### 2 The basic concept of a smart community

In the 2008, the blue giant IBM introduced the concept of "Smart Earth". In August 2009, IBM published the "Smart Earth Win in China" plan, which mentions six areas of wisdom and for the first time presented the specific concept of "Smart City" (Yu Hong-yi,2012<sup>[1]</sup>). The meaning of "Smart" includes perception, interconnection, intelligence, the transformation of massive data through scientific analysis into valuable insights. Using the technology of big data and advanced analytical methods make informed decisions to quickly solve problems. The power of all sectors of society should cooperate in the construction of smart city and smart community, and provide more smart products and more comprehensive services. In view of the low efficiency of urban governance, smart city will respond efficiently to these problems, such as the imperfect urban infrastructure, the lack of timely response of urban crisis early-warning system, and provide better management, early-warning and infrastructure for the entire city, which improves the quality of living standards of the urban community residents and brings more competitive business environment.

The concept of smart community is referred on the basis of "smart city", and the management system of smart community is interrelated and intellectualized, so it is a new mode of community management. Smart communities through smart technologies, including sensing technologies, big data

technology, cloud computing technology to build a safe, convenience, modern and smart community, which includes government management, health care, pension, culture, security, services and other aspects to meet community residents more smart needs(China Smart City Research Group,2011<sup>[2]</sup>).

### 3 Big data: Information engine of the smart community

#### 3.1 A brief description of big data

There is no uniform definition of big data, eminent scholar McKinsey at the Global Research Institute describes the big data in the report of “Big Data: the Next Frontier of Innovation, Competition, and Productivity”: unlike traditional data processing methods, big data can complete the massive data collection, mining, and processing(Bloomfield,2007<sup>[3]</sup>). Although the definition of big data is not clear in academia at present, the characteristics of the big data are clearly recognized by the academic circles. (1) A large amount of data volume. Through a variety of terminals and sensors, the massive PB-level data generate and storage. (2) Data types are diverse. The data of unstructured data, including video, audio, blog, picture, geo-location information, is increasing. These different types of data require higher data processing efficiency and technology. (3) Processing speed of data. Compared with the traditional data processing speed, big data can deal with data in high speed, especially in the face of massive and complex data. The big data technology can process data in real time with the faster speed. (4) Low density of data value. It is possible to find that the valid data is only one or two seconds by monitoring the 1-hour video.

Big data is a method of scientific analysis and prediction. Big data is not based on subjective experience but on objective data obtained from the real world, this method is obviously different from the traditional analysis method of data sampling, it is based on the massive data, in the process of data analysis, it can correct the error of the result of the sampling analysis, making the data analysis result more accurate (Zhang Peng and Shen Yu-mei, 2012<sup>[4]</sup>). In the process of managing the smart community, we can find the potential value through the excavation of a large number of communication and information data, demographic data, community geospatial data and management data of community platforms, which contributes to the scientific analysis and prediction of community government service, resident demand and community security.

#### 3.2 The operation mode of smart community in the era of big data

In the era of big data, the smart community should be able to perceive, interconnect and intelligence better, and its operation mode should include terminal perception’s layer, network interconnection’s layer and smart application layer (see Figure 1).

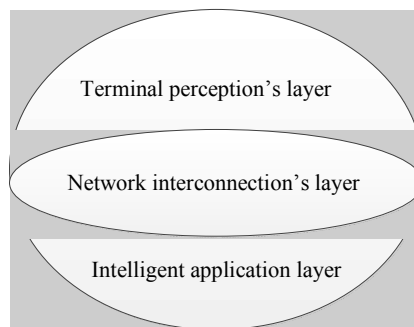


Figure 1 The operation mode of smart community

##### (1) Terminal perception’s layer

The terminal perception layer of the smart community is used to perceive, collect and identify real-world data, and it includes a variety of terminal equipment and sensing equipment, such as community sensors, surveillance cameras, computers and multimedia, mobile devices, RFID and so on. These devices gained a rich supply of data for data analysis (Wang Jian-sheng, 2010<sup>[5]</sup>). The perception layer builds and runs the management system of smart communities by storing and processing data after generating the basic data of smart community management. For example, we can monitor the intruder through the infrared sensor, perceive the human and vehicle flow information through the



RFID technology, give early-warning of burst fire through the smoking alarm device, collect the facial features of the community information through the face recognition equipment, test the quality of water through the chemical sensors. These terminals and sensors can collect and identify the behaviors and state of various people or things in the community, at the same time, the scope of data collection is also related to various fields, which has higher reliability and validity. After the data acquisition is completed, it is necessary to excavate and analyze it deeply, so it is very important to use big data technology to analyze and deal with such large data on perception layer.

#### (2) Network interconnection's layer

Under the background of big data, the transmission and storage of mass data is the severe test of network interconnection and data center. The network layer of smart community management includes a variety of communication networks and controllers, as well as the advanced sensors in the city, such as mobile communication networks, broadband, wireless networks, and radio and television equipment, which enable people to access information remotely to achieve smart control of work and life. The basic data of the smart community is established through the network interconnection layer, and it can finish the collection, transmission, storage and analysis of all kinds of data on the basis of network. In the big data era, the construction of smart community has put forward higher requirements for the interconnection of network (Bai You-tao, Shi Bi-yu, 2010<sup>[6]</sup>). The data of smart community management achieve a high level of integration and sharing on the basis of coverage of comprehensive network. The development of optical fiber network and wireless network, the establishment of more smart community management system, which provide more user-friendly perception of community needs.

#### (3) Smart application layer

The development of smart application layer plays a significant role in the construction of smart community, which can provide support for the construction of smart community in application level. Smart application layer is inseparable from the support of massive data; the application of various data is the basis for the operation and development of smart community. The application layer of smart community management system is composed of middleware and application software, all kinds of middleware can provide different application, playing the role of connection, and eliminating the difference between hardware platform and heterogeneous network. It can interoperate on different application platform. All kinds of application software become the application interface for community residents to obtain information and grass-roots community managers to participate in management. It builds a diversified smart application platform to reach smart management function of smart community to meet the needs of community residents.

## **4 The construction thinking of smart community's management system**

The key of smart community construction is people-oriented. At present, there is a certain gap between the real predicament and the beautiful life that the community residents are facing, and the construction of the smart community's management system in our country is still in the process of exploration. Therefore, the construction of smart community cannot be blindly started. It asks us must understand the smart community's construction thinking.

### **4.1 Change the management concept of smart community**

With the coming of big data, the construction of smart city in China mainly emphasizes the urban greening and the urban sustainability development, while the construction of smart community pays more attention to the convenience of community residents. In the management of smart community, community service should be people-oriented, serve and meet the needs of residents. In today's society, the construction of China's smart community is mainly carried out by the government, mainly in the provision of a convenient of one-stop service and community participation in community affairs. In order to fill the information gap between the government and the community residents, changing the traditional management thinking is required. Combine the daily management of the smart community with the residents' realistic concerns, and mobilize the residents to participate in the community activities and management. The construction subject of the smart community are the government and social pluralistic subject, smart community needs them together participate in the construction and management to better meet the requirements of the community residents.

#### **4.2 Strengthening information security management**

With the extensive use of big data technology and various information technologies, the community residents of personal information and privacy protection put forward higher requirements when we carry on the construction of smart community's management system. Smart community's management system collects a variety of application platform's data, key personnel information, community service's feedback, the major network platform's information and many other aspects. If information is not protected, it may have the risk of leakage at any time. It may be the security of the Internet, may be partners, or even internal staff leak, may be the attack of hackers. In addition, the openness of the various applications of smart community management increases the security risks (Jiang Li-qun and Yao Li-ping, 2012<sup>[7]</sup>). Therefore, to ensure information security, it is important to make clear the limit of information openness and information sharing, and standardize the information user's behavior to establish strict information's guarantee system.

#### **4.3 Multiple participation in community management**

The construction of the smart community is not only the responsibility of the government, but also the help and support from all sectors of the community, in the process of building the smart community, it needs the government's capital input as support, and also needs to introduce the mode of business operation. However, in the numerous cases, the government's various information of applications platform is not open. So the use of business model can be relatively active for community construction to facilitate residents living. In the process of building the smart community, the government should guide the participation of enterprises, encouraging the transformation and upgrading of the low development potential of the company change to the operators of the smart community, which can expand diversified business. Such as community property, community pension, community education, community shopping, community security, community health care, community services, and other business. Big data technology and modern services combined to provide residents with convenient life.

#### **4.4 The use of smart management methods to give full play of resident autonomy**

The smart management platform of the smart community can more accurately judge the needs of community residents, finding various contradictions and problems in the community timely, in response to these needs and problems, so managers can quickly lay down personalized solutions to solve them. From this point of view, the methods of smart community management are more scientific and efficient. In addition, the construction of smart community should constantly broaden the channels for community residents to participate in the management, exert the autonomy of community residents to participate in community governance, and bring the enthusiasm of community residents. In daily life, community residents can feedback their views and suggestions through the community management platform, the managers understand the truth of the facts and the actual needs of the residents by the scientific data analysis, and then feedback community issues to the community residents, encourage residents to actively put forward suggestions and work together to find solutions to these problems (Darcy, 2002<sup>[8]</sup>).

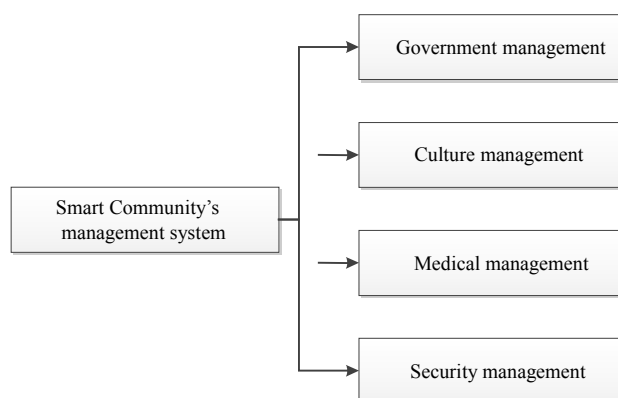
### **5 Management system of smart community driven by big data**

Community is a basic unit of grass-roots government and social organization management, the purpose of smart community is to provide modern education, medical care, cultural entertainment, convenient services for the community residents to create a comfortable, safe, smart living environment. Virtual communities have become a bright spot in the construction of smart communities, and the management and construction of smart communities based on virtual communities can achieve these goals better. Smart community's management system includes smart community's government management, smart community's culture management, smart community's medical management, smart community's security management (see Figure 2).

#### **5.1 Smart community's government management**

The construction of the smart community can better serve the community residents and promote the overall development of the community. The community as the government's grass-roots government agencies has the obligation to provide more convenient services for the community

residents to manage community basic affairs. Grassroots community managers encourage community members to take in political activities through the smart E-government platform. Besides, community members can learn about the latest policies and feedback demands through a community management platform, and grassroots community managers respond positively to community members. The wisdom of grass-roots government management should use big data, cloud computing, Internet technology to improve government efficiency, reshape government function, and provide better service for community residents under the background of “Internet +”(Song Yu, 2013<sup>[9]</sup>).



**Figure 2 Management system of smart community**

## 5.2 Smart community's culture management

Culture is produced in a certain time and space, culture and community are inseparable organic whole, culture is the spiritual pillar of the community, the community is the soil of culture, cultural heritage and development is inseparable from the development of the community. Community culture's management mainly from the political knowledge, scientific and technological knowledge, daily life knowledge, security knowledge, medical health knowledge and other aspects of community life closely relates to the people. It can collect community residents' cultural interest through the management platform of Smart community, so that community residents feel a strong community's cultural atmosphere, they achieve full communication among members of the community, which popularizes scientific, cultural and health knowledge, and enhances the well-being of community residents (Guan Chong-zhuo and Gu De-dao, 2015<sup>[10]</sup>). Community cultural activities also help to carry forward the traditional culture and socialist core values, so that traditional culture and socialist core values are deeply rooted in the hearts of community residents, and conducive to building a harmonious socialist community. In the construction of smart community culture, the full use of information technology to let community members close interaction, enhancing community cultural cohesion and the sense of belonging to the community.

## 5.3 Smart community's medical management

In modern life, people pay more attention to their health condition. The medical management of the smart community provides individualized treatment plan for community residents through real-time monitoring of the health status of residents to ensure the health of them. It is necessary to building a health management platform for community residents to analyze the basic health information of community residents and medical diagnosis report by big data technology. Medical management of the smart community can integrate RIS, PACS, LIS, HIS and other application software in collaboration management, and build information bridges between medical workers and community residents. The community's health management platform includes the management system of health archives Information, the daily health examination's system and the long-distance medical service system. These systems and the information management platforms of community hospital correspond to achieve information sharing for providing the more convenient and the intellectualized medical service for the community inhabitant. The community's medical security service is especially important in the aging situation of Chinese society, and the smart community's medical management

should make full use of advanced information processing's technology to build a convenient service platform for community residents to protect their health.

#### 5.4 Smart community's security management

The smart community's security platform should have strictly control on the network information system of community safety, and strengthen the information management of each network layer to prevent the occurrence of all kinds of security accidents in the community. In the development of the smart community, the information security of the smart community is mainly focused on the video surveillance and analysis, the smart surveillance devices and high-definition cameras in the community are growing, and the massive video data belongs to unstructured data. Unstructured data processing is more difficult than structured data processing, which poses great challenges to the management and use of traditional data. We can find out the relationship between transactions more objectively, the key to solve this problem and guarantee the security of the community is to analysis massive unstructured data. For example, the smart community integrates urban population data, road monitoring data, residents behavior data, the data of the suspect's file car, using video analysis's technology and big data analysis technology to find out the dangerous people in the community, and focusing on them, so that the potential crime can be curbed in time, and the community safety accident will be able to prevent in the future.

## 6 Conclusions

In the big data age, new data processing technologies such as big data, internet of things and cloud computing have brought tremendous support to the construction and management of smart community, but it is a long and arduous task to use these technologies as a boost to the development of smart communities, which requires the efforts of all sectors of society. Therefore, the construction of smart community needs further explore and constantly improve the community's management system to create a more comfortable and smart living environment for the community residents.

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## **Analysis and Management of University Students' Network Behavior Based on Data Mining**

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**Abstract** At present, with the application and popularization of network technology, network culture has gradually penetrated into the University, as the support of new media and followers, teachers and students in universities to lead the application and development of high technology at the same time, but also to promote the development of network culture. With its abundant information resources and various entertainments, the new media gets the favor of teachers and students in universities. Under this kind of cultural environment, the life style, the thought idea and so on, the university student also suffers the varying degree the impact. At the same time, it also challenges the management of College students. According to the investigation and analysis of College Students' network behavior and the use of data mining analysis, find out the students' network behavior habits, and puts forward the management measures of the hierarchical classification, so as to strengthen the guidance and education for college students to develop good habits and network behavior.

**Key words** Network behavior, Network culture, Data mining, Student management

### **1 Characteristics of university network culture in the new media environment**

At present, with the application and popularization of network technology, network culture has gradually penetrated into the University, as the support of new media and followers, teachers and students in universities to lead the application and development of high technology at the same time, but also to promote the development of network culture. With its abundant information resources and various entertainments, the new media gets the favor of teachers and students in universities. Under this kind of cultural environment, the life style and thought of college students are also impacted to varying degrees. For this reason, the construction of a good campus network culture environment has been put on the agenda of many universities<sup>[1]</sup>.

First of all, network culture contains rich knowledge and information. New media technology can store abundant knowledge and abundant information, in this environment, the discovery and use of knowledge and information more convenient, coverage throughout all aspects, provides inexhaustible material for campus cultural life. The new media not only provide a wealth of knowledge and information, but also make college students become reports, and provide educational platform for the dissemination of campus information and the construction of campus network culture<sup>[2]</sup>.

Secondly, Internet culture has a wide range of ways of communication. The network has the characteristics of virtuality and convenience, and teachers and students in Colleges and universities can use QQ, Weibo, WeChat and other communication tools to freely express their opinions and suggestions, and exchange feelings and ideas. This not only expands the space for college students' ideological activities, but also improves their communication ability and performance ability, and helps to create a harmonious campus network environment.

Finally, the network culture has a fast update speed. Network culture in constant development and change, affecting college teachers and students studying and living at the same time to update their knowledge system and traditional knowledge, carry out new forms, rich campus cultural activities is consistent with the use of new media, complied with the time development tidal flow and promote the upgrading of network culture<sup>[3]</sup>.

### **2 Network behavior analysis of college students**

#### **2.1 Data acquisition**

In this paper, a questionnaire survey method is used to collect data. The main subjects of the

questionnaire are college students, including undergraduates and postgraduates, and the principle of voluntary completion of students, in order to ensure the objectivity and authenticity of questionnaire data. During this period, we issued 1000 copies of the questionnaire, recovered 872 questionnaires, eliminated incomplete and ineffective questionnaires, and finally received 747 valid questionnaires.

### 2.2 Reliability and validity test

First, the reliability test was carried out, and the Cronbach  $\alpha$  value was 0.879. The result showed that the questionnaire had good reliability and the stability of the questionnaire was higher. Secondly, KMO sample measure and Bartlett sphericity test were used to test the correlation between the questionnaire questions, so as to judge whether the questionnaire validity was up to standard. After inspection, questionnaire sample data of KMO value was 0.926, higher the validity of Bartlett test at the same time, the significant degree is 0, that should reject the independent variable hypothesis, so there is good correlation between the variables that can be analyzed.

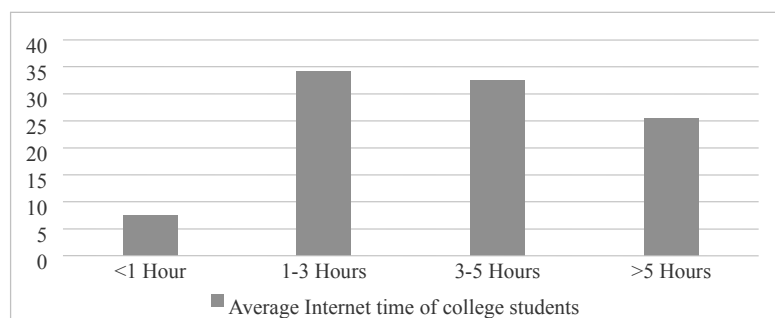
### 2.3 Data analysis

From the Table1, We can see that the students more often use network access to outside information, to express their views, but the network communication environment and value is non negative view of diversification, and is likely to have adverse thought to guide the young college students, not only the responsibility to create a good cultural environment of network, at the same time, students also need to the teacher for their escort.

**Table 1 Usage statistics of mobile Internet (part,percent, %)**

	Totally disagree	Disagree	Uncertain	Agree	Totally agree
I often use mobile networks to browse political news	5.5	15.3	22.5	35.6	21.1
I often publish my views on politics on the Internet	19.4	27.4	24.7	18.8	9.6
The accuracy of the ideological and political education provided by the Internet media is not high	5.9	13.5	39.4	27.7	13.4
The negative ideological and political information on the mobile network has had an impact on my values	25.8	28.4	23.1	14.2	8.5
I hope colleges and universities provide ideological and political education information through the Internet	6.1	8.4	23.9	41.4	20.1
Ideological and political education should be carried out in a variety of ways	3.4	5.9	20.2	44.0	26.6

From Figure 1, learned that the investigation contents using the mobile Internet is the average time of day, more than 90% of the students use time more than 1 hours, more than 50% of the students use time more than 3 hours, therefore, through the mobile Internet has gradually become the main way for college students to browse the Internet.



**Figure 1 Average Internet time of College Students (percent, %)**

In what concerns the use of mobile Internet on college students' content, we found that there are different men and women are concerned, but it is worth noting that both men and women, the degree of

concern on the news in the column is higher options, respectively 24% and 20.1%, secondly, to entertainment the information concerned is also located in the forefront of students reached 14.5% and 22.4% respectively. In addition, male students pay more attention to sports and IT, while female students pay more attention to life style, education and novels. Details are shown in Figure 2.

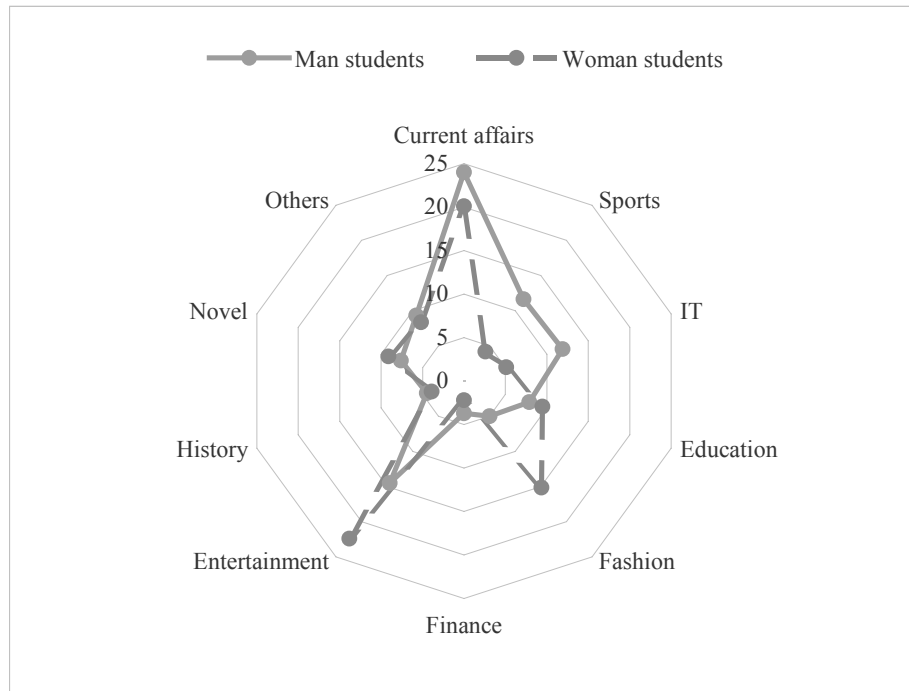


Figure 2 Men and women use mobile Internet concerns (percent, %)

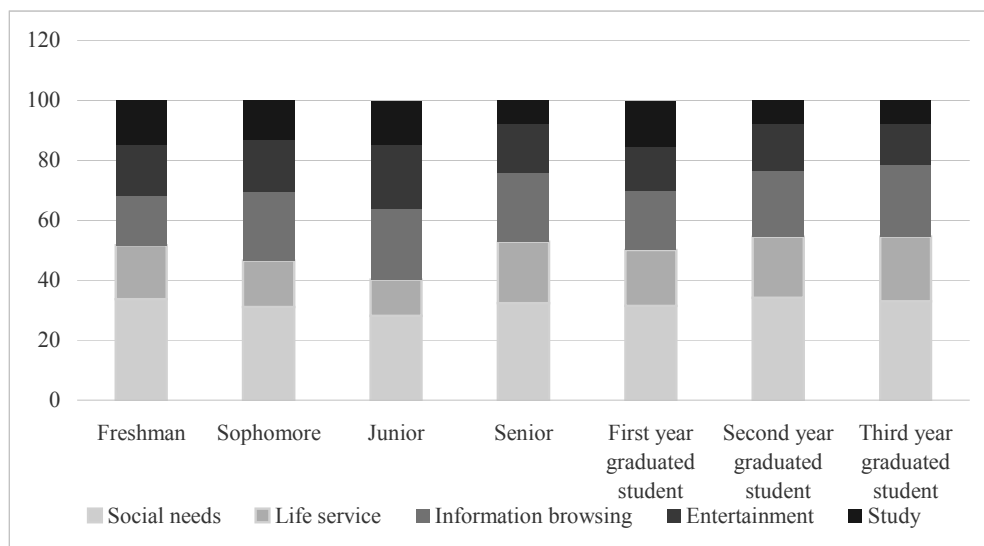


Figure 3 The function contrast of different grade students using mobile Internet (percent, %)

Use the provided in the mobile Internet function, according to statistics, undergraduate and graduate students are showing the higher grade, the number of the use of learning support function of the proportion of the less, on the contrary, the use of information browsing proportion is rising trend; regardless of gender, grade, subject factors, college students use social function the proportion of each

function in the first column, the average is higher than 30%. Specific data such as Figure 3.

### **3 The impact of new media on universities and college students**

#### **3.1 Facing new educational environment**

The new media can collect information extensively, disseminate information freely, expand the social network problem, change the social environment of college education, and strengthen the social responsibility of colleges and universities<sup>[4]</sup>. In addition, the new media to broaden the university education space, promote communication and interaction between teachers and students, and some bad information will penetrate into the new media, affect the values of the students, this is not controllable, the university is facing a severe challenge.

#### **3.2 Impact on campus culture**

As an intangible asset, campus culture promotes the development of colleges and universities, and promotes the formation of core values of college students. Under the new media environment, how to give full play to the educational function of campus culture and make college students set up scientific values become the first consideration in the construction of university culture. A great deal of rubbish information influences the thought of college students, corrode their minds and interfere with the value judgment of college students. The virtual nature of the network makes the students out of reality, even escape from reality, indulge in the virtual world, and neglect their studies.

#### **3.3 Affect the mental health of college students**

The convenience and shortcut of the new media greatly reduce the intermediate link of information dissemination, and have the characteristics of immediacy. A variety of information resources, impact on the thinking of college students, making the psychological situation of college students is more complex. Junk information easy to confuse students' mind, make students cognitive imbalance, psychological problems; virtual network space, to regulate and restrict the students' speech, some false statements make students have doubts, lack of trust of the people around, to bring the reality of interpersonal influence; in addition, students through emotional communication of new media. Addicted to love, not to be able to fully recognize and understand each other, this build on each other on the basis of imagination and feelings, divorced from real life, it can make students suffer setbacks and harm, cause students to have a distorted love psychology.

### **4 The effective measures to strengthen the construction of university network culture**

#### **4.1 Master the leading power of campus network culture construction**

The rapid development of science and technology, promote the use of advanced equipment and extensive use of new media, excellent traditional culture and contemporary scientific culture, promote campus culture, strengthen the ideological communication and the exchange of information between teachers and students. Therefore, universities need to establish a network of cultural exchange platform, cultivating high level and high quality education, its educational leadership, promote healthy and vigorous development of campus network culture; perfect the campus network culture system, organizational leadership and cultural work, to carry out advanced cultural activities, and create a good cultural atmosphere of the campus network.

#### **4.2 Construct the campus culture that keeps pace with the times**

College students are the object of training in colleges and universities. The construction of campus network culture should be based on students and promote the all-round and healthy development of students<sup>[5]</sup>. In order to understand the students' interests and needs, to carry out special education activities, the network culture promotion activities, the implementation of the construction of network culture, to guide students to establish a correct view, the educational function of college network culture. Keep pace with the times, use new media technology to enhance the interaction of campus network culture, listen to the students' reasonable opinions and suggestions, and deal with students' Ideological and psychological problems in a timely manner.

#### **4.3 Educate and guide students**

Colleges and universities should cultivate self-discipline and self-discipline ability of college



students, and urge them to resist bad temptation. Vigorously promote the network of moral philosophy, advocated norms, cultivation of network moral consciousness of the students through the ideological and moral lesson or related courses, good education and mental health counseling work of moral education, respect students' psychological development law, the construction of campus network culture harmony<sup>[6]</sup>.

#### 4.4 Improve the quality of college students

College students should constantly improve their self-cultivation, good at identifying bad information, and resolutely resist temptation, self-esteem and self love. Abide by the network culture morality, not spread rumors, cultivate positive psychological quality<sup>[7]</sup>, understand relevant laws and regulations, have legal awareness, arm themselves with legal knowledge, and promote the coordinated development of physical and mental health.

### 5 Conclusions

The influence of the new media, college and university students are facing severe challenges<sup>[8]</sup>. Therefore, the university campus to establish a healthy campus network culture environment, create a harmonious atmosphere of the campus network culture, guide students to establish the correct values, to cultivate high-quality talents; students should set an example to improve their own self-cultivation, as to lead the trend of the times responsibility.

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## Education Informatization: An Important Way to Achieve Educational Equity

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**Abstract** As the 21st century is the age of information, education is experiencing a huge reform and development influenced by the information technology. Education informatization is not only an inevitable requirement of education reform and development, but an important driving force to realize social and educational fairness. The government should deepen the application and constantly integrate innovation at a steady pace in the educational informatization era facing the information technology wave. First of all, this paper starts with the basic concept and connotation of educational informatization, and explains the latest planning and policy of the Chinese government promoting education informatization in detail from a realistic perspective. Secondly, the paper discusses the reasons to realize education equity and how the information development becomes an important way to realize the education equity based on its basic theory. Finally, the paper analyzes how the government should better promote education informatization and achieve education equity supported by the new public management theory from the ideal perspective.

**Key words** Education informatization, Educational equity, Public management, Way

Educational equity has always been the focus in education field and currently, informatization has become an important national strategy and education informatization is facing major historical development opportunities. During the “Thirteen Five-Year” period, improving education quality comprehensively, promoting educational equity at a higher level and accelerating the process of education modernization and other important tasks have proposed higher requirements for education informatization, which will experience a vast development space.

### 1 Basic connotation of educational informatization

Education informatization is a process taking information as the basic element of the education system and extensively utilizing information and communication technology (ICT) to promote the education modernization in all areas. This process should highly stress the information analysis of education system and the effective application of information technology in education (Huang Rong-huai, 2002<sup>[1]</sup>). Based on the above definitions, education informatization is not only a process to introduce information machine into education, but a process to reform educational ideas and concepts, and even a process to effectively utilize information technology, realize innovative talent cultivation and realize education modernization based on innovative education.

The basic characteristics of educational informatization are openness, sharing, interactivity and collaboration. Openness makes learning not subject to time and geographical constraints, the network and distance education can allow you to select learning resource, way and progress and find your weakness to better formulate personal goal according to your own need, knowledge background, hobby and learning style; As the essential feature, sharing provides rich teaching resources for education and teaching and forms a highly integrated and inexhaustible resource library; Interactivity allows learners to timely ask questions and communicate with others, and share the problem-solving processes based on the current learning subject, and even realize mutual analysis and evaluation. Collaboration allows educators to have more time and space to discuss with others and obtain the opportunity to work with others through computer or online cooperation.

### 2 Information policy analysis of the Chinese government promoting education equity

Recently, the Ministry of Education has issued the “Work of Ministry of Education in 2017” and

“Education Informatization Work in 2017” to fully implement the Thirteen Five-Year plan of education informatization. During the “13th Five-Year Plan” period and guided by “four comprehensive” strategic layout, Chinese education informatization adheres to the development concept of “innovation, coordination, green, open and shared”, takes the learning society of “everyone can learn everywhere and every time” as the main goal and the cultivation of a large number of innovative talents as the development direction, and strives to build a life-long education system integrated with network, information, digital and personalized features. The Chinese government, with the guiding ideology of education equity, forms an educational informatization system compatible with the goal of educational modernization and further supports educational reform and equity (Ministry of Education, 2016<sup>[2]</sup>). And the government stressed that China will have basically achieved the education equity system “everyone can learn everywhere and every time” and roles of education informatization promoting the overall development of students and supporting the comprehensive reform in the education field by 2020.

As an important quasi-public goods, educational resource is conducive social equity and progress. However, in the current development stage, the increasingly obvious gap between the rich and the poor and the inequality of household incomes directly have led to the disadvantage role of some people in consumption of competitive education, transforming education inequality directly into social inequality. As an important regulator of social distribution, educational resource effectively ensures its equity significance. The Chinese government stressed that we should actively take the education informatization development path according to the Chinese characteristics, and implement the “1238” policy in the national education informatization work conference held in April 2017. “1” refers to a core concept to deeply integrate information technology and teaching practice and better promote education reform; “2” means two basic principles, application driven and mechanism innovation, requiring to widely use information technology in education field, and expand the education equity; “3” refers to three key initiatives—training seminar, pilot implementation first, open cooperation. Zhejiang is a main pilot to provide experience for the national education reform and forms the sample; “8” refers to eight application models, including the resources sharing, teachers application, digital campus, classroom application, network learning space, inter-school interaction and regional overall promotion, adheres to take those adapting to the current national conditions as the basic orientation.

The Chinese government has focused on the construction of information infrastructure and the informatization implementation in the central and western regions, remote and poor areas and weak schools in the process of educational informatization. For instance, it clearly put forward the annual key objectives of education informatization is to narrow the gaps between the regional, urban and rural, inter-school information infrastructure in “Education Information Work in 2014”, which transforms its development focus from the developed to the remote poor areas and from the urban to the rural schools. In order to promote the sharing of quality education resources, the “Action Plan for Education in the 21st Century” requires to implement modern distance education, open online courses and achieve the educational resources sharing across time and space. More importantly, the pursuit of fairness should reduce the education cost and improve the utilization of educational resources. The “Notice” clearly states publish all the established basic education resources to the public to avoid repeated resources development and construction (Ministry of Education, 2000<sup>[3]</sup>). The government requiring “to establish the shared course library through the certification or acquisition” in order to ensure the rational use of education informatization funding and achieve the maximum benefits based on the original (Ministry of Higher Education, 2000<sup>[4]</sup>). In short, the policy aims to achieve the optimization of investment and resource utilization efficiency in the pursuit of fairness, while the application of information technology in education and teaching makes the balance between fair and effectiveness possible.

### **3 Education informatization: An important way to achieve educational equity**

#### **3.1 Education informationization: An effective and necessary way to achieve education equity**

The famous American philosopher John Rawls argues that education equity not only can allow individuals to share public education resources freely and equally, but obtain full development based

on their qualities according to the concept of education equity (Ding Hai-xia and Tang Cui-fang, 2014<sup>[5]</sup>). In other words, education equity includes fairness of starting point, fairness of process and fairness of result.

Firstly, education informatization provides the favorable conditions for the fairness of starting point. On the one hand, education informatization has established the special education information “cloud platform” and an educational resource information database integrated with the primary schools, secondary schools, universities and other educational units by abandoning the “information island” and “digital divide”. For instance, the current MOOC platform makes people with different backgrounds enjoy the quality education resources in the university, and provides reliable teaching information and consultation services for students at different education levels and people with different social needs; On the other hand, high-quality educational resource sharing can cultivate more excellent teachers, which not only can provide more training opportunities for teachers in remote areas, but enable them to learn teaching methods and experience from better teachers and further enhance their own professional quality, and this is one of the important aspects of educational equity.

Secondly, education informatization can ensure fairness of process and even the funding allocation and teaching to the maximum degree. For instance, University of Electronic Science and Technology of China started to research and develop “wisdom assistance system” at the beginning of 2105 and formally operated at the end of 2016. The system can conduct a comprehensive analysis to find the real hidden poor students and provide additional 600 yuan subsidy through collecting large data of students consumption, family economy and member information, and combining with students’ work-study, social characteristics, behavior traces and other dimensions. In addition, many Chinese major colleges and universities also utilize information technology to build a teaching evaluation platform to avoid unfair emotional tendencies of teachers in the teaching process to some extent, but this can also help teachers optimize their curriculum content and structural design, and ensure that students obtain more opportunities for development in the learning process.

Thirdly, education informatization can ensure fairness of result. Students can effectively utilize various forms of wisdom courses, record all learning information comprehensively, including academic data and learning trace, establish learning analysis model to analyze students’ knowledge and ability development level based on big data and promote the change in learning style with the evaluation system, thus learning can be more interesting and challenging, learns can learn with the cooperative, innovative and vivid modes and accept suitable educational contents and resources according to their own ability and talent.

### **3.2 Important ways for the government to achieve education equity**

Education informatization means the state should organize, lead and manage the education through the educational administration departments from the perspective of administration. Currently as the representative of public power and public interest of people, the government plays an important role in realizing education equity according to the political system of our country. Education is an important tool for the government cultivating the future ruling class and also greatly related to the long-term development of our country. Therefore, the government should take public responsibility actively to ensure that every educator can have equal educational resources to comprehensively achieve education equity.

#### **3.2.1 Transforming its role from the management to the service-oriented in education governance, and allowing the involvement of private institutions and other third parties**

The new public management theory argues to separate macro management from specific operations in public administration, and emphasizes that the current government should be “steering” rather than “rowing”. The government is no longer the main body of the administrative control, but the service administration in the educational management affairs, so the reform measures should be public-oriented and respect the market law in addition to education informatization initiatives. The American politician John Jobs wrote that “the market can cultivate the autonomy possessed by efficient schools through their own characteristics, and consumers have no need to purchase inefficient school products and then these schools would disappear from the market” on Politics, Markets, and American Schools (Chen Qiu-ping, 2012<sup>[6]</sup>). The government should encourage investment in

education of all non-governmental organizations, non-profit and community organizations and other social private institutions in addition to small-scale, low-cost limited government, and the government serves as the organizer and coordinator of the subject of educational pluralism management.

### **3.2.2 Guiding according to different types and grades, and promoting education informatization as a whole**

The government should rationally allocate central and local administrative power of education and realize decentralization. The centralized and decentralized systems should be considered together according to China's national conditions, especially the local educational administration departments at all levels not only should implement macro strategic requirements of the "Thirteen Five-Year Plan", but achieve the "localization" according to the actual situation and the limited authorities of the administrative departments at the central and local levels. The basic education mainly implements local management, and different positions and responsibilities of the provincial, city, county and township governments and their educational administration departments in the education administrative system should be specified. The higher education should specify the functions of the Ministry of Education and the local educational administrative departments, make the central education administration departments assume the leading role, coordinate the development of higher education and coordinate the allocation of information resources for higher education. And especially the local education administrative departments should implement coordinated management.

Education informatization promotion at different levels is also very important. The basic education can introduce classroom innovation and constantly improve the types and number of quality education resources and promote the individual development by abandoning the boring examination-oriented education mode; the vocational education should utilize modern educational information technology, enhance the practicality and operability in the training teaching process and improve the connection between vocational education and the actual operation; the higher education should innovate talent cultivation, social service, cultural inheritance and management mode (Ministry of Education of the People's Republic of China, 2016<sup>[7]</sup>) improve the level of running a university to ensure the quality of personnel training in colleges and universities; in addition, it can continue to implement a mixed training model, and combine the traditional offline face-to-face training with the online network independent and interaction learning, in order to provide convenient and favorable learning conditions for the whole people learning and lifelong learning.

### **3.2.3 Actively building a resource allocation platform between universities to achieve complementary advantages and resource sharing**

The imbalance between teachers is the main reflection of the inequality of higher education. The government should actively promote the exchanges and cooperation between universities and break the communication barriers, for instance, the current university town or university alliance is the development product of modern education guided by the government that takes the sharing of educational resources as the core operating mechanism to reduce education costs and improve the education quality, especially the Internet can break the time and space constraints, and integrate quality curriculum resources in universities for the wider population. The government should encourage colleges and universities to carry out various forms of training model, establish curriculum library, expand and enrich the sharing curriculum resources and further improve the unified information management platform compatible network curriculum resources through building a perfect credit mutual recognition system.

### **3.2.4 Improving the relevant protection and forming a diversified investment support mechanism**

Currently, there are huge regional and school differences in the level of educational informatization in China, especially the difference of fund input. To solve this problem, firstly, it is necessary to increase investment in education informatization through various ways, such as the establishment of non-profit organizations, the support of third-party enterprises and the participation of diversified investment operation model, the subsidies and tax relief of major telecommunications companies, and further encourage the network at various schools to implement preferential mechanisms. In addition, bank loans, installments, welfare lottery and other economic and financial means are essential to provide appreciation and adequate protection for education informatization

funding.

Secondly, the government should seize the investment focus, guide the investment direction and clearly specify its important role in the education informatization funding, and further increase the education investment in the backward areas. All regions should effectively implement the national policy on the public funds to purchase information resources and services, optimize the expenditure structure, specify the expenditure proportion of education informatization funding in the public funds and education surcharges, and further form funds investment guarantee mechanism (Ministry of Education of the People's Republic of China, 2016<sup>[8]</sup>).

### **3.2.5 Strengthening the government leadership and system guarantee, and standardizing management system and service mechanism of education informatization**

In order to achieve scientific development, leapfrog development and the leadership, we must strengthen the team building of government leaders, and improve the decision-making, innovation, execution and credibility of government's education work. Various levels of schools, educational administration departments and institutions should improve the function construction of information management departments at all levels and establish the efficient information organization and leadership system. For example, it is essential to establish a "leadership" responsibility system and responsible for promoting education informatization promotion and assuming the responsibility to form the pressure mechanism in the education informatization management system. It is necessary to clarify the responsibilities and obligations of administrative management departments, business application promotion departments and technical support departments in the pattern of educational informatization, and further ensure its healthy and orderly development.

It is very essential to explore and establish a strong educational informatization technology service support mechanism, make full use of the advantages of professional services, organize and implement the informatization equipment construction and operation and maintenance management, form a set of guidelines to reduce the equipment failure rate, regularly check the educational technology equipment and quality teaching learning resources in educational institutions and further provide quality services for schools, teachers and students; In addition, it is necessary to gradually establish the chief information officer (CIO) system in schools at all levels (Yu Chuang, 2016<sup>[9]</sup>) comprehensively coordinate information planning and development and strengthen the construction of informatization professional team to ensure the implementation of information management and service at all levels.

## **4 Conclusions**

The application of educational informatization has continuously achieved wide promotion and improved the thinking mode and method of education equity research along with the continuous improvement of informatization in China. Although it is still difficult to achieve education equity through education informatization. Currently, this idea will achieve great breakthroughs and progress along with the increased support efforts of the national policy and the continuous development of education informatization, thus transforming from a big country of education to a powerful one.

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## The Study on the Construction of Negative Listing Management Model of Quasi-public Product Supply

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**Abstract** Quasi-public products, due to their nature in between the public goods and quasi-public goods, have always appear to be a problem in terms of the blurred government and market boundary in its supply field. With the deepening of China's social and economic reform, the demand for the supply of quasi-public goods is increasing. The emergence of negative listing management model brings new ideas to the reform of this field. Based on the analysis of the nature of quasi-public products and the existing problems in the supply, this paper analyzes the characteristics of the negative listing management model and the using effect. What is more, it puts forward that the negative listing management system should be used in the quasi-public goods supply field. And how to construct the system has also been demonstrated in this research.

**Key words** Negative listing, Management model, Quasi-public goods, Supply

### 1 The present of the questions

#### 1.1 The problem proposed in theoretical aspects

Quasi-public goods are a type of special products between merchandises and public goods. Due to the special product nature, the products can intervene in the supply of both government and the market. Because quasi-public goods have certain public products nature, they need the government to exert the function to influence the supply to a certain extent, or to be directly supplied by the government. But quasi-public goods are certainly different from public goods. Quasi-public products cannot feature both non-competitive and non-exclusive nature at the same time. Therefore, quasi-public products, to a certain degree, are partly characterized as merchandises, therefore they can be introduced into the market subject in the supply.

So, in the field of quasi-public goods supply, how to effectively differentiate the supply boundary between government and the market, and how to effectively reduce the supply's cost and improve the quality of supply? This is a common research issue, and the emergence of negative listing management models may bring new ideas to the solution.

#### 1.2 The problem proposed in practical aspects

In recent years, streamline administration & institute decentralization and stimulating market vigor have been important directions of our government's reform. Because of the special product nature of quasi-public goods, the field of quasi-public goods supply has become an important field of reform. Although there is a clear direction in macroscopic aspect in the field of quasi-public goods supply of our country, the microcosmic reform measures and reform ideas are still in short, which have caused some problems in the supply of quasi-public goods and the problems are still remained. The main issues are as such:

(1) The unclear boundary between the government and the market in terms of the quasi-public goods supply

The nature of quasi-public goods determines the fuzziness of the boundary between the government and the market. This requires a clear-cut approach to clarify the boundaries between the government and the market, so as to enable efficient operation in the area. Traditionally, the model adopted by China is positive list aiming to clarify the quasi-public products that can be supplied or partly supplied by the main market entities. However, it is impossible for the positive list to enumerate the entire quasi-public products. In the case of quasi-public goods that have not yet been listed, the market entity is often forbidden or restricted entirely. And on the ground of the absence of clear regulations from the government, the interest-oriented and the challenge-avoidance behavior has resulted in the lack of quasi-public goods supply.



(2) The quality and supply efficiency problem of quasi-public products

The traditional positive listing management model clarified the government and market boundaries in the field of quasi-public goods supply, therefore the quality and efficiency of quasi-public goods supply will be affected in two aspects. First, in the areas where the government should play an important role in the supply of quasi-public goods, such as housing, health care and education, the fuzziness of borders can lead to the unclearness in the government responsibility, so that leads to the phenomenon of low-quality and inefficiency of quasi-public goods and its supply. Apart from that, the government's responsibility and rights are unclear in terms of the areas that are not included in the positive list. On the ground of that, some market entities cannot enter this domain smoothly. Therefore the quasi-public product supply sector could become a rent-seeking area, which will harm the market's ability to supply products through normal competition.

(3) The problem about the supply cost of quasi-public goods

The high cost of quasi-public goods supply is caused by certain problems, which can be concluded into three aspects: first, the above mentioned market entities that cannot enter certain field in normal course will easily lead to rent-seeking behavior, so that full-scale competition will be harmed. And competition will bring the products with high performance price ratio. Without sufficient competition, the purchase price will be higher than the reasonable and equilibrium price. Higher prices will become monopolized and rent-seeking costs, which will make the supply of quasi-public goods more expensive. Secondly, the management mode of the positive list means that the government will carry out more administrative restriction to the market entities in the field, such as business license, sales license and so on. This makes the market entities subject to more administrative costs. And consequently, these costs will be passed on to the supply cost of quasi-public goods. Finally, in the field of the supply of quasi-public goods, with vague boundary, the government's main responsibility is not clear, which will weaken the supervision and lead to adverse selection and moral hazard of the market, so that the waste rate and the unqualified rate of quasi-public goods will be high, and the repeated supply will come into being.

## **2 The analysis of the construction background, the present situation and the trend of the negative listing management mode of quasi-public goods supply**

### **2.1 Background**

(1) The reform trend of streamline administration and institute decentralization

At present, our country is in the key period of development and transformation. The Government carries out the streamline administration and institute decentralization reform to reduce the administrative restraint, therefore to activate the main market entities. The super ministry reform, the reduction of the departments with overlapping functions, and the streamline of the administrative approval process are approved to be pretty efficient. And such reform will be constantly deepened, on the ground that this is the need of our country's current development.

(2) The connotation and development of negative listing management model

① The implication and source of the negative listing management model

The negative listing management model, which is in comparison with the positive listing management model, refers to the listing of matters that are expressly prohibited and restrict by laws or related rules. And in this management model, the unlisted matters are all belong to legal matters that permitted by rules and regulations.

The negative listing management model has its profound theoretical source. As far as legal thought is concerned, the idea of negative listing management model originates from the concept of a matter without prohibition can be conducted, that is, as long as a deed is not expressly prohibited by law, then it will be considered legal. It is a manifestation of the autonomy of private law, which can be understood as that the civil subject enjoys a wide range of freedom of conduct within the scope of law, and one can engage in civil act independently free from the interference from the state and government (Wang Li-ming, 2014<sup>[1]</sup>). As far as economic thought is concerned, the thought of negative listing management model mainly originates from the economics thought of classical liberalism. The classical liberalism economists believe that the market has its own operation law, and the market players can

carry on the market behavior according to the market law, while the less the government control, the better the economic will be. The “night watchman” is the best position for government. Negative listing management system, through listing the prohibited or restricted field, gives the market entities the freedom to access the unlisted areas, and the prohibited and restricted fields are where the government can play the role of “night watchman”, which is exactly the embodiment of classical liberalism economics. As for management thought, the idea of negative listing management model originates from the new public management theory. The new public management theory mainly emphasizes the government’s administrative benefit and service quality. The so-called administrative benefit is the ratio of government revenue and its cost, and the government is supposed to run like an enterprise. Negative listing management model, through the way of negative listing, promotes the streamline of administration and institute decentralization and simplifies the miscellaneous management. This can not only reduce the administrative costs of government operations, but also stimulate social powers to conduct better management and service effectiveness, as well as improve administrative benefits. Therefore this is the embodiment of the new public management theory.

#### ②The development of negative listing management model

The emergence of a world-recognized negative listing management model can be traced back to the German Customs Union in 1843. The Union expressly stipulates that, except for the areas that are clearly defined as un-opened imported areas, the federal states joint in the Union shall open the rest of the import markets. This is the first time utilizing a negative list to manage the import and export trade, which marks the birth of negative listing management model(Lu Zhen-hua,2014<sup>[2]</sup>).

After the birth of the negative listing management model in Germany, it has been gradually developed and put into use. The symbolic events include:

The negative listing management model adopted by the North American Free Trade Agreement (NAFTA) in 1994 is considered by some scholars as the first application of the negative listing management model in modern management.

The General Agreement on Trade in Services made by WTO in 1995 partly adopts the negative listing management model.

Subsequently, it has been widely used in international trade, such as the “Trans-Pacific Strategic Economic Partnership Agreement”, the “Trans-Atlantic Trade and Investment Partnership Agreement” and the “Comprehensive Economic and Trade Agreement” signed by the EU and Canada(Qi Fan-hua and Wang Cong-hu,2016<sup>[3]</sup>). It is now reported that some 70 countries and regions in international trade have adopted negative listing management model.

## 2.2 Current situation

(1) The successful application of the negative listing management model in the field of foreign capital management

The negative listing management model has its inherent advantages compared to the positive listing management model. Positive listing management model is to enumerate the matters permitted by related rules and regulations, while the unlisted matters is within the scope of management model of non-licensing matters(Xue Zhi-yuan,2016<sup>[4]</sup>). There are two main advantages concerning the negative listing management model. The first is the clarity of the scope of responsibility. Usually, it is impossible for the positive list to include the complete permitted scope or utilizing vague language, to blur the boundary of the main body’s responsibilities. While the negative list can directly stipulate the scope of non-management or licensed matters, and the rest are within the scope of management and permitted, so that the range of the responsibility of the entity will be clear. Secondly, the incentive of the social vitality will be stirred. Because in the negative list management model, the non-list item equals to legal matter, the administrative restrictions will be reduced, therefore the enthusiasm of the market players can be aroused.

Contributed by the advantages of the negative listing management model, in the increasingly prosperous international trade field, the negative list management model has been favored In the free trade area. The management of foreign capital has mostly adopted the negative listing management model, that is, through the negative list, the restricted and forbidden fields of foreign capital can be set out, and the remained fields are the open ones which enjoy the national treatment. Such a management

model can not only ensure the key industries vital to national lifeline to be effectively protected, but also stimulate the vitality of foreign investment, therefore to achieve national economic security and coordinated development. The China Free Trade Zone (Shanghai) which has just begun to be constructed also adopted this management model in terms of foreign capital Management, and great achievements have been achieved.

(2) The exploration of the negative listing management model in the supply of public goods and quasi-public products in China

In April 2017, Nanjing Government issued “the negative list of purchased services of Nanjing Municipal Government during 2017-2018”, in which 7 major categories, 36 projects, and 230 items of the government procurement projects are strictly restricted(Zheng Guo-qiang,2017<sup>[5]</sup>). For the items included in the list, the government is not allowed to carry out purchases from the society and they must be provided directly by the government.

“The procurement and purchased services catalogue of Nanjing Government during 2016-2017” adopted by Nanjing Government last year utilizes positive listing management, while the “the negative list of purchased services of Nanjing Municipal Government during 2017-2018” applies negative listing management. The inadequacy of the positive list lies in the ambiguity of the boundary, which makes it possible for Governments to act in their own interests, rather than public interests. And the poor quality of public services in some areas will also emerge. In the case of Nanjing, there are similar problems existing in community security, urban management, industry supervision and demolition disputes. And when it comes to the use of negative listing management, the list of the banned items of government services purchases in these areas will be conducted, that is, the projects that government departments must fully play its functions, especially for those previous vague responsibility.

Nanjing applies the negative list to the government service merchandises, which is the first time that the negative list is used in the non-FTA social governance area. At present, the negative list management mode has an ideal operation effect, and the final result is still waiting to be tested. However, this is a good start. Also, we firmly believe that the negative listing management model will play an active role in the public goods and quasi-public goods supply. And it will further clarify the boundaries between the government and the market, regulate government behavior and bring up other positive effects.

### 2.3 Trends

(1) The enlargement of the application of the (negative) listing management model

The current negative listing management model is mainly applied in the field of international trade. Actually, the characteristics and advantages of the negative listing management model make it possible to be widely used in other fields.

Negative list and positive list are both the ways and means of social governance, and each has its pros and cons. Thus, both the models have the possibility of being adopted in various fields. The key is whether the management governance in this area is compatible with the negative listing management model. From the characteristics of the negative listing management mode, it can be used effectively in government management, social governance, international trade and other fields. However, this is only a speculation, whether the actual application can be successful still needs to be tested in practice.

(2) The applicability of the negative listing management model in the field of quasi-public goods supply

The negative listing management system can effectively clarify the boundary between the government and the market, clear the main body’s responsibility and stimulate the vigor of the main entities. Coincidentally, China’s current quasi-public goods supply field is presented by the problem of fuzzy boundaries between market and the government as well as the shortage of market vitality, which perfectly matches the strength of the negative listing management model(Tong Xing,2015<sup>[6]</sup>). On the ground of that, the negative listing management system has a strong applicability in the field of quasi-public product supply. For example, the above mentioned “the negative list of purchased services of Nanjing Municipal Government during 2017-2018” issued by Nanjing government clearly defined the services that directly provided by the government and are not suitable to be supplies by the society, which immediately solved the boundary ambiguity public service government and the society.

Therefore the applicability of negative listing management model in the field of quasi-public goods supply can be fully proved. The next necessity is to build a relatively complete negative listing management model in the area of quasi-public goods supply.

### **3 The analysis of the construction of the negative list management model of quasi-public goods supply**

In the field of quasi-public goods supply, a relatively complete negative listing management system at present is in absence. Combined with the characteristics of the negative list, the experience of foreign capital management, as well as the nature of the quasi-public products, we can construct three different negative listing management models in terms of different quasi-public goods supply:

#### **(1) negative list + regulation and supervision”**

The adoption of the negative listing management model will make the government partly withdraw from the supply of some quasi-public goods. But the government's withdrawal does not mean that the government will totally disregard the development of the field. It will only withdrawal from the role of market player(Zhang Xiao-ran, 2016<sup>[7]</sup>). In the field of production and supply of quasi-public goods, the necessary regulatory has to be done by the government.

In the supply of quasi-public goods, the main body is difficult to be identified. On the ground of that, it is easy for the government to “arrange” the situation. And the previous practice proves that being controlled by government is not the best model. This requires the government to let go of social and market entities and take the responsibility of monitoring to ensure the quality of quasi-public goods and the order of the market(Fang Yang,2016<sup>[8]</sup>). Then in the areas that, stipulated by negative list, the government must decentralize its power, the government shall change its role from the “athlete” to “referee”, establish and perfect the supervision and inspection mechanism in this field, and strictly check the quality of quasi-public products provided by social entities.

At the same time, the supervision and inspection system also involve the participants of the government itself. After the adoption of the negative listing management model, on the one hand, the government needs to give more space when it comes to the quasi-public goods and let the market and society to play their part. On the other hand, it is a must for the government to provide high quality quasi-public goods in the negative list of quasi-public products. The supervision and inspection system is that the government should supervise the departments and staff in the interior, fulfill their duties according to law, and provide good quasi-public products. For example, health care, housing and education, those all require the government to play a more important role in terms of the supply.

#### **(2) “negative list + credit system”**

After the establishment of the negative listing management system, when it comes to the areas that are open or partially open to the market, some of them can better ensure the quality of quasi-public goods under the direct supervision of the government, such as housing and infrastructure fields. However, in some areas, the direct supervision of the government will harm the role of the market. In the cases like these, the government should adopt relative flexibility measures to guarantee the quality of quasi-public goods through market mechanism (Xiao Jian, 2016<sup>[9]</sup>).

Credit system is one of them. The government may aim at the enterprises producing the public goods, follow a certain standard or hire a third party, carry on the product's track record and evaluation, publish the result, and incorporate it into the bidding system of the quasi-public product purchase or outsourcing, so that the local governments and departments can take reference in the conduct of quasi-public goods purchase and outsourcing process. For different quasi-common products, even the credit rating can be used to identify the market subject's qualification. For example, the level of the credit required for medical care is higher, while the physical infrastructure only requires a general credit rating.

In terms of credit rating, the Chinese government has the relevant foundation. Many government departments have actually adopted such a credit system in traditional government purchase or national capital purchase. What needs to be improved is the integration of standards and evaluations through a relatively high level of government.

(3) “negative list + policy protection”

Negative listing management model needs to clarify the relationship between the market and the government as well as the scope of their functions. The supply of some quasi-public goods is clearly zoned in the negative list, allowing the market subject to supply, but there will also be a series of problems. The reason is that quasi-public goods have some property of public goods, and the supply and consumption of quasi-public goods not only bear economic significance, but also certain social significance. Therefore, on the basis of negative list, the policy protection is required for the vulnerable consumer group in the relevant area of the society.

The most typical example of this is housing, which has both the nature of commodity and the nature of public goods, that is, a typical quasi -public product. Nowadays, many countries in the world have disputes over whether housing should be commercialized or the state supplied. Although our country does not adopt the negative list to make it clear, but the commercialization to the housing has been ongoing. With the sharp rise in house prices, purchasing a house for some people has become unreachable, and even rental appears to be a problem for low-income groups. This makes it impossible for this group of people to fully enjoy the fruits of social development, which brings unfavorable factors to social development and stability. Under this background, policy protection is particularly important. The government has introduced low-rent housing, housing subsidies and a series of policies to protect this group.

In the negative listing management, when it comes to the supply of quasi-public goods, the vulnerable groups have to be favored by policy protection in the area divided into the market. Thus, the formation of “negative list + policy protection” management model will be completed.

#### 4 Conclusions

Under the precondition of combing the problem of the supply field of quasi-public goods, this paper introduces the negative listing management model, analyzes the characteristics, current situation and development trend of the negative listing management mode, as well predicts that the application of the negative listing management model will be enlarged according to the exploration of the negative listing management model in Nanjing’s public service area. On the basis of that, this paper analyzes the applicability of the negative listing management model in the supply of quasi-public goods and carries out the research referring the construction of the negative listing management model in the field of quasi-public product supply.

At present, our country’s negative listing management model is mainly put into use in the foreign capital management of free trade test area, whereas in the government quasi-public production supply domain, the theory research and the application practice are still rare. In this context, the study in this paper tends to be more of theoretical aspects based. Therefore it is only a shallow level of exploration, and the empirical and research depth need to be improved. Moreover, in the future, negative listing management model will probably be applied to various areas of government service, but this article only refers to the quasi-public goods supply field, therefore other fields need more scholars ‘ further research.

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## The Governance Pattern of Public-Private Partnership \*

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**Abstract** At present, a great achievement has been made in the global governance of poverty elimination, disease prevention, and energy protection since the 21st century. Due to the negative effects of globalization and emergence of global crises, the current governance pattern could not satisfy the demands of publics any more, and many issues on the agenda of international conferences have been neglected. Meanwhile, the current pattern of global governance is no longer adapted to the challenges of tomorrow's world. Public-Private Partnership (PPP), known as the cooperation pattern between public and private sectors, which can bring greater validity and sustainability to the provision of public services, has become a new pattern of global governance and could help to solve some major issues in the world.

**Key words** Public-private partnership, Global governance, Global public goods, Challenge

### 1 Global governance and the public-private partnership pattern

The concept of global governance was first introduced by Brandt, the chairman of International Development Committee, in 1990, which conformed to the world trend of multi-polarization and the requirement of common management in global affairs. After WWII, depending on its strength in politics, economy and military, the United States took the lead in establishing global organizations such as the United Nations, North Atlantic Treaty Organization, World Bank and so on. Based on the huge institutional network, the U.S. provided global public goods for the other countries in exchange for the legitimacy of its hegemonic status. However, as the effect of its weak economy and the rise of new economic powers, the ability and willingness of U.S to supply public goods was greatly reduced after the financial crisis of 2008. However, the emerging economies could not yet replaced U.S. to provide global public goods. Besides that, the imbalance between the supply and demand in global governance is becoming more and more serious. And the rise of nationalism intensified the short supply of global public goods (Zhu Li-qun, 2014<sup>[1]</sup>). The altruistic provision of global public goods lead to the phenomenon "free ride", which caused to the normalization of short supply of global public goods.

The main problem of global public goods supply is shown as two aspects: underutilized and short supply. Sometimes, the serious lack of some kind of public goods would cause a bad influence on people's life; Even though some kind of public goods being supplied, there also exists underutilization and unequal distribution. Specially speaking, the underutilization of global public goods means that, some dimension of products makes to the difficulty of consumption; And the short supply of public goods means that, some products have not been provided or just part provided (Inge Kaul, 2006<sup>[2]</sup>). With the development of globalization in this new period, the scale of transnational population mobility, international trade and investment are expanding, the economic globalization has made a new demand to the supply of some global public goods such as international public security, legal system, economic order, public infrastructure, prevention and control of animal and plant disease, which lead to the contradiction between the supply and demand of global public goods more serious (Tu Yong-hong, 2016<sup>[3]</sup>). The solution of global issues requires a global collective action and the effective supply of global public goods. Therefore, the bottom-up public-private partnership could help to relief the dilemma in global governance by relying on the market forces.

Until now, there is not a standard definition of "Public-Private Partnership"(PPP) that accepted by the international community. According to the Canadian Council for Public-Private Partnerships (CCPPP), a public-private partnership is a cooperative venture between the public and private sectors, built on the expertise of each partner, that best meets clearly defined public needs through the

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appropriate allocation of resources, risks and rewards (John R. Allan, 1999<sup>[4]</sup>). The National Council for Public-Private Partnership considered the public-private partnership as a contractual arrangement between a public agency (federal, state or local) and a private sector entity. Through this agreement, the skills and assets of each sector (public and private) are shared in delivering a service or facility for the use of the general public (The National Council for Public-Private Partnership<sup>[5]</sup>). The World Bank defined that, a public-private partnership is a long term agreement between public and private entities, which can bring greater validity and sustainability to the provision of public services. Also, it allows for the better allocation of risks (The World Bank<sup>[6]</sup>).

Chinese scholars' definition of PPP pattern are as follows, Jia Kang and Sun Jie emphasized that, a public-private partnership relies on the cooperation between public and private sectors, and the public services will be provided by the latter, which can not only help to perform the government functions, but also bring appropriate benefits for private sectors (Jia Kang and Sun Jie, 2009<sup>[7]</sup>). Chen Yue-mei and Xu Zhen-yu considered that, the PPP pattern is not just a special pattern of project financing, but a generic term of a series of project financing model (Chen Yue-mei and Xu Zhen-yu, 2006<sup>[8]</sup>). Chen Wei-qiang and Zhang Heng-quan defined the PPP pattern as a cooperation model between public sectors and private entities, also it can be considered as a modern financing pattern with the idea of "win-win" cooperation, which could help to solve the financing difficulty caused by the project risk (Chen Wei-qiang and Zhang Heng-quan, 2003<sup>[9]</sup>).

## 2 The international application of PPP pattern

As the representative of public interest, sovereign states are indispensable to the supply of public goods. The government could not only provide pure public goods to meet the public demands, but also ensure the institutional environment for a better supply of public goods.

### 2.1 The development of PPP pattern dominated by the government

Since 1990s, the PPP pattern has been generalized worldwide, in the area of infrastructure such as expressway, subway, bridge, sewage treatment, telecommunication facility, school, hospital and so on. The PPP market in Europe is the fastest growing. From the perspective of different countries, the development of PPP project in England, Canada, Australia and America has taken the leading position in the world.

#### (1) The development of PPP pattern in England

England is one of the first countries to develop PPP projects. The Conservative Party led by Margaret Thatcher has began to promote the privatization of public fields in electricity, water industry, and gas supply. But in consideration of the impact of privatization, the government didn't make a reform of education and medical. For the financial retrenchment policy can't satisfy public expenditure increasingly, the U.K. government proposed Private Finance Initiative (PFI) for the first time in 1992 in order to allow private capital to play a part in public construction, which provide a really good start for cooperation between public and private sectors.

There are two kinds of PPP pattern in England: PFI (governmental pay) and franchise (user charge). In the model of PFI, government change the role of provider to purchaser, and private sectors will take responsibility for the construction and preservation of public infrastructure to get paid from the government (generally 20-30 years). Of course, the public would be better served (Liu Xiao-kai and Zhang Ming, 2015<sup>[10]</sup>). But a lot of problems have arisen over time, excessive privatization led to the high prices, heavy financial burden, and short supply of public infrastructure, which promoted the government to adjust the policy of PPP pattern. In 2012, the U.K. government carried out PF2 (Private Finance 2) to solve the abnormal profit and transparency problem and of investors, and contribute to the development of PPP pattern. PF2 has paid more attention to cost saving and service quality increasing, in order to make the project value for money (Meng Chun and Wang Jing-sen, 2014<sup>[11]</sup>).

According the report of HM Treasury, There were 728 current PFI projects of which 671 are operational at March, 2014. And the total capital value of current PFI deals (which is normally calculated at the financial close of the project) was £56.6 billion. These projects were applied in the fields of municipal construction, sewage treatment, school, hospital, transportation and even air traffic control (HM Treasury, 2014<sup>[12]</sup>).



## **(2) The development of PPP pattern in Canada**

The achievement of PPP pattern in Canada is internationally recognized. The government at all levels placed great value in PPP pattern and provided a good support. Therefore, PPP projects in Canada developed fast with a standardized operation and a wealth of purchasing experience, which took the advantage of service efficiency and transaction cost. The Canada has launched 220 PPP projects in areas of transportation, medical, judicial, education, cultural, housing, environment and national defense from 1991 to 2013. And the total capital value of these projects was \$ 63 billion. The current PPP projects accounted for 15%~20% of the total public projects.

The government established the PPP Canada for management, which is a state-owned company and operated in commercial pattern. This company aims to assist the government to promote and publicize PPP pattern, to participate in the exploitation and implementation of PPP projects, offer evaluation and advice for federal PPP projects, enact relevant policy for management, provide technical assistance and assume cooperation with local PPP units. Also, this company established the PPP Canada Fund in order to better support PPP pattern. It is the first infrastructure funding program, anywhere in Canada, that directly targets PPP projects. This program could provide financial support no more than 25% of the project investment. What's more, government at all levels need to work out a plan for infrastructure construction and perfect the process of public infrastructure procurements.

## **(3) The development of PPP pattern in America**

Different from the PPP pattern in England, Canada and Australia, the development of PPP pattern in America has its own features. First, to the definition of PPP, many American scholars don't think there has difference between PPP and privatization, but the term of Public-Private Partnership is more likely to be accepted. Second, because of the loose relationship with federal government, the state government could implement PPP pattern according to its own situation. Parts of the states have set up special agencies to assume responsibility for profession consultation and policy-making during the implementation progress of PPP projects. But there has no federal agency for the management of PPP projects. Also, the U.S. established National Council for Public-Private Partnerships in 1985, which is a non-profit, non-partisan organization, to advocate and facilitate the formation of public-private partnerships at the federal, state and local levels. The current PPP projects have covered fields of energy, sewage treatment, real estate, transportation, and even played an active role in military affairs and aerospace industry.

In view of the current situation in PPP projects, the academics presented many constructive opinions. The Brookings Institute and Rockefeller Foundation jointly published a report in 2011 and suggested the government to set up a special agency in order to solve the bottleneck problem of PPP projects and protect public interest, perfect the legal system and process of public procurements to select projects on the basis of outcomes, and provide necessary technical support during the cooperation with federal government. In 2012, International Institute for Strategic Studies analyzed the development of PPP pattern in the past 10 years in England, Germany, France, Netherlands, Ireland and Norway and published a report, which suggested the government to construct infrastructure with the help of private sectors (Li Ming-zhe, 2014<sup>[13]</sup>).

## **2.2 Features of the PPP pattern dominated by the government**

The PPP projects dominated by the government cover the fields of medical, energy, environment and education inland. During the process of globalization, exploration of the domestic PPP projects could help to solve more global problems by using the PPP pattern in a larger scale. Features of the PPP pattern dominated by the government are:

**(1) Specialized management and operation institution.** In order to ensure a better implementation of PPP projects, the government would establish a specialized institution, for example, The Canadian Council for Public-Private Partnership, Infrastructure UK, National Council for Public-Private Partnership and Infrastructure Australia. Such institutions could provide policy guidance and technical support for the government, help to solve the invalidation problem of PPP management mechanism by using the advantage of professional level, and play a key role in the development of PPP pattern.

**(2) A stable market.** The stability of the PPP market has been crucial in securing competitive contract price and high quality bids, and it will drive the PPP governance pattern to applied in the other

cities even outside of the country. The long-term professional cooperation could help to stimulate and sustain the development of a diversified and competitive market through the establishment of mutual trust mechanism between public and private sectors.

**(3) A supportive political environment.** There has been a growing acceptance of a greater role for the private sector in the public domain among the general public in Canada, support for PPP has increased from 60 percent in 2004 to 70 percent in 2011. The PPP pattern could not just enhance the quality of public infrastructure and services, improve the market environment, but also help to promote the employment and economic growth (The Canadian Council for Public-Private Partnerships, 2014<sup>[14]</sup>).

### **3 Limitations and suggestions for China's participation in PPP pattern**

#### **3.1 Limitations for China's participation in PPP pattern**

##### **(1) We are still in the extension stage of PPP development**

China first introduced Public-Private Partnership project in 1980s. During the past three decades, our country has experienced the exploration stage (1984-1993), experimental stage (1994-2001), promotion stage of pilot (2003-2008), temporary stagnate stage (2009-2012) and a new round of extension stage (2013-today). However, government at local levels acted as the implementation subject, and there has long been a lack of national standard for the past 30 years.

According to the success of foreign PPP development, the establishment of national supervisory agency is necessary for the promotion of PPP pattern. The Ministry of Finance has set up a cooperation center for government and social capital, which assumed the responsibility for project conduction, financial support, recognition evaluation, policy consultation, information statistics, publicity and training program. This cooperation center worked out the "Operation Manual" for PPP pattern and published the demonstrative projects, but the central government has not yet publicize the cooperation center as a national demonstration. At present, the working mechanism and management standard still need further perfection and popularization, also, security mechanism for investment return, guidance mechanism for government investment and the relevant financial services which refers to the engagement of social capital need to be improved.

The extension stage limited the development of PPP pattern in China, we can take the foreign aid as an example, most of the projects led by the Commerce Department were turnkey projects, as well as the lack of sustainability and validity for these projects. While analyzing the countries in the world which participate in the cooperation with private sectors actively such England, Australia, Canada, all achieved great success during the development of PPP pattern.

##### **(2) The difficulty for non-governmental organization engagement**

Although the sovereign states should take the main responsible for public goods supply, but government could not be the only subject to provide public goods. With the development of technical and institutional condition, private sector such as enterprises and non-governmental organizations (NGO), especially the voluntary supply of NGO could help to supply public goods efficiently.

Firstly, the capital shortage restricted Chinese NGO to participate in PPP pattern in global governance. Take the China Foundation for Poverty Alleviation as an example, it has spend almost ¥76 million for international rescue by the end of 2014, but the official foreign has reached ¥90 billion from 2010-2012. Due to the government-dominated model of foreign aid, NGO has not ever been permitted to the aid implementation subject, there has a serious lack of financial support. But in other countries such as Japan, the Ministry of Foreign Affairs offered almost 3 billion support for Japanese NGO in 2012.

Secondly, the absence of relevant policy has become one of the most significant restrictions for NGO to play a part in global governance. Although the government encouraged the civil organizations to implement the strategy of "going out", it's difficult for NGO to play a greater role for the lack of policy and legal support during the process of participation.

Thirdly, the lack of ability and experience of Chinese NGO led to the difficulty of participation. Different from the NGO in developed countries, which has accumulated rich experience during the participation in global governance, Chinese NGO has not been engaged adequately under the aid

system dominated by government in the global level. What's more, due to the financial restriction and the domestic situation of poverty, the focus of work for Chinese NGO remains domestic.

### **3.2 Suggestions for China to participate in PPP pattern**

#### **(1) From the level of government**

China has participated in global governance actively without doubt. We can see a responsible country to the world from the proposal of "One Belt One Road" to the establishment of the Asian Infrastructure Investment Bank (AIIB). Firstly, the government need to participate in the international organizations such as United Nations, World Bank, which supported the PPP pattern in the worldwide to secure the cooperation between public and private sectors, Chinese government could better play a part in poverty elimination and international rescue with the help of this forum. In 2015, Chinese government decided to donate 5 million dollars to The Global Alliance for Vaccines and Immunization (GAVI) in order to provide financial support for vaccination in developing countries, which demonstrated that China has began to play a part on the stage of International politics. Secondly, reset the model of foreign assistance. Traditionally, the model of China's foreign assistance focused on the cooperation between the governments, which limited the participation of social organizations. The Commerce Department implemented 293 assistance programs in 2015, the government could take these projects as pilots to encourage the participation of private sectors, change the traditional turnkey pattern and take advantage of the expertise of private sectors in order to get an ideal effect of foreign aid. Thirdly, for the persistence of financial support and policy security, the government need to perfect the relevant legislation, improve the ability of social organizations so as to provide solid material insurance and policy support to implement the strategy of "going out".

#### **(2) From the level of non-governmental organizations**

Firstly, to develop a new financial channel. The lack of financial support has become one of the biggest obstacles for NGO to participate in global governance, and the financial mechanism of GAVI would provide a salutary lesson. Not only the participation government, but private sectors such as enterprises and foundations would also provide financial support for GAVI. To Chinese NGO, they could cooperate with the government through the high-quality projects from one aspect, and work with enterprises to get more investment from the other aspect.

What's more, to make the project process more standardized and specialized. Due to the lack of experience and the restriction of financial policy, the success of the Sudan-China Abu Ushar Friendship Hospital is hard to be replicated. Chinese NGO need to take advantage of the rich working experience at home and implement projects in its professional field to develop a standardized experience during the process of project investigation, construction and management.

At last, cooperation between public and private sectors is necessary for the development of PPP pattern. Chinese NGO should seek for the government support actively, and promote the concept of "harmonious world" to realize a "win-win" situation.

## **4 Conclusions**

At present, there are 840 million people lack access to clean water, 2.5 billion live without modern sanitation, more than 100 million people lack access to the telecommunication service, and about 1.3 billion worldwide still live without access to electricity (International Finance Cooperation<sup>[12]</sup>). The gap of public goods supply caused to the poor health condition, low development of economy, and entrenched poverty in developed countries. Overall, the rise of PPP pattern conformed to the trend of globalization. The gap of public goods supply caused to the poor health condition, low development of economy, and entrenched poverty in developed countries. The introduction of PPP pattern in global governance could not only help to reduce the government's pressure of expenditure during the participation of global governance, improve the corporate efficiency, but also encourage the private sectors to assume more social responsibilities. The bottom-up public-private partnership could relief the dilemma of global public goods supply by relying on the market mechanism. In order to solve the dilemma in global governance, we need to depend on the coordinated management of the market and government, encourage the role of market mechanism in global public goods supply and arouse the enthusiasm of private sectors. Although the PPP pattern is not the inevitable choice for every country

in the world to build infrastructures, provide public services, and supply global public goods, it can offer a new way for responding to global problems and promote the common development of the human society in the modern area of globalization.

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## Research on Risk Identification of Government Public Service PPP Project Based on Hall 3D Model \*

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**Abstract** Government public service PPP project is a complex system engineering in which risks and benefits coexist. To cope with these risks, it is important to find the effective methods to identify them in the process of project operation, and this has become a hotly discussed topic in academic research. The Hall 3D model, a system methodology widely used in project system and risk evaluation research, has a strong applicability to risk identification in PPP project. Based on the model, this thesis is to explain the key risk factors of government public service PPP project and to explore the practical and effective methods of identifying risks, which can provide theoretical support for managers to monitor, prevent and deal with risks.

**Key words** Risk identification, PPP, Public service, Hall 3D model

### 1 Introduction

In the 1990s, Britain firstly put forward the concept of Public Private Partnership (PPP for short) and put it into practice. Then it is widely used by many countries in various public affairs, including government's public service. In recent years, China's government public service PPP projects have increased, but due to the imperfect social organizations and market system, their participation in public service PPP project often brings about risks. Besides, practice shows that government public service PPP project contains various risks in the formulation of service contents, bidding, contract's making, process management, supervision and the third party's evaluation.

At present, Chinese public service PPP project is faced with some practical risks, for example, the unclear boundary of operation may cause risks in aspects of feasibility, monopolistic competition, and corruption caused by insufficient information. This will become the bottleneck of developing the system of government's buying social organizations' services. Therefore, how to identify risks has become the key to improving the efficiency of government public service PPP project. And the index system construction is also a crucial step in risk identification. Based on these, this thesis is to set up a risk identification index system for public service PPP on the basis of Hall 3D model.

### 2 Literature review

PPP has different meanings in different situations. Generally speaking, public-private partnership refers to cooperative relationship formed by public and private sectors during the long process of agreements about infrastructure construction. BOT, BT and PFI are common forms of it<sup>[1]</sup>. Savas and Salamon think that public-private partnership is a new mechanism of supplying public goods and services, which includes all supply forms between government's providing and private sectors' providing. The common forms are government enterprise, outsourcing contract, voucher system, subsidies and franchise. In addition, public-private partnership also means public-private cooperation in respect of production and provision of public goods and services, which is an effective method to manage public affairs. Finally, PPP has a great influence on making public policies. That is to say, it is a public decision-making mechanism<sup>[2]</sup>. Li Yan (2015)<sup>[3]</sup> and Jia Kang (2017)<sup>[4]</sup> believe that PPP innovation can solve financing difficulties in basic public services. What's more, Jia Kang holds that

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(2009) the coexistence of interests and risks is a major feature of PPP<sup>[5]</sup>. Thus, PPP, in a certain degree, is conducive to improve government public service. But as a decision-making mechanism, government public service PPP project is inevitably accompanied with risks, for China's development of market system and social organizations is imperfect<sup>[5]</sup>. Because of the public nature of public service, the risk prevention of PPP project is particularly important.

The study of PPP mainly focuses on risk types' identification and the identification methods. The identification of risk types about PPP projects, such as city infrastructure<sup>[6]</sup>, transportation infrastructure, and<sup>[7]</sup> public sports venues<sup>[8]</sup>, has aroused wide concern among scholars. In regards of risk types, Ke Yong-jian divides them from the perspective of politics, construction and law, and determines the risk bearers according to responsibility boundary<sup>[9]</sup>. Heravi, using the same way, divides risk types from political, financial, market, legal aspects, making the project subjects respond to targeted risks more successively<sup>[10]</sup>. For example, the government must bear risks resulting from politics while the private sector needs to deal with risks coming from construction and management. In addition, Wei Zhang gives a more detailed classification of risks, such as the risks from politics, economics, social environment, natural environment, the third party's infringement, project's decision-making, the process of preparation, payment, supervision, completion, handover, coordination and relationships<sup>[11]</sup>. In this way, some participants who are not familiar with the project can quickly identify its potential risks<sup>[12]</sup>. Wang Hai-xin divides the risk types from the angle of politics, law, construction, operation, environment and so on<sup>[13]</sup>. For the risk identification methods, the research achievements of scholars mainly lie in system dynamics,<sup>[14]</sup> life cycle<sup>[15]</sup>, ISM-HHM<sup>[16]</sup>, WBS-RBS<sup>[17]</sup>, fuzzy comprehensive evaluation, and<sup>[18]</sup> grey clustering—the Internet analytic method<sup>[19]</sup>.

A large number of achievements have originated from Hall 3D model—the theory basis of the thesis. Here is mainly about the application of Hall 3D model. In current studies, the model is used in risk management of financing project<sup>[20]</sup>, project integration management<sup>[21]</sup>, PROT project integration assessment<sup>[22]</sup>, franchise period risk<sup>[23]</sup>, and macro allocation of science and technology funds<sup>[24]</sup>. We can see that this model, a system engineering approach, has been widely used in research on project system and risk assessment. PPP project for government public service is a large and complex system engineering, to which the 3D model has very strong applicability.

To sum up, government public service PPP project is a hot topic in recent research. Scholars have paid attention to PPP project risks and their identification, but the research on risk identification of government public service PPP project is rare. And there are few reports on applying Hall 3D model, the effective risk identification method, to PPP project for public service. Centering on how to identify risks in government public service PPP project, this thesis aims to explore the risk identification methods of PPP project under the support of Hall 3D model.

### 3 Theoretical basis—Hall 3D model

Hall 3D model, or the Hall system engineering, was firstly put forward by Hall, an American expert in system engineering. The model provides a unified method of planning, organizing and managing project so as to solve complex system problems. It divides the whole system engineering into many stages, and points out the professional knowledge and skills needed in these stages. So a 3D model, consisting of time dimension, knowledge dimension and logic dimension, has formed. Time dimension exists in the whole process of system engineering, which includes seven stages, such as planning and scheme preparation.

Hall 3D model runs through the whole process of PPP project. Logic, knowledge and time dimensions are essential for government public service PPP project. Logic dimension covers matters to be completed in all stages of the project and shows the thinking steps to be followed, the seven steps of problem definition, goal setting, system integration, system analysis, optimization, decision-making and implementation. Knowledge dimension contains the needed knowledge and skills in engineering, construction, and commerce.

The 3D model embodies the framework of system engineering research and forms a hierarchical tree structure (Zhang Jin-long, 2009). It applies the integrated research methods (3D), the comprehensive technology (knowledge), and the scientific management (time and logic dimensions). It is a systematic

engineering method to solve the large-scale and complex project which has management difficulty. It has undoubtedly been used in various kinds of project management.

Government public service PPP project often involves many resources and the complex allocations. With its difficult operation and supervision, the project can be seen as a large and complex system engineering. In order to better identify the potential risks in PPP project for public service, the 3D model of risk identification should be composed of time, logic and knowledge dimensions according to the system engineering theory of Hall 3D model. Time dimension is the project's life cycle. It is divided into four steps: the preliminary analysis, SPC determination, development and operation, transfer and ending. Logic dimension involves projects' stakeholders, including government, project company and the lender. Knowledge dimension refers to relevant knowledge required in project's risk management, such as the risk identification, risk analysis, risk response. To put it in another way, knowledge dimension is used to identify and monitor risks, which can prompt the manager to deal with problems in time, so that the project can be completed successfully.

The 3D model of Risk Identification of Government Public Service PPP Project is Shown in Figure 1.

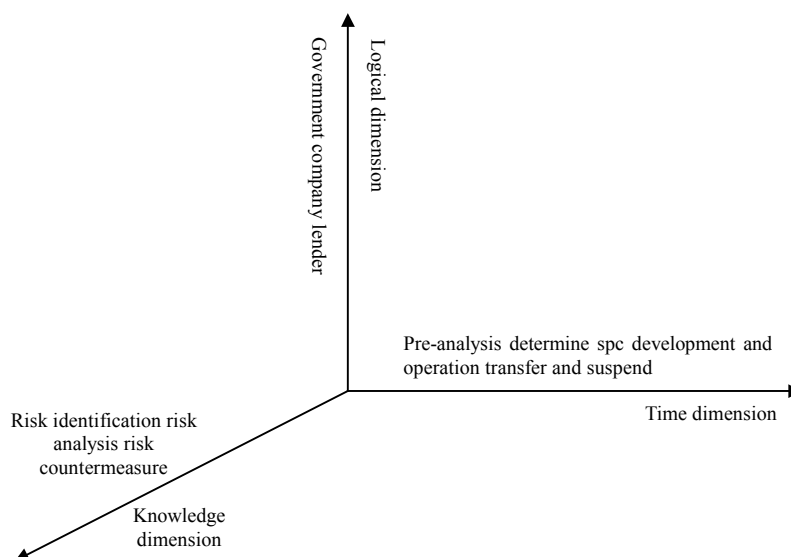


Figure 1 3D structure of risk identification for PPP project of government public service

## 4 Hall three-dimensional analysis of risk identification of government public service PPP project

### 4.1 Time dimension

From the perspective of Hall 3D model, PPP project for public service involves a lot of people and things. The project must go through stages of production, development, maturity, and the ending. These stages together constitute project's life cycle. The whole PPP project is divided into four stages: preliminary analysis, SPC determination, development and operation, transfer and ending. Preliminary analysis is the first stage. It is composed of project selection and feasibility research. Project selection provides reference for project's decision-making and model selection; the feasibility research is to evaluate privatization and to consider whether the project has capital attractiveness for private sectors and whether the private sectors have capacity to deal with risks. The second stage is SPC determination. This process includes bidding, SPC's primary selection, contract negotiation, contract's making. After bidding, primary selection is the process where government appoints one or more SPC as the successful bidders. Then the government will negotiate with the bid winner about cooperation agreement. After the successful registration, SPC enters the stage of development and operation. At the

stage of project development, SPC would sign a formal contract with the joint units and organize relevant units to develop the project. The project operation process will continue until the concession agreement expires. The stage of transfer and ending consists of two processes, the project transfer and the SPC liquidation. Project transfer is transferring the management rights to government after the expiration of franchise. After project's handover, SPC's liquidation is the ending of business. But in some cases, SPC does not need to be liquidated.

#### **4.2 Logic dimension**

Logic dimension is a collection of related subjects involved in project, generally including the government, companies, shareholders, creditors, suppliers, contractors, project operators and the users. The purposes and needs of these subjects are the original intention of their participation in PPP project, and the subjects constitute a complex system through specific logical relations. In addition to the subjects mentioned above, some service institutions of project design, consulting, insurance, and arbitration also participate in PPP project for public service, and play their roles in providing services. Besides, the public's attitude to PPP project cannot be ignored, for they are involved in supervision for the project. When the public come into conflicts with project companies' values, such as the nimby conflict, the project is possible to fail.

#### **4.3 Knowledge dimension**

To identify the risks of PPP project for public service, government needs to grasp relevant risk management knowledge. Knowledge is an important method to identify and analyze the project's risks. Concentrating on cultivating positive factors and inhibit negative ones, knowledge dimension includes the identification, analysis and response of risks. Risk identification is characterized with periodic continuation so that it can determine the factor that impedes project's completion. Risk analysis involves risk identification, risk-sharing division, risk response decisions. When the risk types are recognized, the bearers of risks need to be determined at once. Risk response is a measure to track and suppress risks. It has three aspects. The first aspect is to avoid risk, which needs to weed out the root causes of risks. The second one is to reduce risks. To do this, related subjects need to reduce risky financial input to inhibit the negative factors. The third one is to accept the bad consequences of risks and to bear them.

#### **4.4 The analysis of Hall 3D model**

From the perspective of the whole system, PPP project is faced with risks at every stage. Different shareholders will take different actions to deal with it. Firstly, the preliminary analysis stage involves research on project's feasibility and the judgment that whether privatization is practicable; whether social sectors are willing to invest in the project and whether they can undertake the risks. Therefore, the primary risk analysis has the greatest influence on the whole project. It is a kind of directional risk. For participators in the project, what they care about most is how to increase social capitals and broaden the channels of fund resources. As for the government, it allows social capitals to be used in the project on one hand; on the other hand, it needs to choose powerful companies with sufficient experience as the project partners.

At the stage of SPC, it covers bidding, primary selection, negotiation and signing of contract. After the determination of SPC, relevant agreements need to be signed. These agreements, written in a contract, determine responsibilities of involved parties and require them to jointly take the risks. At the same time, legal consultation on contract documents are needed to avoid legal defects.

At the stage of development and operation, SPC and the joint units need to sign a formal contract to determine the rights and obligations of involved parties. Project investors can build or outsource their own construction, and they need to guarantee the quality and make the construction schedule in case that the project could not be finished. This process needs to give full consideration to the builders' technology, integrity, etc., and also needs to consider the natural force majeure factors. Force majeure can be avoided through insurance. In the project operation phase, if the expected benefits cannot be achieved, the project company cannot repay the loans and thus suffers from economic losses. In the same way, PPP project for public service cannot continue its operation. Therefore, the project cost overruns need to be avoided by carrying out project budget and financing feasibility analysis. Therefore, both managers and contractors should have professionalism and experience. In the course of



making contract, parties concerned in project need to jointly agree on their respective risks and responsibilities. If the government is willing to take a part of risks and shows a positive attitude to project, it will promote social organizations to participate in the project. Then the government can obtain project benefits accordingly.

At the stage of transfer and ending, it includes project handover and SPC liquidation. The primary goal of this stage is that the project can be completed in accordance with contract. Then it can be operated continuously, protect and bring into full play its public values in the future. The government will carry out project evaluation, timely deal with potential problems and liquidate SPC so as to achieve the public interests of public service PPP project.

## 5 Conclusions

This thesis uses Hall 3D model to find out risk identification methods of government public service PPP project. Firstly, according to Hall's model, risk factors of government public service PPP project are categorized into three dimensions of logic, time and knowledge. This helps to produce the 3D model for risk identification. Secondly, based on the risk identification model and taking various stages of PPP project as the main line, this research tries to identify and analyze potential risks, and to explore risk factors, measures of risk prevention and control, and the relationship between rights and responsibilities. The ultimate goal is to ensure the accurate risk identification of government public service PPP project and further increase the public's satisfaction with government public service.

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## What Does the Public Private Partnership Model Bring to the Cultural Industry?\*

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**Abstract** It is an innovative attempt to develop public cultural products and public cultural services through the cooperation between government and social capital. This undoubtedly provides a new financing model for the development of cultural industries and it is a dynamic gripper for expanding cultural industry under the new normal. This paper analyzes the applicability of using public private partnership (abbreviate as PPP) model in the field of cultural industries, and introduces the current typical case of PPP operation mode (BOT,BOO,TOT,ROT,OM) in China. Then, the advantages and challenges of using PPP model in cultural industry are discussed. Finally, some countermeasures and suggestions are put forward for the development of PPP model in the cultural industry.

**Key words** Cultural industry, PPP model, Financing model, Government, Social capital

### 1 Introduction

In May 2015, the General Office of the State Council forwarded “the guiding opinions on promoting the mode of cooperation between government and social capital in the field of public service”, for the first time, the cultural field has been put into the scope of PPP. Then, in the second batch of government and social capital cooperation demonstration projects, cultural projects increased to 16, with a total investment of more than 30 billion yuan, including tourism projects, cultural protection projects, park and cultural facilities construction projects and so on (Lu Yuan-zhen, 2016<sup>[1]</sup>). As a new type of project financing mode, PPP is affecting the financing structure of the cultural industry. Then, social capital is involved in the cultural field, what changes will bring to the cultural industry? Is it appropriate to implement the PPP model in the cultural industry? In this regard, this paper draw support from relevant cases to understand the current operation mode and current situation of cultural PPP projects in China, and summarizes the applicability, advantages and challenges of PPP model in the field of cultural industries. Finally, the countermeasures and suggestions are put forward to promote the development of cultural industries in the PPP project.

### 2 Cultural industry and PPP model

#### 2.1 The basic connotation and property of cultural industry

“Cultural industry” first appeared in the book of *Dialectics of enlightenment*, which was written by Max Hockheimer and Theodore Adorno, a representative of the Frankfurt school in Germany (David Southby, 2002<sup>[2]</sup>). The cultural industry is thought to be made for mass communication and consumption, and can be manufactured in a mass, modular fashion according to the designed structure. In the socialist cultural environment with Chinese characteristics, cultural industries have economic attributes, social attributes and ideological attributes at the same time (Raymond williams,1985<sup>[3]</sup>). The public goods attribute of the public cultural project of cultural industry is mainly reflected in two aspects of the nonexclusive and noncompetitive aspects of cultural projects, and can be broadly classified as follows (Li Ji-hua, 2016<sup>[4]</sup>): First is pure public cultural projects. It can't solve the supply problem through the market, and need to solve the plight of the supply of pure public cultural projects through the way of government supply. Two is a purely public cultural project. It needs the government to give some compensation or direct supply through the “government pays”. Three is an exclusive public cultural project. This kind of cultural projects can supply a certain return, through social capital investment and operation way of supply, but due to the size and scope of supply, it requires the

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government to give certain subsidies or incentives.

## 2.2 The connotation and characteristics of PPP model

PPP, that is, cooperation between government and social capital, is a kind of project financing mode in public infrastructure (Grimsey and Mervyn, 2002<sup>[5]</sup>). In this model, private enterprises and private capital are encouraged to cooperate with the government and participate in the construction of public infrastructure. From a broad sense, the government and social capital cooperation (PPP) has a wide range of applications. According to the basic concepts, the applicable types of projects, contracts, deadlines, etc. can be summarized as follows (see Figure 1):

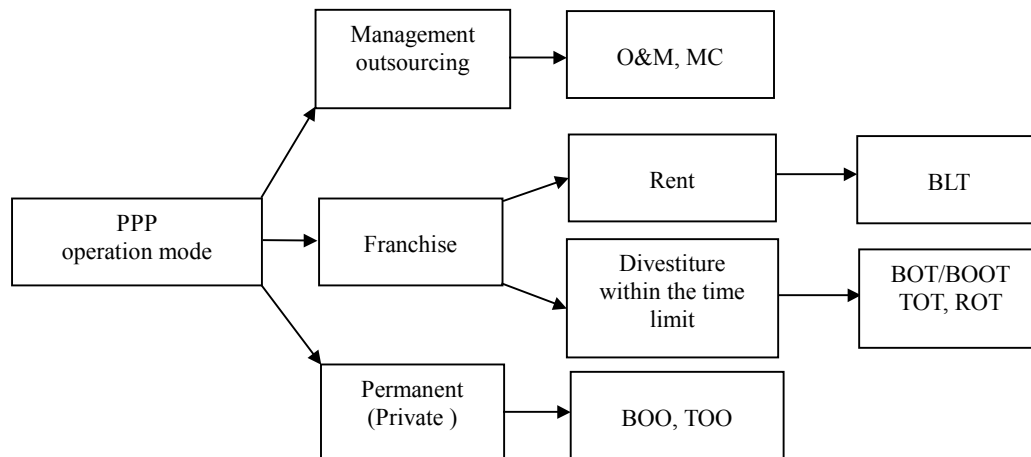


Figure 1 Operation mode of PPP project in China

In practice, the PPP mode has changed the previous government blanket, “disguised forced” approach, and it is based on the “win-win” concept, let the social capital to participate in the provision of public goods and public services, to provide public service functions in the effective implementation of government public management and also for the benefit of social capital. In general, the PPP model runs primarily with the following four characteristics: First, the cooperative relationship. Two is the purpose of cooperation. Three is benefit sharing. The four is risk sharing (Guo Feng, Cai Yi-qin, 2013<sup>[6]</sup>).

## 3 The operation status of cultural PPP projects in China

### 3.1 Operation mode

On the basis of released data (as of September 30<sup>th</sup>, 2016), In 301 cultural PPP project, BOT project is the mainstream mode of operation, BOO, TOT etc. in practice. Specifically, the adoption of BOT has 200, accounting for 67%; the adoption of BOO has 28, accounting for 9%; the adoption of TOT has 19, accounting for 6%; the adoption of ROT has 10, accounting for 3%; the adoption of O&M has 3, accounting for 1%; the other way is 41, accounting for 14%.

### 3.2 Investment amount

According to the Ministry of finance of government and Social Capital Cooperation Center released data (as of September 30<sup>th</sup>, 2016), in a total of 301 cultural PPP projects, the largest amount of investment is 3-10 billion yuan. Specifically, the investment amount is less than 100 million yuan has 47, accounting for 16%; There are 96 projects with an investment amount of 1-3 billion, a accounting for 32%; There are 103 projects with an investment of 3-10 billion yuan, accounting for 34%. 55 projects with an investment more than 1 billion yuan interval of , accounting for 18%.

### 3.3 PPP project operation mode and typical cases

(1) BOT (Build-Operate-Transfer), that is, “construction operation transfer” model. Social capital or item company obtain the concession of a project from the government department, and the general contract period is 20-30 years through bidding. Then the item company operates on new projects, including design, financing, construction, operation, maintenance and user operations, maintenance,

and access to project revenue. The government will also grant certain concessions to attract investors. After the concession period, the project assets and related rights will be paid free or paid to the government. It will be applicable to new projects (The case is shown in Table 1 ).

**Table 1 Infrastructure and supporting projects of Tangshan World Horticultural Exposition in 2016**

Location: Tangshan City, Hebei Province	Industry: Culture - other
Amount of investment: 3 billion 332 million 980 thousand yuan	PPP implementation phase: implementation phase
Proposed duration of cooperation: 15 years	Project operation: BOT
Return mechanism: feasibility gap subsidy	Launch time:2015-03-01
Project summary: The total investment of the project is 3 billion 362 million 980 thousand yuan, of which the fixed assets investment is 3 billion 229 million 980 thousand yuan, and the construction period interest is 133 million yuan. Authorized by the government of Tangshan City Tangshan City Nanhu Eco City Construction Investment Development Co., Ltd., Tangshan World Park Cci Capital Ltd and social capital by 40%: 60% jointly funded the construction of SPV, responsible for the infrastructure, project construction and post operation management of 2016 Tangshan World Horticultural Exposition.	

(2) BOO (Build-Owen-Operate), that is, “construction, ownership, operation” mode. The model consists of BOT evolution, the main difference between the two is the boo mode of social capital (or item company) have ownership of the project, but the contract must be in terms of public welfare guarantee famous, the project generally does not involve the transfer of items expire. Applicable to the stock of the project (see Table 2).

**Table 2 Case 1: Qiannan County, Guizhou, Huishui film and television base project**

Location: Huishui City, Guizhou Province	Industry: Culture - other
Amount of investment:1 billion yuan	PPP implementation phase: preparatory phase
Proposed duration of cooperation: 25 years	Project operation: BOO
Return mechanism: user fee	Launch time:2014-10-08
Project summary: Huishui County enjoys excellent ecological environment and convenient transportation. It is very convenient for docking with international and domestic film and television shooting crews and tourists. According to the existing population of Huishui County, traffic and environmental advantages, can reduce the time and cost in construction time.	

(3) TOT (Transfer-Operate-Transfer), that is, “transfer operation transfer” model. The government will stock ownership of assets transfer to social capital or item company, which is responsible for the operation, maintenance and service, the item company receives the proceeds of the project in order to recover the investment and reap the rewards. After the expiration of the contract, the assets and their ownership are handed over to the government. The contract period is generally 20-30 years. Apply to the stock of the project (see Table 3).

**Table 3 Case: Construction project of Togtoh Sports and Sports Center**

Location: Hohhot City, The Inner Mongolia Autonomous Region	Industry: Culture -cultural venues
Amount of investment:115 million 780 thousand yuan	PPP implementation phase: acquisition phase
Proposed duration of cooperation: 20 years	Project operation: TOT
Return mechanism: Government fee	Launch time:2016-04-01
Project summary:The project adopts the mode of public bidding, through the pre qualification way to select social investors, Togtoh County Bureau of culture and sports signed the shareholder agreement of the joint venture company with the winning bidder and established the company in accordance with the equity ratio of 30:70. The joint venture company shall be granted the franchise of the project, and at the same time, the contrac for “Togtoh County Sports Activity Center construction PPP project service agreement” shall be signed, the daily supervision of the project shall be implemented, and the government shall purchase the service. It is planned to use the government and social capital cooperation (PPP) to complete the investment, financing, construction, operation, maintenance and transfer of the project.	

(4) ROT(Rehabilitate-Operate-Transfer), that is, “rebuilding operation transfer” mode. Rot refers to increase the expansion content of the mode of operation of the project on the basis of TOT. The contract period is generally 20~30 years. Rot, sometimes regarded as “BOT+ TOT”, the utility model is mainly suitable for reconstruction and expansion of stock projects (see Table 4).

**Table 4 Case : Kuche County Museum Project**

Location: Kuqa City, Xinjiang Uygur Autonomous Region	Industry: Culture -preservation of cultural relics
Amount of investment:193 million 870 thousand yuan	PPP implementation phase: recognized phase
Proposed duration of cooperation: 30 years	Project operation: ROT
Return mechanism: Feasibility gap allowance	Launch time:2015-11-14
Project summary: Qiuci museum exhibits Decoration Engineering, investment design, exhibition project main project, work area and parking lot, plumbing pipe laying technology, security and other facilities. The project is sponsored and subsidized by the government.	

(5) O&M (Operations and Maintenance), that is, “operation maintenance” mode. The government entrusted the operation and maintenance of the stock public assets to social capital or item company, but social capital or item company is not responsible for user services. The government retained ownership of assets, only to pay the Commission operating costs for social capital or item company. The contract period is generally not more than 8 years. This model is applicable to stock projects ( The case is shown in Table 5).

**Table 5 Case: Tangshan Grand Theatre Project, Tangshan City, Hebei Province**

Location: Tangshan City, Hubei Province	Industry: Culture -cultural venues
Amount of investment:1 billion 200 million yuan	PPP implementation phase: acquisition phase
Proposed duration of cooperation: 10 years	Project operation: O&M
Return mechanism: Feasibility gap allowance	Launch time:2015-11-02
Project summary: Tangshan Grand Theatre is one of the Cultural Plaza in Hunan Province, which is located in the home court hall, Lu Yidong center, South Lake Road, West to the north, a total construction area of 67 thousand square meters, including 1500 seat theater, 800 seat concert hall and 500 seat experimental theatre	

Among other modes of operation of the cultural PPP project, there is also the PPP project for the protection and renovation of ancient city of Henan in Luoyang. The project received a total investment of 8 billion 500 million yuan, cooperation by the Luoyang municipal government and Shanghai Sheng Investment Group Limited. The project is also Luoyang’s largest shantytowns project, which will be built in the Ming and Qing architectural style, cultural display, cultural creativity, cultural and commercial culture in one of the demonstration zone. From the above analysis, we can see that the construction of PPP model needs two conditions (Wang Yong-jie, Chen Tong and Deng Bin-chao, 2016<sup>[7]</sup>): On the one hand, when completing the provision of public goods or services, the government adopts the PPP model with lower cost, higher quality and more performance; On the other hand, social capital participation must be profitable, and social capital needs to gain in the PPP model. Therefore, a PPP model of cooperation in public cultural projects usually must be quasi public cultural projects and need to have a large audience demand, produce stable “users pay mechanism” and meet the social capital to obtain investment repayment conditions during the operation period.

## 4 The analysis of pros and cons of cultural projects in PPP mode

### 4.1 The advantages of cultural industries in PPP model

Opening the PPP project in the cultural field is of great significance in speeding up the reform of the cultural system, deepening the reform of the cultural system and building a powerful cultural power (Zhang Xiao-min and Chen Tong, 2015<sup>[8]</sup>). Concretely speaking, it embodies in the following aspects:

(1) The transformation of government functions is conducive to promoting the sustainable development of cultural industries. The development of cultural industry in China is the most direct investment in the construction of the government, although the government’s direct participation has its advantages, however, it brings more disadvantages, such as heavy financial burden, slow investment

and low output rate, therefore, the PPP construction of the cultural industry can change the conventional practice of public projects by the government in charge of the administration, to give full play to the government's guidance, supervision, planning and security functions, through the top-level design, policy supporting, cross regional joint development, breaking the "industry island" deadlock, so as to promote the sustainable development of culture industry.

(2) Market operation, improve operation efficiency and income level. From the point of view of the development of cultural industry, we can adopt PPP mode to carry out the integration operation by market means, and further enlarge and strengthen the industry. The profitability of private capital makes private enterprises more willing to adopt advanced technology and management methods to reduce costs, so as to improve their market competitiveness, improve the quality and technical content of the project and shorten the construction period of the project to improve their market competitiveness, and to improve the project; Secondly, because the company guided by the market, so it will inevitably target consumer demand and consumer habits when it comes to product production, thus creating a combination of diversified, all-round, complementary functions of the gold format; Thirdly, because of the huge competition between the cultural industries, it is also the inevitable choice for the management enterprises to avoid the homogenization of products, to form cultural characteristics and to seek different positioning.

(3) Cooperation between government and enterprises can promote industrial clusters, integrate related enterprises, and reduce operational risks. The key of PPP mode lies in the cooperation between the government and the enterprise. The development of the cultural industry can realize the effective combination of the government macro control and the reasonable market allocation through the PPP mode. First of all, the cooperation between the government and the enterprise helps to define the industrial position, and puts forward the development strategy, the development direction, the management mode, the driving mechanism and so on. So as to promote the cultural industry and related industries cluster; Secondly, through the supervision mechanism of the government and the market operation of the enterprise, the upstream and downstream industries are integrated to form a complete and reasonable industrial chain; Again, Because of the joint participation of the government and enterprises, the government can use its advantages to avoid associated risks, however, enterprises undertake more management responsibilities according to their relative advantages, each kind of risk can be undertaken by a partner who is best at meeting the risk, so as to reduce the risk of the investment, minimize investment and construction cost.

#### **4.2 The challenges of the cultural industry in the PPP model**

On the one hand, not all quasi public cultural projects have the cooperation conditions of PPP mode. In some cities, which is smaller, difficult to form a stable and a large number of audience needs are difficult to adopt the PPP model directly. At the same time, the implementation of the PPP model of cultural construction projects a longer duration of cooperation, which increases the risk of social capital policy and earnings risk, Financial institutions also impose restrictions on loans for reasons such as long term funding and risk, which leads to social capital financing difficulties and higher financing costs, social capital income decrease and social capital will reduce the willingness to participate in the project construction.

On the other hand, in the traditional PPP project, the problem of government default risk has always existed, and the government has always been in the leading position in the economy. It is difficult to get rid of the independent management rights of social capital; For a long time, in the cultural enterprises, the financial support led by the government, they are relatively small in scale and poor in financing capacity, and there are still invisible barriers to social capital entering the field; Part of the government's incomplete understanding of the PPP project, as well as information asymmetry and other reasons, have virtually affected the entry of social capital, hindering the development of PPP model in the cultural industry.

### **5 Countermeasures and suggestions**

(1) In the construction of public cultural projects, the use of PPP model needs to be distinguished according to different cultural attributes of public goods, the nature of public goods which has a large

number of audience demand, produce stable “users pay mechanism” cultural projects can be directly used in PPP mode; small audience and the pre period of low income projects can meet the return of social capital investment through the form of franchise and future income plus the form of government subsidy compensation; Pure public cultural projects need to be paid by the government to ensure the construction and operation of the project. At the same time, in the construction of public cultural projects, the use of PPP model, we need to establish a standardized system of supervision and management mechanism.

(2) A large number of cultural industries have no fixed assets as collateral, which requires banks and other financial institutions innovative investment and financing platform to help private capital into cultural projects. For example, some financial subsidies are provided to provide investment, financing, guarantee and other measures for reputable cultural enterprises, and cultural enterprises are encouraged to participate in PPP projects; the corporate culture of bank loans, the state can be appropriate to relax loan conditions; Banks should be encouraged to improve their financial service system, better serve more social capital and enter the financial market. They can set up special service windows and more targeted services, and encourage social capital to be adopted under the same conditions.

(3) In order to guarantee the smooth implementation of PPP project, we need to strengthen the risk identification in specific projects, and to determine the risk sharing mechanism. Secondly, a risk comparison table of PPP model should be developed, on the basis of the BOT, BOO project construction experience at home and abroad, and combined with the characteristics of PPP mode. According to the ability to distribute the risk, the government should take policy risks if it has a strong grasp and control over policy changes; social capital with strong management ability, they should bear the operational risk; and for the risk of force majeure, It should be shared by the government and the social capital according to the actual situation of the risk.

(4) Government and enterprises should coordinate and cooperate with each other. The government’s excessive intervention not only encourages the cultural industry to rely on psychology, but also undermines the market order. A competitive market system, a fair and open market rule, requires the government to leave the market behind and allow the market to play an effective role in all areas. At the same time, it is necessary to establish a stable and reasonable return on investment mechanism to prevent excessive government profits. It should strictly qualify for franchising projects, reduce construction and operation costs, and improve the quality of products and services. Finally, the government must implement the supervisory responsibility for the PPP project in order to ensure reasonable gains for social capital while achieving incentive compatibility.

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## Research on Economic Cohesion of the Rural Migrant Residents Based on Government's Collaborative Crossover Governance in China

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**Abstract** According to the Outlines of the 13th Five-Year Plan for Social and Economic Development, by the end of the 13th Five-year Plan, the permanent urban residents should account for 60% of China's population, and 45% of the Chinese people should be registered as permanent urban residents. By 2020, urbanization ratio of permanent residents should be increased by 3.9% in relation to the 56.1% in 2015. Promoting the social cohesion of the rural migrant residents remains the priority of the government, of which the economic cohesion of the rural migrant residents is primary. At present, the economic cohesion of the rural migrant residents are confronting with issues such as difficulties in securing employment, the widening income gap, and unreasonable compensations. Based on the crossover governance of the government as the theoretical guideline, this article purposes that the government, enterprises, and communities should jointly solve the problems occurred during the economic cohesion of the rural migrant residents.

**Key words** Rural migrant residents, Economic cohesion, Government crossover, Collaborative governance

### 1 Introduction

Along with the advance of the urbanization, the social cohesion of the rural migrant residents becomes the focus of the government, society and citizens. The *Report on China's Migrant Rural Population Development 2011* showed that based on the China's national situation, the assessment on the social cohesion of the rural migrant residents mainly refers to three aspects: the economic cohesion (including the equalization of all varieties of public welfares), social cohesion, and mental cohesion. From the present situation of researches in this field in China, the independent ones on economic cohesion is relatively rare, of which most are part of the projects of social cohesion. Meanwhile, merely grounded on the studies and descriptions of indicator calculation, the researches on the economic cohesion of the rural migrant residents have no complete and authoritative definition. The employment of the rural migrant residents is a major factor in economic cohesion according to the researches of many scholars. Yang Ju-hua is one of the few scholars who defined the economic cohesion of rural migrant residents. But she addressed the notion as the economic integration of the rural migrant residents, regarding the economic integration of rural migrant residents as challenges they facing in the economic structure of the cities, as well as the degrees that they integrate into the local residents viewing from the system of indicators include, among others, employment, vocational reputation, incomes, social welfare, education and training, housing environment (Yang Ju-hua, 2015<sup>[1]</sup>). *Report on China's Migrant Rural Population Development* indicates that economic cohesion makes the foundation the rural migrant residents gaining their footholds in cities, and human capital, job opportunity, opportunity for serving the public are the main factors affect the settlement of the rural migrant residents. The settlement of issues on the economic cohesion of the rural migrant residents expects efforts from various parties, which is mentioned by a great many scholars. The economic cohesion of the migrant rural residents can hardly be accomplished at once. It's a gradual process that the society needs to go through with joint efforts by all parties.

In the early stage of the prior researches, although many proposals have been brought up, no scholars unequivocally discussed the economic cohesion of the rural migrant residents from the perspective that the government can stimulate the process through crossover governance. Hence, while performing analysis on the economic cohesion of the rural migrant residents in China, this article provides with introduction of government crossover theory, the proposal of the crossover governance

on the economic cohesion of the rural migrant residents, and the specific countermeasures.

## **2 Issues in the economic cohesion of the rural migrant residents in China**

### **2.1 The difficulties of securing the employment**

In some measure, it is their comprehensive quality, which straightly relates to if they possess the abilities of living and developing in cities, that depends whether the rural migrant residents are able to successfully settle in cities (Zhao Ji-ying and Li Hong-liang, 2014<sup>[2]</sup>). Most of the rural migrant residents are not well educated, and for lack of professional skills and vocational training of necessity after they get to the towns and cities, they are extremely deficient in competitive capabilities of dealing with the market. Holding the diplomas of lower education or secondary education, they can only do the jobs requiring limited professional knowledge, which increases the possibilities of being replaced by someone else and renders the competition fiercer. Part of the rural migrant residents with inferior comprehensive quality can hardly fit themselves for the non-agricultural jobs, so they can only enter into some industries in need of simple manual labor work such as manufacturing industry and construction industry; some of them go into relative flexible industries such as catering industry and some other servicing industry. No matter what industry it is, the work is temporary and short-term with great mobility and no particular requirement of professional skills, which leads to the instability of the vocation of the rural migrant residents, and consequently to lay a firm capital foundation of economic cohesion is challenging for them. As the new types of urbanization carried forward, how to improve the employability of the rural migrant residents as soon as possible is concerned with the direct interest of farmers, the healthy development of urbanization, and the stability of the society (Cheng Ye-bing, and Zhou Bin, 2014<sup>[3]</sup>).

### **2.2 The wide rural-urban income gap**

While stable incomes is the prerequisite the rural migrant residents capably and confidently socializing with the urban residents, there is a huge income gap among the current rural migrant residents, and between the rural migrant residents and the original urban residents. Part of the rural migrant residents is unsatisfied with their own incomes; although they drift away from the farming land to live in cities, most of them have to exchange their labor for a living and not able to make both ends meet. The government implements a series of projects that benefit the cities. For example, in the exchange of industrial products and food crops, while the prices of the industrial products are higher than their original value, the prices of the food crops are lower than their original value. This is the “price scissors” policy—the exchange of unequal values. To rural migrant residents, they also need the indispensable social capital to support their economic activities in cities. And compared to the capital accumulation of the original urban residents, they still left behind when it comes to incomes. Not only the issue of income gap has directly dented the rural migrant residents’ confidence on integrating with the urban residents, it has also affected the capital accumulation of the economic cohesion of the rural migrant residents.

### **2.3 The compensations are unreasonable**

Generally, the government takes the monetary compensations to realize the placement of the rural migrant residents, which is jokingly called as “kicking out once and for all” by farmers. The farmers can obtain the monetary compensations usually by two approaches, either one-off or in installments. However, these approaches leave a lot of hidden troubles in the future life and employment for the farmers who lost their land. The one-off monetary compensations simplify the process the government requisitioning the land and compensating the farmers, which is quite efficient. But with the development of the society, the monetary compensations has been gradually exposed its demerits. First, it doesn’t fully compensate living provisions of the rural migrant residents who lost their land, and correspondingly it also doesn’t reflect the value of the basic living provisions of the rural migrant residents losing. Second, the one-off monetary compensations haven’t taken the interest of different-aged farmers who lost their land into full consideration. Finally, the one-off monetary compensations haven’t completely calculated the time values of the Chinese currency. The monetary compensations can basically make up the rural migrant residents by low living standard, and they are even at risks of not being paid or delay in payment. The difficult and slow process of the economic

cohesion of the rural migrant residents is a result of the deficiency of this kind of monetary compensation rather than the development of the urbanization. In the meantime, it cannot meet what the rural migrant residents need for their future lives. All these reasons make the economic cohesion of the rural migrant residents a complicated project with a long way to go.

Generally speaking, there is an embarrassing phenomenon in China that the transfer of the population wants to integrate into the big city as well as into difficulties. (Liu Ting-ting and Wu Qing, 2015<sup>[4]</sup>).

### **3 A proposal to the economic cohesion with collaborative crossover governance**

In China, the economic cohesion of the rural migrant residents is the essential link of its social cohesion, where it plays a fundamental role in the process (Yan Yue-ping, 2016<sup>[5]</sup>). To make the rural migrant residents settle down in urban areas in an orderly way, reforms and innovation must be introduced (Yang Yun-shan, 2014<sup>[6]</sup>). The economic cohesion of the rural migrant residents in China has been influenced by various factors; hence the crossover governance of the government is needed to be introduced into the process of the economic cohesion of the rural migrant residents. This article brings about the idea of crossover governance of the government and proposes that the economic cohesion of the rural migrant residents can be jointly strengthened by government, enterprises, and communities all three parties.

#### **3.1 A government-oriented approach to reinforce the institutional safeguards**

The economic cohesion of the rural migrant residents requires economic foundation, which mainly comes from two sources: one is its capital accumulation, another one is the governmental compensations. Now that the governmental compensation system is incomplete, coupled with its lack of implementation, they all undermined the economic foundation of the rural migrant residents and impeded their economic integration. The government has an irreplaceable role in the process of the economic cohesion of the rural migrant residents. Therefore, the government should play a leading role in the governance so that the institutional safeguards are provided for the rural migrant residents, among which the most important element is compensation system. The compensation system should not only about the compensation standard, but also centers on its implementation and the track of the compensation process.

#### **3.2 The communities served as the platform**

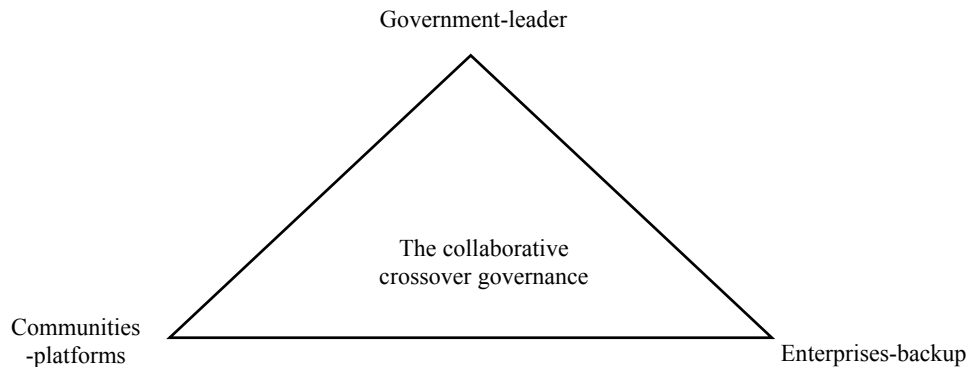
The economic cohesion of the rural migrant residents relies on platforms to acquire information and participating in organizations. Communities are the gathering places of the rural migrant residents when urban residency is granted to them. Therefore, the communities can deliver and get the feedback at a high speed. The speeding up of the building of the communities is crucial to the economic cohesion (Kong Fan-wen, 2013<sup>[7]</sup>). However, the communities haven't had any sense of existence, and the public servants of the communities haven't had full consciousness of servicing as well. So there emerges the resultant phenomenon that the rural migrant residents have twisted recognition of the communities as the platform and lack utilization of it. In the governance of the economic cohesion of the rural migrant residents, the government should devote much attention to the communities and regard it as a platform, providing supporting platforms for the economic cohesion of the rural migrant residents. The government should ensure that the rural migrant residents have chances to take technique training, acquire knowledge and exchange information as well as effectively communicate with the government through communities.

#### **3.3 The enterprises served as the backup**

The employment of the rural migrant residents is also significant in the course of their economic cohesion. Nevertheless, the re-employment is no easy things to the rural migrant residents presently. In this occasion, the economic cohesion of the rural migrant residents should not merely rely on job hunting, starting businesses is another way to stimulate the employment. The current enterprises have already went through the period of budding, expanding and maturing, so their experience and the lessons could be shared with ones starting business for reference. Meanwhile, in the course of governance, the enterprises should be set as backup to support them. Not only should the support for starting business be reflected in thought, but in capitals. And it is the responsibilities of the government

that keeping the enterprises motivated in the supporting activities and encouraging the rural migrant residents to start their own businesses and create jobs.

Above all, the economic cohesion of the rural migrant residents should be jointly carried forward with the crossover collaboration of the government, communities and enterprises, which are respectively serving as the leader, the platform and the backup, refer to Figure 1.



**Figure 1 The government's collaborative crossover governance on the economic cohesion of rural migrant residents**

## 4 The countermeasures

### 4.1 Completing the system and securing the living conditions

The compensation for land requisition is the capitalization of the profits of the land. Although the overall land compensation seems not low, the short-term wealth effect caused by the land compensation would improve the consumption inclination in the farmers who lost their land; these farmers should be guided to capitalize the compensation of the land (Tang Xiu-juan, 2015<sup>[8]</sup>).

First, the land transfer system should be completed. The government should determine and certify farmers' rights to long-term operation of the land by legislation, and determine rural migrant residents' rights to occupy, use, transfer and profit from their contracted land; by cultivating the rural land market, a reasonable price could be decided by the market and the issues of rural land profits are solved. To develop large-scale agricultural businesses, the farmers should be granted to transfer their contracted and operation land-use rights by outsourcing, leasing, exchanging, transfer or some other ways. Second, the compensation system of rural land returning should be established, and take various economic means to guide the rural migrant residents to yield their land, such as rural profit-sharing plan and compensation of land returning, are allowed. But the farmers should not be forced to transfer their land, and the profits of the land should not be embezzled. Third, the government should explore the capitalization system of rural homesteads. Based on registering and certifying to the usufruct rights of the homesteads, the rural migrant residents should be encouraged to operate the homesteads in capitalized approaches by assignment, investment or becoming a shareholder, mortgage, and substitution. In this way, the rural migrant residents have the institutional safeguards for transferring their fixed assets, and their financial capabilities of settlement in cities are further improved.

### 4.2 Promoting employment by providing with skill training

The rural migrant resident lost their land of living, and in order to improve comprehensive quality so that they can take a foothold in cities, they have to receive vocational training, which is an essential approach for getting jobs for themselves. The government should regard the communities as the platform to provide vocational training for the rural migrant residents in many ways.

First, the government should specifically develop various kinds of vocational training for the rural migrant residents so that they can give full play to their individual advantages. At the same time, the vocational training system of "government leading, educational department taking in charge, various departments collaborating, the self-directed learning of rural migrant residents on a community basis" should be built to increase the competitiveness of the rural migrant residents in the job market. Second,

due to the educational resources in communities are in shortage, both the internal and external resources should be effectively integrated. Each governmental department should effectively carry out different vocational trainings to the rural migrant residents apiece according to their requirement, and improve the efficiency of supply. Third, the government should build the schools, especially the primary and secondary schools, or education centers for rural migrant residents on a community basis. The innovation of the vocational training is necessary, and the supply of the training resources should be increased in proportion to the actual requirement of the rural migrant residents. In the skill training for rural migrant residents, by collaborating with the enterprises and discovering talents, the people receiving vocational training have more chances to get jobs, and the rate of resources utilization is raised.

#### **4.3 Encouraging creation of jobs by startups and narrowing the income gap**

The inundation of a large number of rural migrant residents builds up pressure to cities. It is the primary issue that secures the employment for the rural migrant residents. The limited acceptance of the urban economy is only able to create limited jobs; therefore, the government should encourage the migrant residents to starting businesses on all fronts to create new jobs.

First, the network information on starting business should be built up and completed. The government should provide with entrepreneurial information, talents introduction, training institutions, and public service. In the meantime, it can invest broad websites of entrepreneurial information and complete it step by step, making it the platform for the job agency, training institutions, and especially the rural migrant residents who start their own businesses. Second, the government should learn what kind of vocational talents the market needs by constantly following the market. The government should invite professional institutions to select some startup projects with great potential and in need of low demand of technology, and then promote these projects and guide the rural migrant residents starting businesses. Furthermore, the government could offer certain financial support and policy backup, guiding some enterprises to participate in startup projects and invests or drive some potential ones. Third, the government should strengthen the publicity. The government also should raise the attention of the public, making the enterprises and the rural migrant residents know about the entrepreneurial information and understand the relative policy. The enterprises in support of the rural migrant residents should be encouraged financially or enjoy some certain policy such as taxation reduction or giving awards. By guiding the enterprises into the startup projects, helping more rural migrant residents to start businesses and create jobs, and mobilizing resources all round, the government can accelerate the economic cohesion for the rural migrant residents.

## **5 Conclusions**

On the ground that the economic cohesion of the rural migrant residents is the significant link of its social cohesion, the government attaches great importance to it. In the course of the economic cohesion of the rural migrant residents, issues such as difficulties of re-employment, wide income gap, and unreasonable compensations are existed. After giving analysis on the three issues, it is concluded that the government, communities and the society all three parties have influenced the activity. This article introduces the theory of government's collaborative crossover governance, building up a purpose of "government leading, educational department taking in charge, various departments collaborating, the self-directed learning of rural migrant residents on a community basis" from the perspective of government, communities and enterprises, purposing that the government should complete its compensation system, develop the technique training on a community basis, and encourage the rural migrant residents starting business by virtue of the enterprises so as to advance the economic cohesion of the rural migrant residents.

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## Climate Change and Tourism Development in Liangshan Yi Autonomous Prefecture, China \*

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**Abstract** Liangshan Yi Autonomous Prefecture has an abundance of natural and cultural landscapes. Its tourism has become one of the pillar industries of local economic development. Global climate change may manifest itself quite differently in various regions and modify local adaptation needs. Liangshan's mountainous territory and high differences in elevation formed the regional climatic characteristics of vertical zonality which is very sensitive to climate change and tourism development at the same time. Then, our paper aims to promote tourism development in conjunction with climate change adaptation, including meteorological disasters prevention and wants to find tourism development ways that are good for local economy as well as environmental and cultural protection. Drawing from the analysis on the regional climate change trends and the impacts of climate change on tourism, we argue that the performance of tourism development is very necessary and give some suggestions about minimization of negative and maximization of positive impacts on it.

**Key words** Liangshan Yi Autonomous Prefecture, Climate change, Tourism development, Meteorological disasters

### 1 Introduction

Liangshan Yi Autonomous Prefecture, on the southwest of Sichuan Province, as an important part of the Western Development Areas—"Comprehensive Development Zone of Panxi Resources", has 60,100 km<sup>2</sup> and administers 17 counties and cities. Liangshan (exclude Muli Tibetan Autonomous county which inhabited mostly by Tibetan people) is the largest area inhabited by Yi nationality. For many years, Xichang was more famous than Liangshan because there is a satellite launching centre in Xichang. People outside knew little about the Yi people in Liangshan. The economy and society of Liangshan has been rapidly changing in the twenty first century. Owe to the policy of Western China Development, tourism development of Liangshan faces more opportunities as well as challenges. But, Liangshan has limited options for development because of various factors such as mostly mountain areas; disadvantageous location; limited natural resources; lower levels of economic and social development; underdeveloped infrastructure; a shortage of investment in education, medical; and so on. At the same time, there have an abundance of natural and cultural landscapes because of unspoiled, special landscape and lifestyles, and persistent old cultures (see Table 1). Its tourism has become one of the pillar industries of local economic development and has a very important role in poverty reduction. In such situations, developing tourism becomes a high priority choice in the Liangshan Yi Autonomous Prefecture, Sichuan Province. In recent years, the government of Liangshan has promoted a series of festival activities with the carrier of Yis' culture in order to let outside people have a better understanding of Liangshan and to promote the development of the tourism. Tourism development in Liangshan is not only promoting the development of local economy, but also plays a very important role in establishing Liangshan image.

Data from meteorological stations in Liangshan have been critical for providing the evidence of climate change. From these data, we have seen that Liangshan experienced a significant increase in temperature during the last 46 years. Precipitation has been more variable, and there has been no apparent change in annual precipitation, but since the 1970s there has been an apparent increase in winter and decline in other seasons. Human comfortable degree in Liangshan Yi Autonomous Prefecture (see Table 2) faces many challenges when hot summer and other extreme climate events happens. The large elevation gradient in the region (325 to 5,958 meters) and complex topography

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make it likely that different areas of Liangshan are experiencing different rates of climate change. There is also increasing evidence that climate change may be amplified at high elevations especially in the Tibetan plateau part and high mountain areas of Liangshan. The meteorological departments have recently recognized these complexities of climate monitoring and have begun the process of expanding climate monitoring network to high elevations.

**Table 1 Important tourism resources in Liangshan Yi Autonomous Prefecture**

Landscape styles	Tourist attractions
Erosion landscape	Xichang Huanglian Soil Forest, Puge Luoji Mountain Moraine, Puge Luoji Mountain Horn Ridge, Yanyuan Natural Bridge, Muli Moon Cliff, Yanyuan Male Mother Mountain, Leibo Jinhaishan Sleeping Buddha etc.
Mountain landscape	Puge Luoji Mountain, Xichang Lushan, Muli Ca Ron Dorji Snow Mountain, Huili Dragon Elbow Mountain, Xide Xiao Mountain, Mianning Lingshan, Yanyuan Bailing Mountain, Jinyang Lion Mountain, Meigu Huang Maogeng etc.
Karst cave	Xichang Luoji Mountain Fairy Cave, LonghuCave in Leibo, Muli Fairy Cave, Muli Buddha Cave, Puge Agate Hole, Cave of Dragon Cave in Leibo, Leibo Fairy Cave, Jinyang Wawu Karst Cave, Huidong Laojun Hole, Xide Gemo Karst Cave group, Yuexi Nanjing Karst Caves, Dechang Gelong Fairy Cave, Butuo Baishi Beach etc.
Waterfall	Luoji Mountain hot spring waterfall, Mianning Water Rock waterfall, Mianning Xiangyangping waterfall, Muli Zishui River falls, Muli Yunnan fort falls, Muli Trough falls, Huili Dongyan waterfall etc.
Flashy stream	Jinshajiang Valley, Huidong Laojun Beach, The Yalong River Canyon, Anning River Valley, Dechang Anning River rafting, Ganluo Qingxidao, Huili Jiaopingdu etc.
Lake	Xichang Qionghai, Yanyuan Lugu Lake, Mianning Yihai, Dechang Black Dragon Pool, Muli Cundong Haizi, Huililimmortal Lake, Mianning Daqiao Reservoir, Ertan Reservoir area, Leibo Ma Lake, Luoji Mountain Lakes, Leibo Luoshui Lake etc.
Hot spring	Puge Spa, Zhaojue Bamboo hot spring, West Lu Chuan Xing Spa, Xichang Prefecture hot springs, The Trousers Crotch Ditch Spa, Puge Trough River Waterfall Spa, Xichang Radon Spring, Xide Tong Tong Hot spring, Yanyuan Lugu Lake Spa etc.
Sunshine/summer resort	Winter sunshine travel in Xichang, Summer resort in Xichang
Human landscape	Huili Conference Site, Xichang international torch festival, Xichang earthquake stone tablets, Bi culture of Yi nationality, Yi marriage customs, Mosuo culture, Mosuo walking marriage custom, Yihai Alliance Site, Mianning Lingshan Temple, Lushan Temple Group, Xichang Satellite Launch Center etc.

**Table 2 Human comfortable degree in Liangshan Yi Autonomous Prefecture based 1971-2016 data**

Season	Spring	Summer	Autumn	Winter
Degree	More comfortable	Most comfortable	More comfortable	Cool

## 2 Climate change and tourism development

### 2.1 Climate change dependence of Liangshan tourism sector

The trends of Liangshan tourism indicate that trips are distributed across the region, but most concentrated in the valley cities or famous mountain resorts. In summary, tourism trends of Liangshan show correlation with climate change, valley cities attract more tourists in a cooler temperature and famous mountain resorts attract more tourists in a hotter temperature. Domestic tourists prefer traveling in winter for its warmer climate in the valley cities and in summer for its cooler climate in the mountain settlement (summer and winter holiday or vacation trips, often self-organized). Individual perceptions about the weather are important in making trip decisions, especially so in the case of short, individually organized trips. Therefore, adaptation to climate uncertainties is in the core interest of Liangshan tour operators. It is necessary to highlight the importance of tourism development and safety with high climate dependence. Most of the significant tourism types in Liangshan are usually



related to natural and human landscapes together, for example, Yanyuan Lugu Lake, Puge Luoji Mountain, etc. The possible impacts of climate change on the natural environment are crucial in Liangshan and especially in case of winter sunshine travel and summer resort.

### **2.2 Climate change as a threat to sustainable tourism development**

Liangshan is located in the transitional zone of the Qinghai-Tibet Plateau, Yunnan-Kweichow Plateau, and Sichuan Basin. The transitional zone is an important ecological barrier of the upper reaches of the Yangtze River and plays significant role in the ecological security and ecological construction of Sichuan Province (Sichuan Outline of the 13th Five-Year Plan). However, this eco-environment is innately vulnerable because of its complex geological structure, broken rock, steep slopes, deep valleys, and concentrated rainfall. Climate change may have a negative effect on the visitor economy of Liangshan as natural beauty deteriorates through increased wild fires. Geographic factors make Liangshan especially vulnerable to both the direct effects of changes in climate such as flooding, increased risks of fire, and loss of biodiversity. Many mountain communities rely on recreation and tourism which increases their vulnerability to the secondary economic effects of climate change such as decreases in tourism from lack of snow for winter recreation. Many nature-based tourism operators in Liangshan do not believe that climate change is real, and that few have considered adaptation options. No doubt that climate change would increase weather hazards in the mountain areas of Liangshan and that this would endanger tourists (e.g. Debris flows in Puge County of Liangshan killed 24 people in August of 2017). We found that small tourist operators in Liangshan do not give high priority to climate change, unless they were personally affected by extreme weather (e.g. flash floods, landslides, debris flows, high temperature, etc.) in recent times.

The Liangshan revenues and employment resulting from tourism are key: Tourism is a sector of considerable and growing importance within the regional economy, one of the fundamental driving factors of regional and rural development or poverty alleviation which—when developed sustainably—allows for the protection and utilization of natural and human resources that are otherwise not or hardly marketable. Climate is one of the long-lasting factors that determine tourism's vulnerability and its ability to retain employment. The tourism sector itself, as well as related resorts, landscapes, settlements, ecosystems and the built environment are undoubtedly affected to climate change. It can be stated that variations in attractiveness due to climate change may lead to changes in consumer behavior and the use of tourism-related infrastructure such as hotels, restaurants, transport system, etc.

### **2.3 Vulnerability of tourism development in Liangshan in face of climate change**

Some researchers believe that tourism development in Southwest China (especially in mountain areas such as Liangshan) is particularly vulnerable to climate change<sup>[1]</sup>, and climate change also impacts the consumption pattern of tourists and their destination choice.<sup>[2]</sup> They find that the economic impact is qualitatively the same as the impact on tourist flows: Colder tourist attractions benefit from an expanded tourism sector, and warmer tourist attractions lose.<sup>[3]</sup> They also find a drop in regional welfare, because of the redistribution of tourism supply from warmer tourist attractions to colder tourist attractions. With increasing of tourism and climate change, mountain ecosystems in Liangshan are susceptible to accelerated soil erosion, landslides and rapid losses of habitat and genetic diversity. On the human side, there is widespread poverty among local inhabitants and loss of indigenous knowledge. From a poverty point of view, social units (people) or systems (social groups or networks) are considered potentially vulnerable rather than biophysical systems. There is increasing evidence that mountain ecosystems are easily damaged ('vulnerable'), have only a limited environmental capacity and thus tourism capacity, harbor fragile human communities with low adaptive capacity due to their relative poverty, and are frequently struck by natural disasters negatively influencing tourism security.<sup>[4]</sup> Tourism development is affected by not only direct climate parameters (e.g. higher temperature), but also by climate change-induced effects (e.g. debris flows, rock falls and landslides) and their economic and social consequences (e.g. infectious diseases) as well. Consequently, climate change primarily affects tourism indirectly by changing the attractiveness of an area such as by loss of biodiversity, impacts on the natural and built environment, and on tourism-related infrastructure.

Yi people and their livelihoods are particularly vulnerable to ecological degradation. The underlying causes of vulnerability include disproportionate poverty rates, high prevalence of food

insecurity and poor health, high dependency on natural resources, marginalization, and limited livelihood diversity. These factors, are the driving forces of Yi people's vulnerability, and are expected to be further aggravated by climate change. To sustain and enable current economic development in Liangshan, it will be crucial to address the issue of ecological construction and its relationship with economic development. Climate change is threatening sustainable development, especially poverty alleviation, in Liangshan since a single extreme event such as a flood can wipe out major livelihood resources such as standing crops, stored food and seeds, and fertile land. The poor will face more serious impacts in future due to the likelihood of more and more frequent occurrences of extreme events, and their economic development prospects are increasingly facing risks.

Development of tourism must reduce its negative influences on the local ecosystem to the minimum, to compare with the mass tourism; mountain tourism in Liangshan is of small scale, small capacity and low density are the desired approach in the region. Adaptation management of local tourism services is an effective way to balance tourism development and ecosystem protection in Liangshan. Ecosystem vulnerability zoning of Liangshan is to improve adaptive capacity of its tourism service.<sup>[5]</sup> By Ecosystem vulnerability zoning we mean to reflect the spatial distribution of vulnerability. The aim is to present a protection framework of the mountain ecosystem of Liangshan, and provide a tool for guidance for adaptation management of local tourism service.

### **3 Tourism development and adaptive management**

In seeking to grow the number of tourists and the contribution they make to Liangshan economies, providers and planners need to understand how to appeal to the tourists and service their needs. In the interests of sustainability, however, it is imperative that local communities look beyond supply and demand issues and consider how tourism can best be managed. Modern mountain tourism in Liangshan began a little late, but developed very quickly with urbanization, the growth of urban incomes and the demand for spending a holiday in a summer resort. The city of Xichang, with its surroundings, is an example of these growth and demand from an increasingly urbanized society. It is understood that the carrying capacity of the mountain areas of Liangshan is very limited. The quality of the mountain landscape is a legacy passed down from generation to generation. Some mountain areas have experienced deterioration from exploitation and overuse; others have been enhanced by the presence of man.

Management of recreational land use and related resources demands that a long-term view be taken, especially if these resources, much like the tourist attractions themselves, are to avoid being degraded. Recognition of Liangshan tourism's potential for developing some of the world's most marginalized and remote communities has led to the recognition that both human and nonhuman community members are being exploited<sup>[6]</sup> and excluded from decision-making. At the local level, zoning<sup>[7]</sup>, ethical codes, and increasing professionalism are required to better manage the emerging conflicts among different tourism-related stakeholders.

Liangshan has increasingly used the concept of adaptive management to guide decision making in tourism development. An adaptive management framework provides for the process of science, the ability of tourism attractions managers and community of partners to learn and develop future scenarios, and embraces the inherent uncertainty associated with stewardship of tourism resources. The concept has been around for decades and is affirmed as among the best strategies to manage for climate change. In Liangshan, addressing and adapting to the consequences of climate change has initially focused on three steps within the adaptive management framework: (1) research and monitoring, (2) synthesizing information, and (3) shared learning. First, meteorological data document that climate change is happening and is impacting tourist comfortable within Liangshan. Second, some tourism attractions have focused on transferring knowledge using a climate change story that resonates with people and works to build consensus, understanding, and support among tourism attractions managers, the public, the local community, and stakeholders.

Liangshan's sustainable tourism development and climate change adaptation are intertwined in a virtuous, mutually reinforcing circle. The fundamental challenges of Liangshan's tourism resources such as high fragility, loss of biodiversity, physical isolation, and political marginalization are largely

common and highly related. National policies often do not adequately consider or directly address the special conditions and challenges that the region and its inhabitants face. Given the importance of tourism development, it is in the interest of both upstream and downstream communities to protect local ecology. Ecological construction suggests the functional zoning of Liangshan as primarily forests and rangeland that provide ecosystem services to the downstream. The protection of China's "water tower", namely Liangshan, is vital to the country's ecological security. Improvement of environmental conditions of Liangshan in turn is to protect the wealthy of tourism development.

#### 4 Conclusions

Fragility and vulnerability to climate change, along with growing scarcity of fresh water and air as a basis for tourism development, have created not only new challenges but also new opportunities and possibilities for tourism development in Liangshan. It is, therefore, essential that these institutions assume responsibility for sensitizing policy makers, planners, and decision-makers at all levels, as well as the public, about the importance of the climate change adaptation in tourism development, as well as about the tourism resources disproportionate vulnerability and the emerging opportunities. Policy makers should be motivated to take action and place a special emphasis on the sustainable tourism development, and to respond to the specific needs of tourism development in these fragile systems in this time of rapidly changing climatic and socioeconomic circumstances.

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## Reform of People's Jurors System under the Keyword "People" \*

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**Abstract** For long, the key word "people" in the people's juror system has not been given sufficient attention, and the organizational goals of the court have gradually replaced the content of "people" in people's juror system, which completely compromises the central value of the people's juror system. This round of reform of people's juror system should begin with the understanding of the key word "people", and establish a people's juror system "of the people, by the people, and for the people". The specific measures include expanding the source channels of people's jurors, reforming the nomination mechanism for people's jurors, strengthening the independence and right of discourse of the people's jurors, and endowing the people's jurors with responsibilities that meet their lay status and clearly defining the methods for them to fulfill these responsibilities.

**Key words** The people, Juror, Democracy, Logical deduction

Reform in the system of people's jurors is an important part of the current round of judicial reform, but the keyword "the people" in the system of people's jurors was not taken seriously enough in judicial practice both prior to and during the course of the reform. On the contrary, the organizational goal of the people's courts has gradually replaced the content of "the people" which should have had in the system of people's jurors, thus emptying the inherent value of the system of people's jurors. In the author's view, the current round of reform in the system of people's jurors should be carried out around the keyword "the people". Therefore, this article will make a preliminary discussion on the system of people's jurors and its reform under the keyword "the people".

### 1 "The people" in the system of people's jurors

In the works which discuss the system of people's jurors, the vast majority of scholars either habitually omitted the word "the people" in the people's jurors, or, although they retain the word "the people" in form, they did not pay special attention to or make special research on it. As we all know, jury system comes from Europe and America, but they did not attach the word "the people" before the jury system. As China's system designers named the jury system to be the system of people's jurors, it is obvious that it deliberately highlights its "the people" feature. Under such circumstances, "the people" in the system of people's jurors is the key for the study of the system of people's jurors and its reform.

#### 1.1 "The people" in the system of people's jurors: What does it mean?

It is generally believed that "the people" in the system of people's jurors is more of a kind of political publicity and obviously has the color of mass line of the Chinese Communist Party, and the academic circles are not particularly concerned about what connotation it has exactly. But in the author's view, jury system is important presentation of democracy in the field of justice, and China's establishment of the system of people's jurors is also originally orientated at democracy<sup>[1]</sup>. To attach the word "the people" to it is just to make the democracy meaning connoted in the jury system be represented explicitly in a special way. Therefore, the word "the people" in the system of people's jurors not only is a kind of political publicity, but also means lots of practical democratic contents.

Then, how to understand "the people" and its content in the system of people's jurors? For this question, the author thinks that the famous concluding remark made by Lincoln in his Gettysburg address "... of the people, by the people, and for the people" may be used as a clue to understand "the people" and its content from three perspectives: the first is "Of the people", i.e. jurors of the people.

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This understanding emphasizes questions including whom the jurors are, whom do they come from and whom do they represent. Under such understanding, the jurors may be seen as equals of the jurors of courts. The second is “By the people”, i.e. people’s jurors will participate in decision making. This understanding emphasizes the substantive role of jurors in trial. Under such understanding, the jurors may be seen as equals of the jurors only appearing in court not participating in trial (trial is conducted completely by professional judges). The third is “For the people”, i.e. jurors are for the benefits of the people. This understanding emphasizes questions including the aim, value and benefits orientation of the jurors system. Under such understanding, the jurors may be seen as equals of the jurors who are for the benefits of courts and government. In the author’s view, only to understand the system of people’s jurors from the three levels of “the people”, its meaning may be fully grasped. Any understanding deviated from the three levels or understanding for which only one of the three levels was emphasized will deviate the system of people’s jurors from its original orientation and thus make the value of the system of people’s jurors drift and its function failure.

### **1.2 How does the system of people’s jurors represent “the people”: Logical deduction**

Since “the people” in the system of people’s jurors has a practical democratic connotation, how does the system of people’s jurors represent its “the people” connotation in terms of institution? To answer this question, discussion may be made also from the above three levels of the connotation of “the people”.

First of all, in order to realize the “Of the people” connotation in the people’s jurors system, a democratic people’s jurors selection mechanism is necessary in logic so as to ensure the jurors to be really people’s jurors. As we all know, in modern society, specific individuals in the people are extremely diversified, which is not only reflected in the levels of value and culture, but also reflected in the level of benefits. Under such circumstances, a democratic and reasonable people’s jurors selection mechanism is a must for the actual realization of the connotation of “the people” in the people’s jurors system. For this reason, on the one hand, there should be not too many restrictions on the qualification of people’s jurors so that the vast majority of citizens would have the opportunity to serve as people’s jurors, thus the width of the source of people’s jurors would be ensured; on the other hand, people’s jurors should be selected democratically at random by lot, and the jurors for each case should be re-selected at random<sup>[2]</sup>. Though such an open and democratic manner - by lot, people’s jurors on the whole would have sufficient representativeness, and people of various classes in society and various types of different opinions would have the opportunity to come into courts, thus ensuring “we the people” as a whole would earn respects.

Secondly, in order to realize the “By the people” connotation in the system of people’s jurors, people’s jurors’ right to speak and independence must be ensured. As already noted, it is a natural thing for people’s jurors to substantively participate in decision-making. But to ensure the sufficient representativeness and democracy of the jurors only in terms of institution is not enough to ensure the overall realization of the connotation of “the people” in the system of people’s jurors. Considering the fact that non-professionals are easily influenced by the outside world, especially by the professionals, on the professional issues such as judicial activities, so in order to make people’s jurors substantively participate in decision-making, it is theoretically necessary to 1) make people’s jurors have sufficient independence and have full right to speak; 2) make people’s jurors not be influenced by the outside world too much; and 3) make people’s jurors have freedom of speech, have their words count and their actions matter, so as to ensure public opinion has the opportunity to be expressed, be heard and absorbed, and make sure that people’s jurors may supervise the people and things in the judicial process<sup>[3]</sup>. From this point of view, the traditional term “people’s jurors” seems not precise. It seems “people’s judges” are more appropriate. In fact, there have been translation scholars who questioned the translation of “Jury” and “Juror” and thought that the translation of “陪审团” and “陪审” not only failed to accurately interpret the essential characteristics of the system or their true meanings, but also is misleading<sup>[4]</sup>.

Thirdly, in order to realize the “For the people” goal in the system of people’s jurors, it is important to ensure the duties positioning and duties performing method of people’s jurors are in line with their status and knowledge as laymen. It should be clear that both professional judges and

people's jurors should be "For the people" in modern society, but professional judges make the benefits of the people achieved in a professional way, and lay judges make the goal achieved in a different way. As we all know, jurors are also known as lay judges. Although professionals are not completely excluded from jurors, it is an indisputable fact that the vast majority are laymen (except the NPC Standing Committee members, the existing staff of public security bureaus, procuratorates, courts and judicial bureaus, civil servants and practicing lawyers, the proportion of legal professionals in the population is very low after all). Generally speaking, it is not advisable for lay judges to assume the same duties as professional judges, and not advisable to make them have the same duties performing method as professional judges. Other arrangements should be made to ensure the duties of jurors are in line with their status and knowledge as laymen, not only because laymen in general cannot have professional jobs done well, but also because it is the only way to bring the advantages of people's jurors, i.e. coming from the people, with simple concepts, and coming out of social life, into play.

## **2 The presence and representation of "the people" in the system of people's jurors: Overseas institutional practice**

Although the word "the people" is not attached in form to the European and American juror's system or jury system, because Europe and America have achieved political democracy quite earlier and implemented democratic ideology in the field of justice, their specific systems and supporting mechanisms in fact fully reflect the presence of "the people" and highlight the connotation of "the people" of the jurors system.

### **2.1 Democratized jurors selection mechanism**

In Europe and America, democratized jurors selection mechanism has become the long-term institutional practice for both the jurors system in civil law jurisdiction and the jury system in common law jurisdiction. Jurors come from wide sources and are selected randomly. On the one hand, for the juror qualification restrictions, both the United States and European countries maintain open attitudes. In the United States, for example, jurors are usually randomly selected from the voter registration or driver's license listings, and the restrictions are limited to no criminal records, not subject to deprivation of the right to vote and professional status restriction (such as should not be serving judges, lawyers, government officials, etc.)<sup>[5]</sup>; In France, in accordance with the provisions of the code of criminal procedure, the main qualification requirements for jurors include: French nationality; at least 23 years old; proficient in French; and enjoying political rights, civil rights and family rights, and the restrictions are similar to those of the United States<sup>[6]</sup>.

On the other hand, the selection of specific jurors in Western countries is almost always taken in a random and democratic way. For example, in the United States, jury members are usually picked up by the clerk at random by lot<sup>[7]</sup>, and in France, whether it is candidate jurors, court jurors or final trial jurors, the selection is always taken at random by lot<sup>[8]</sup>. Furthermore, in Western countries, a new selection will be conducted for each case so as to expand the opportunity for citizens to serve as jurors. For example, in the United States, the jury members of each case are "not appointed till the hour of trial". The jury members only participate in one trial, and after the trial is completed, they would be immediately dismissed<sup>[9]</sup>. In France, jurors are drawn by lot from the court trial jurors listing on the open day of the court trial, and one candidate can only serve as a juror one time in a year. When the person who is selected by lot to serve as a juror has already served as a juror in that year, he/she would be replaced immediately<sup>[10]</sup>.

### **2.2 Both jurors' independence and right to speak are significantly ensured**

In Europe and America, jurors' independence and right to speak are ensured by law through system design in three aspects. Firstly, jurors are ensured not to be influenced by the outside world in terms of institution. In the United States, for example, jury members in criminal cases must be separated from the outside public opinion and the will of the people, and rather complicated procedural rules (including rules against bias) are designed for this purpose<sup>[11]</sup>. In France, after jurors are sworn in, their communication with some certain people including the parties concerned and the media would be prohibited<sup>[12]</sup>. Of course, in addition to the special guarantee for the independence of the jurors, the independent environment of the entire judicial system also plays a great role in ensuring jurors not to

be influenced by the outside world.

Secondly, jurors have gained a relatively independent status within the trial court. In the United States, for example, jury has obtained its own independent status through duties division described below, and the professional judges of the United States are hardly able to and will not interfere with jurors' conclusive and general facts determination activities; in France, prior to deliberation, both professional judges and jurors are not allowed to express any tendentious opinion, which not only is a reflection of the principle of presumption of innocence, but also helps to prevent professional judges' opinion from influencing the jurors' evaluation of evidence through inner conviction.

Thirdly, the weight of jurors' words is ensured through institutional arrangements. In the United States, jury has immeasurable power as it enjoys the right of conviction and the right of death penalty sentencing; in France, the weight of jurors' words is ensured by two institutional arrangements: the first one is the superiority in numbers (the number of jurors for first instance cases is 6 and 9 for appellate cases, and the number of professional judges for both is 3); the second one is the sophisticated voting mechanism (real anonymous vote and separate vote for important matters, etc.) guarantees jurors' opinion really matter.

### **2.3 The duties positioning and duties performing method of jurors are in line with their status and knowledge as laymen in general**

Foreign countries with more successful jurors system all pay attention to the layman status of jurors and the particularity of knowledge in different extent, so they all institutionally make jurors' duties positioning and duties performing method different from those of professional judges. Of course, jury system and jurors system adopt slightly different system design. In countries where jury system is practiced, professional judges and layman jurors are directly given different duties. In the United States, for example, law stipulates clearly that jury is responsible for determining the facts and not responsible for legal evaluation (except for death penalties); as for the determination of the facts, it is only responsible for the general determination of the conclusive facts, and there is no need to make special judgment on each piece of evidence (that is the job of professional judges). In other words, jury only performs non-professional and simple work. Professional problems and complex legal and technical problems shall be resolved by professional judges<sup>[13]</sup>. The clarity of power and duties, especially that jury is only responsible for the general determination of the conclusive facts, no doubt has made it possible for jury members to bring factors including values, emotion and experience of the jury members, which may respond to the common sense and public opinion, to the decision-making.

In the civil law countries where jurors system is practiced, the law usually does not clearly distinguish between the duties of professional judges and lay judges, but in the way of performing their duties, it creates favorable conditions for lay judges to respond to public opinion in a vague manner. In France, for example, although there is no distinction between jurors and judges in the duties of determining the facts and law application, the layman status and knowledge of the jurors are taken care of, although it may not be done consciously, in a different way, i.e. general evaluation of evidence through inner conviction is emphasized. In this regard, the French Code of Criminal Procedure clearly stipulates: "The law does not ask judges (including people's jurors - noted by the author) the reasons of the inner conviction, and does not provide rules for judges to rely on in determining whether a piece of evidence is complete and whether it is sufficient ... The law only raises a question that summarizes all the duties of a judge: Do you form an inner conviction?"<sup>[14]</sup>. Although this stipulation of the French Code of Criminal Procedure is not specifically for jurors, but in fact it is more beneficial to jurors, because this principle of inner conviction which does not need reasons is obviously more beneficial to jurors who are not good at reasoning, thus making it possible institutionally for jurors to bring into play and take account of the reasonable sentiment of society and public opinion, which can be understood but cannot be described. It is different in approach but equally satisfactory in results with the practice of the United States, which is that the jury only needs to make determination on conclusive facts.

## **3 Key matters on why the "the people" feature in the system of people's jurors of China is difficult to be represented**

The institutional conditions and methods for the presence of "the people" in the system of

people's jurors have been expounded and examined above. Looking at the current system of people's jurors of China from the perspective of institutional conditions and methods, it is not difficult to find that there are problems in different extent in the following aspects: 1) the width of source of the people's jurors and the randomness of the selection; 2) the independence and right to speak of the people's jurors; and 3) whether the duties of the people's jurors are in line with their status and knowledge as laymen.

### 3.1 Source and selection of the people's jurors of China

Compared with the requirements, i.e. the source of people's jurors should be wide and the selection should be conducted at random and democratically, which are necessary in order to realize the connotation of "the people", on the one hand, the source of the people's jurors of China is subject to excessive restrictions made by the legislative and practical sector, and the width and representativeness is seriously inadequate. Firstly, legislation standards are too high. *Decision of the Standing Committee of the National People's Congress Regarding Perfecting the System of People's Jurors* clearly stipulates that to serve as a people's juror, a citizen shall: (1) uphold the Constitution of the People's Republic of China; (2) have reached the age of 23; (3) be of good ethics, upright and decent; and (4) be in good health, and to serve as a people's juror, one shall have an educational background of, as a general rule, junior college or higher. Among the stipulations, "(4) be in good health, and to serve as a people's juror, one shall have an educational background of, as a general rule, junior college or higher" do not have any substantive relation with "the people". Secondly, practical sector has higher standards and people's jurors show a trend of elitism. In practice, judicial administrative organs and courts often add more on the basis of the requirements made by legislation, and raise higher requirements on the educational level and occupation of the candidate jurors. For example, in the 32 candidate people's jurors selected by a district of Chengdu in 2005, there were directors, professors, chairman of women's federations, party secretaries of villages, heads of stations and NPC members, etc., and there were almost no representatives of industrial and mining enterprise staff and ordinary people. Among the finally selected 403 people's jurors, there were 7 with doctor's degree, 22 with master's degree, 173 with bachelor's degree and 181 with junior college degree<sup>[15]</sup>. For another example, the so-called jury trial in Henan, though it was alleged that "farmers also can serve as people's jurors", the jury members actually participating in court trial were basically NPC members, CPPCC members, cadres of organs, leaders of grassroots party organizations, school teachers, leaders of enterprises and public institutions, and the proportion of ordinary citizens was very small. It is reported that there was a farmer serving as a people's juror in a case, but the person actually participated in was the party secretary of the village in fact<sup>[16]</sup>.

On the other hand, the people's jurors are not selected at random. Firstly, in accordance with the provisions of legislation, the selection of people's jurors should follow the following procedure: to be recommended by his or her own entity or grassroots organization at the location of his or her permanent residence, or shall apply by himself or herself, and be subject to examination and approval of the grassroots people's court jointly with the judicial administrative organ at the same level, and shall be appointed by the standing committee of the people's congress at the same level upon the recommendation of the president of the grassroots people's court after making suggestions regarding the persons to be elected as people's jurors. This selection procedure greatly limits the representativeness of the people's jurors. For the silent majority and the people whom no grassroots organizations recommend, it would be difficult to have the opportunity to serve as people's jurors, and it would be difficult for the various groups of people and different opinions of society to have the opportunity to come into the court. Secondly, in practice, it is not that a new selection of people's jurors of courts would be conducted for each and every case. Instead, jurors have been determined prior to the cases and are fixed for a long term (term of office is as long as 5 years). Except professional knowledge and treatment differences, there are almost no differences between the people's jurors and professional judges. "Full-time people's jurors" are quite common. The non-democratic nature of the selection of people's jurors and the existence of "full-time people's jurors" undoubtedly have further weakened the representativeness of people's jurors, which is much more detrimental to the realization of the connotation of the "the people" in the system of people's jurors.



### **3.2 Matters on the independence and right to speak of the people's jurors of China**

As mentioned earlier, to give people's jurors sufficient independence and full right to speak is one of the key requirements for the realization of the connotation of "the people". In the current jurors system of China, there are major deficiencies in the guarantee for people's jurors' independence and right to speak, including:

As far as independence is concerned, just like the case of professional judges, there are some deficiencies in the guarantee for the people's jurors' independence in legislation. More importantly, compared with professional judges, the independence of the people's jurors of China has a lot of particularities. Firstly, the jurors system of China does not pay attention to whether the people's jurors would be influenced by the outside world or not. Instead, those who have a good understanding of the public opinion (such as NPC members, CPPCC members or people of noble character and high prestige) are welcomed to participate in court trial, therefore it does not emphasize the independence of the people's jurors from the society, nor does it set procedures against bias. The influence of the status of the people's jurors on the realization of the connotation of "the people" shows in two aspects: on the one hand, it may be helpful to the transmission of the conditions of the local people and public opinion, but on the other hand, the people's jurors may be easily controlled by the public opinion. Secondly, as for the relationship between the professional judges and the people's jurors of the collegiate panel, China's jurors system more emphasizes the cooperation between the two rather than their independence, and does not prohibit professional judges from expressing tendentious opinion before panel discussion. In practice, professional judges often have a strong sense of presumption of guilt in the process of interrogating the defendant and the witness, and may even scold the defendant, which may have a potentially implied effect on the lay judges, which is detrimental to the independent judgment of the people's jurors. Thirdly, Chinese courts have adopted a personnel management model for the people's jurors assimilated to that of judges. The role of the people's jurors in this model is very similar to that of judges. It is easy for the people's jurors to accept judge's thinking mode and move closer to the role of judges, and it is detrimental to the understanding of the people's jurors on their status independence<sup>[17]</sup>. There is no doubt that these institutional arrangements are detrimental to people's jurors' participating in the trial of cases as independent representatives of the people.

In terms of the right to speak, China's law clearly stipulates that the people's jurors and professional judges are entitled the same duties and power, and that the minority should be subject to the majority. But there are several questions here: Firstly, it only stipulates the number of people's jurors should be not less than one-third, but not makes it clear whether the people's jurors should be superior in numbers. If the number of people's jurors does not exceed half of the members of the collegial panel, the advice of the people's jurors will not make any big difference in theory. Second, it lacks a rigid and sophisticated voting mechanism. In practice, once the professional judges and the people's jurors have different opinions, more often it is resolved through repeated discussion rather than by voting. Due to the layman status of the people's jurors, it is difficult for them to be in a dominant position in the repeated discussion, and they are easy to be persuaded. Thirdly, besides the collegial panel, the presence of presiding judge and judicial committee has a certain dilution effect on the right to speak of the people's jurors. In panel discussion, even if the people's jurors insist, the case may be submitted to the judicial committee for discussion because of significant differences occurred in the collegial panel, while the judicial committee has no seats for people's jurors. In short, the right to speak of the people's jurors of China in collegial panel and courts is limited. All have made it difficult to realize the connotation of the people's in the people's jurors system.

### **3.3 The duties positioning and duties performing method of the people's jurors of China**

From the legislative point of view, the duties positioning and duties performing method of the people's jurors of China are quite different from those of the jury system of Britain and the United States, but they are almost the same as those of the jurors system of the European countries, i.e. people's jurors have the same duties and power as judges. They determine the facts of the case together and apply laws together, and the system does not deliberately distinguish who enjoys the right to determine the facts and who enjoys the right to apply laws. However, due to the lack of necessary institutional guarantee, and that in judicial practice, instrumentalism and selfish departmentalism of the

courts prevail, the duties positioning of the people's jurors of China has the following two problems:

On the one hand, the power of people's jurors shows duality, that is, the power in form is large and the power in essence is small. It is reflected by the following that power in form is large: cases the trial of which people's jurors participate in is wide in range; cases the trial of which people's jurors participate in are great in number; the power of people's jurors includes not only facts determination and law application, but also court trial and other procedures<sup>[18]</sup>. It is reflected by the following that power in essence is small: although people's jurors participate in the trial of many cases, it is difficult for them to have real influence on facts determination and law application because 1) they do not have legal knowledge; 2) mutual confirmation model of facts determination is adopted instead of a model similar with the French evaluation of evidence through inner conviction; and 3) there is not such a special mechanism which is suitable for the people's jurors to express their opinion. Although people's jurors have participated in many cases, they have rare practical influence in facts determination and law application.

On the other hand, jurors system has been instrumentalized by courts. The instrumentalization of jurors system is mainly reflected in two aspects: First, with the economic and social development, there are more and more cases for the courts, and people's jurors have become an important way for the courts to solve the problem of shortage of manpower. It is particularly obvious in district courts of metropolitan cities and courts of the economically developed coastal areas. Second, people's jurors are used to persuade the parties concerned to accept the judgments and stop to appeal, so after the case has been terminated, it would be the end and there would be no petition. To this issue, Zhang Li-yong, the president of the court in Henan Province which has pilot jury, admitted that the original reason of the design of the jurors system was because at present there were too many cases but not enough staff working on them, and there were many lawsuit-related appeals flooded into the courts. The significance of the jurors system is to make the trial of people conducted by similar kind of people, which makes the trial easier to be accepted by the parties concerned, thus social contradictions would be resolved better<sup>[19]</sup>. The instrumentalization of the power of people's jurors makes the core of the value of "the people" in the people's jurors system be replaced by the using of jurors to resolve petition problems, and it even becomes some kind of disguised repression. This is undoubtedly the misinterpretation, even castration, of the function of the people's jurors system.

#### **4 Measures for the reform of the system of people's jurors under the keyword "the people"**

Through the previous analysis, it is not difficult to find that there are still many institutional problems in the realization of the core status of the "the people" in the system of people's jurors. In consideration of this, in order to truly realize the presence of "the people" and have it play a substantive role through the system of people's jurors, the current system of people's jurors must be reformed, and special attention should be given to putting relevant institutional conditions into place.

##### **4.1 Expand the source of jurors and reconstruct the mechanism of random selection of jurors**

The realization of the connotation of the "the people" in the system of people's jurors firstly is directly related to the source and selection mechanism of the people's jurors. Considering the problems at present existing in the source and selection mechanism of the people's jurors of China, the author puts forward the following reform proposals:

1. On the qualification of jurors: In accordance with the *Pilot Program on the Reform of the System of People's Assessors* in 2015, "any citizen who is of good ethics, upright and decent, in good health, with the right to vote and the right to be voted, and has reached the age of 28", has the qualification to serve as a juror in principle, but except the citizens in the rural areas and poor areas who are upright and decent and are highly respected, the citizens are in general still required to have educational level of higher than senior high school to serve as jurors. Compared with the original provisions of the National People's Congress, the eligible age has been raised, and the educational level requirement has been lowered, and rural areas and remote poverty-stricken areas are given special care, which reflects a certain degree of progress. The author believes that it is feasible in general. But: firstly, it should not include "of good ethics, upright and decent" into the qualification

requirements. The author suggests to remove the “of good ethics, upright and decent” qualification restriction on the premise of increasing prosecutor and defendant’s right to make application to withdraw a juror, and have the “of good ethics, upright and decent” issue resolved by the application for withdrawal made by prosecutor and defendant so as to expand the source and multi-representativeness of the jurors. Meanwhile it also would be helpful for the establishment of a data system (“of good ethics, upright and decent” cannot be identified in a simple way). Secondly, considering that the overall educational level of the migrant workers at present is mostly lower than senior high school level, and this group has large population, so in order to enhance the representativeness, academic educational level may be lowered to junior high school level. Thirdly, it is recommended that to include the eligible candidates into the jurors database, and to establish an information software system for use by relevant departments based on the needs of the practical sector.

2. On the term of office and the number of people’s jurors: On the one hand, the current term of office of the people’s jurors is still five years. The *Pilot Program on the Reform of the System of People’s Assessors* in 2015 has not changed it. A five-year term of office has many drawbacks. To a certain extent, it directly causes that people’s jurors gradually become civil servants and full-time professionals. For this reason, this article proposes to abolish the tenure system and establish the trial-term system. In the system, one year may be set up as one trial term, and then the system selects and appoints jurors from the ones who are qualified to serve as jurors at random based on the needs. The term of office of the jurors of trial-term system is one trial term, i.e. one year. On the other hand, the *Pilot Program on the Reform of the System of People’s Assessors* in 2015 has expended greatly the number of people’s jurors (not less than 3-5 times the number of local court judges), but taking the number of judges as the basis, problems may occur, like there are may not enough jurors, which eventually leads to professionalism as there are people who are selected to serve as jurors for multiple times. In this regard, this paper suggests that the number of cases should be taken as the basis, and the number of jurors should be determined according to a certain percentage (such as one tenth of the total number of cases), i.e. the number of people’s jurors of a trial term should be determined according to the total number of first instance cases of the previous year tried with general procedures.

3. On the determination of the people’s jurors of collegiate panel: At present, the people’s jurors of collegiate panel is basically determined by the court, which lacks both democracy and procedures against bias. Therefore, the author suggests: (1) to reform the generation method of the people’s jurors of collegiate panel, i.e. to provide that the people’s jurors of collegiate panel should be drawn at random by lot on the open day of the court trial from the jurors of the trial term, and limit the number of times one people’s juror may serve as the people’s juror of collegiate panel in the same trial term (the number of times is approximately equal to the ratio between the above-mentioned number of cases tried with general procedures and the people’s jurors of the trial term), and the same one people’s juror shall not continually serve as the people’s juror of collegiate panel. (2) to make it clear that prosecutor and defendant enjoy the right to make application to withdraw a people’s juror. The basic information of the people’s jurors may be introduced to prosecutor and defendant on the open day of the court trial, and prosecutor and defendant should be informed that they enjoy the right to make application to withdraw a people’s juror. For the application for withdrawal made by prosecutor and defendant, the presiding judge should decide whether to approve the application for withdrawal at court, and if the application for withdrawal is approved, the difference of people’s jurors of collegiate panel should be made up from the standby people’s jurors.

#### **4.2 Give people’s jurors sufficient independence and full right to speak**

As mentioned above, under the current system of China, both the internal and external independence of the people’s jurors are not fully considered, resulting that it is difficult for the jurors to keep distance from the public opinion, the parties concerned and lawyers externally, and difficult to avoid “being led by the nose” by professional judges internally. Hence it is difficult to achieve the effect of independently expressing common sense, passing the conditions of the people and responding to public opinion. In order to solve these two problems, corresponding system reform must be carried out.

1. On the external independence of people’s jurors: In addition to further strengthening the overall

judicial independence by combining the ripen practices of foreign countries, the author suggests: (1) to make appropriate restrictions on the people's jurors' communication with the outside world, that is, once one is selected to serve as a juror, he/she shall not communicate with the parties concerned and lawyers, not accept interviews of the media and not express any tendentious opinion; (2) to implement the principle of centralized trial to ensure the continuity and concentration of the trial, so that the people jurors' would not be interfered by the external world during adjournment.

2. On the internal independence of people's jurors: In order to strengthen the independence of the jurors, this paper suggests: (1) to make it clear that serving as a people's juror is an obligation rather than a job, and people's jurors shall be only provided with transportation and living subsidies. The transportation and living expenses actually incurred would be reimbursed by the judicial administration authority (rather than the court) so as to avoid the dependent relationship or interest relationship that may arise between the people's jurors and the courts. (2) to establish people's jurors' right to express their deliberative opinion firstly. For the questions of facts determination or measurement of penalty, the people's jurors should express opinion firstly and they do not need to explain the reasons (of course, they may explain the reasons). After that, judges may express their opinions with specific reasons. (3) to prohibit judges to express any tendentious opinion when interrogating defendants or witnesses, so as not to affect the people's jurors independent hearing and free judgments.

3. On the right to speak of the people's jurors: In order to change the current situation that the people's jurors of China almost have no right to speak, besides the measures for the reform in the *Proposals for Pilot Reform of the System of People's Jurors* in 2015, the author suggests: (1) to increase the number of people's jurors of collegial panel in general. The current reform only explores major cases the trial of which is conducted by a collegial panel with more than 3 people's jurors participating. The author believes that whether "the people" should be present has no special substantive relation with whether the case is major or not, so it is recommended to learn from France that the number of people's jurors of collegiate panel should be 3-5 in general, and there should be 2-4 standby jurors of collegial panel (to facilitate the make-up of jurors where prosecutors and/or defendants exercise right to make application for withdrawal). (2) should give the people's jurors a greater right to speak in measurement of penalty. Especially for death penalty cases, the opinion of the people's jurors should be given special attention.

#### **4.3 Rearranging the duties and duties performing method of jurors**

The *Proposals for Pilot Reform of the System of People's Jurors* in 2015 clearly stipulates that people's jurors shall "independently express opinion on issues of facts determination and not express opinion on issues of law application". The reform direction is worthy of recognition. But in the specific pilot reform, the author believes that the principle still needs to be detailed and supplemented, so as to change the duties performing method of the people's jurors, including:

1. On the power and duties arrangement of people's jurors: There are a lot of drawbacks in the past practice that the power and duties of the people's jurors were exactly the same as those of the judges. Therefore, it is necessary to gradually limit the duties of the people's jurors to facts determination, which has been successfully practiced by the jury system of the United States. However, the special circumstances of China, i.e. conviction is also a quite professional activity in China's criminal law system, must be taken into account, so it should be fully considered that the facts determination right of the people's jurors should not cause too much impact on the crime affirmation of professional judges.

2. On the duties performance of the system of people's jurors: Considering the lay judge status of the people's jurors and their knowledge, it is recommended that facts determination and measurement of penalty and evaluation made by the people's jurors should be simplified by learning from the ripen practices of foreign countries, i.e. (1) to adopt a strict anonymous voting mechanism, and to vote separately on conviction and measurement of penalty issues. The votes should be checked and counted on the spot, and results should be obtained on the spot. Principle of majority decision should be followed, and related votes and books should be immediately destroyed after the statistical work has been completed. (2) As for conviction, the people's jurors only need to determine the conclusive facts<sup>[20]</sup>, and only need to determine whether the defendant is guilty or innocent, and do not need to

explain the reasons; professional judges have the power to veto the guilty or innocent opinion of the majority of the people's jurors, but there must be sufficient reasons and a vote again. In case the voting result again is that the opinion of the people's jurors is in the majority, but the professional judges still have different opinion with sufficient reasons, they may submit it to the judicial committee for determination through discussion. (3) As for measurement of penalty, under normal circumstances, the people's jurors only need to give opinion of major penalty or minor penalty. To be specific, the five-point Likert scale may be adopted, and the people's jurors only need to choose the point. The penalty for the defendant will be determined by averaging the points of judges and people's jurors<sup>[21]</sup>. But for death penalty, the defendant may be sentenced to death only if all people's jurors agree on it.

## 5 Conclusions

Based on the logical deduction of people's jurors system against the content of "people", we find that the people's jurors system will embody the "people" in three aspects: (1) To reflect the implication of "of the people", a democratic generation system for people's jurors must be required in a logical way in order to make sure the jurors is indeed from the people. (2) To reflect the implication of "by the people", the right of speech and independence of the people's jurors must be guaranteed. (3) To realize the objective of "for the people", duty positioning and fulfillment of the people's jurors must accord with its amateur identity and knowledge. In this case, the measures for the reform of people's jurors system under the keyword "people" mainly include as follows: (1) Expand the jurors sources and reconstruct the random generation mechanism of the jurors. (2) Assign sufficient independence and the right of speech to the jurors. (3) Reallocate the jurors' duties and fulfillment ways.

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## Research on the Development Strategy of Cultural Tourism Industry in Sichuan Province from the Perspective of Ecology

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**Abstract** As the fastest growing tourism industry in 21<sup>st</sup> century, cultural tourism plays an important role in displaying national culture and local characteristics. As a major province of Chinese cultural tourism resources, Sichuan enjoys rich cultural tourism resources and has unique advantages in developing the cultural tourism industry. But there is still a big gap between Sichuan's cultural tourism industry and developed countries and regions. This paper tries to analyze and evaluate the development of Sichuan's cultural tourism industry from the perspective of ecology. Using ecological theory and index system of ecological health, this paper evaluates the development of cultural tourism industry in Sichuan province from three aspects: vitality, stability and resilience. On this basis, the paper puts forward the implementation of industrial cluster development strategy, brand development strategy, integrated development strategy and circular development strategy to promote the ecological development of Sichuan's cultural tourism industry, so as to provide useful inspiration for the government decision-making.

**Key words** Ecological perspective, Cultural tourism industry, Development strategy, Sichuan Province

### 1 Introduction

The interactive development of culture and tourism is the inevitable trend of economic and social development in the new period. Practice has also proved that the development of cultural tourism industry relying on culture and tourism can not only promote the development of regional economy, but also promote the inheritance and protection of culture.

As a major province of cultural tourism resources in China, Sichuan has rich cultural tourism resources and distinctive features. In recent years, the Sichuan Provincial government has taken the cultural tourism industry as the strategic pillar industry of the national economy, and vigorously promoted the development of the cultural tourism industry. But objectively speaking, there is still a big gap between Sichuan's cultural tourism industry and developed countries and regions. From the angle of ecology, this paper analyzes and comments on the current situation of the development of cultural tourism industry in Sichuan Province, and puts forward some countermeasures and suggestions for the government decision-making.

### 2 Application of ecological theory in industrial economics

In recent years, more and more economists use ecological theory to explain the competition and cooperation relationship between economic development and industrial enterprises, provides a new perspective for the research of industrial economics, and also provide new ideas for economic development.

The application of ecological theory in industrial economics mainly focuses on three aspects:

First, the ecosystem theory. Compared the industrial system to a natural ecosystem, In the industrial ecosystem, the relative relationship of each industry is modeled by the relationship between producers, consumers and restorers in the natural world. Each industry sector based on its ecological and economic functions, constitutes an ecological industrial system similar to the natural ecosystem. They play their respective roles in the realization of system functions, so that the industrial ecosystem can effectively imitate the rules of the operation of natural ecosystems, to achieve efficient circulation of material, energy and information, and to adjust the cooperation among enterprises and enterprises Symbiotic relationship(Zhang Yan-hu, 2005<sup>[1]</sup>).

Second, the industrial ecology. Professor T.E.Graedel of Yale University pointed out in his book

“industrial ecology”(T. E. Graedel, 2004<sup>[2]</sup>): “Industrial ecology is a method for human beings to explore and maintain sustainable development under the premise of the continuous development of economy, culture and technology. It requires that the relationship between the industrial system and its surrounding environment be not isolated but coordinated.” That is to say, to realize the sustainable development of industry, we must pay attention to the coordination between industry development and resources, environment and social operation.

Third, the organizational ecology. It mainly describes the diversity of enterprise organizations and the complexity of their relationship. The view is that the industry market entity, like the organisms in the ecosystem, needs to be diversified, with the balance of scale and quantity, the industrial market promotes the survival of the fittest through moderate competition, and promotes the formation of enterprise groups and enterprises clusters, thus forming a perfect industrial chain. Thus, a series of concepts and theories such as industrial niche, industrial population density, industrial community composition and industrial community succession have been spawned.

### 3 Evaluation of the development of cultural tourism industry in Sichuan Province based on ecological perspective

In this paper, the evaluation theory and index system of ecological health in ecology are used to evaluate the development of cultural tourism industry in Sichuan Province from three aspects: vitality, stability and resilience.

#### 3.1 Evaluation of the vitality of cultural tourism industry in Sichuan

In ecology, energy refers to the activity of ecosystems. Generally speaking, the more energy input to the ecosystem, the faster the metabolism, the more dynamic. For the industrial system, the stronger the productivity and competitiveness, the more dynamic the industry(Yang Zhong-zhi, 2003<sup>[3]</sup>). We select the three indicators of GDP growth rate, domestic competitiveness and the proportion of the province’s economy to measure the vitality of Sichuan’s cultural tourism industry.

##### 3.1.1 Gross output growth rate

From 2010 to 2014, the added value of tourism in Sichuan grew by an average annual rate of 25.2%, higher than the province’s average annual growth rate of GDP by 11.2 percentage points. In 2014, the total tourism revenue in Sichuan reached 489 billion 100 million yuan, exceeding the planned goal by one year ahead of schedule. From 2010 to 2014, Sichuan’s cultural industry maintained a growth rate of more than 28%, higher than the national average.

##### 3.1.2 Domestic competitiveness

In 2014, Sichuan’s tourism revenue grew by 25.1%, an increase of about 14.1 percentage points over the national average. In 2015, Sichuan’s tourism revenue grew by 11% year-on-year, 16 percentage points higher than the national growth rate. In 2015, the total tourism revenue in Sichuan rose to fifth place in the national rankings. During the period of 12th Five-Year, the total tourism revenue of Sichuan province has been the first place in the western region.<sup>[4]</sup> As shown in Table 1.

**Table 1 Ranking of tourism revenue in Sichuan and western provinces and cities**

Year	Total tourism revenue (100 million yuan)		Sichuan tourism ranking	
	Sichuan Province	Country	National ranking	Western ranking
2010	1886.10	15700	9	1
2011	2449.15	22450	9	1
2012	3280.25	25866	9	1
2013	3877.40	29475	7	1
2014	4891	32500	7	1
2015	6210.5	41300	5	1

##### 3.1.3 Accounting for the province’s economy

Yuko Aoyama believes that the rise of cultural industries has contributed to the development of the tourism economy and the competitiveness of the tourism industry to a certain extent(Yuko Aoyama, 2007<sup>[5]</sup>). In recent years, Sichuan’s cultural tourism industry has been showing a rapid and healthy development trend, the growth rate is higher than the national average, with strong competitiveness



and development potential in the domestic tourism market. Especially in the past two years, Especially in recent years, the province's GDP growth slowed, but the development of cultural tourism industry is very optimistic, both of the developing speed and scale of development has made great progress, at present, it has already become a pillar industry of the national economy in Sichuan Province.<sup>[6]</sup> As shown in Table 2.

**Table 2 2015 contribution of tourism in Sichuan province to the national economy**

	2015 contribution(%)	
	Total amount (100 million yuan)	proportion(%)
Primary industry (not stripped)	3677.3	100
Added value of Tourism	184.6	5.02
Second industry (not stripped)	14293.2	100
Added value of Tourism	486.76	3.11
Third industry (not stripped)	12132.6	100
Added value of Tourism	2471.5	20.37

### 3.2 Stability evaluation of cultural tourism industry in Sichuan

In the ecosystem, the diversity of biological population and community forms a complex network of food chains, which can promote the flow of energy within the system, reduce the chances of invasion by outsiders and improve the stability of the system. Similarly, the more diversified enterprise organizations in the industrial system, the greater the difference in product differentiation, the higher the concentration of core industries and related industries, the easier the formation of the system of symbiotic competition, the system will become more stable and balanced. We select three indexes of industry concentration degree (showing enterprise competition condition), industrial cluster development degree and product differentiation to evaluate the stability of Sichuan cultural tourism industry.

#### 3.2.1 Industry concentration

According to the list of excellent enterprises of key culture in Sichuan Province, Sichuan tourism group, Sichuan blue light culture tourism investment company and other enterprises through the integration of resources and institutional innovation, has a strong market competitiveness and industrial belt power. At the same time, the concentration degree of cultural industry in Sichuan province is only 13.78% ,which indicate that the industry with a large group of cultural tourism industry in Sichuan Province has not yet formed, the cultural tourism industry is still in the stage of low entry threshold and low-level competition.

#### 3.2.2 Development degree of industrial cluster

Sichuan's cultural tourism industry has initially formed a "1+3" cluster development pattern, that is, 1 represents the cultural tourism economic growth pole of Chengdu, and 3 represents three cultural tourism economic zones. We can see the Sichuan's cultural tourism industry layout is still dispersed, 21 cities and states have their own cultural tourism industry cluster planning, did not form a unified development pattern of the province. Besides, the industry agglomeration degree is not high, basically is the simple matching of the tourism industry, the industry chain is short, and there is no effective industrial division of labor coordination system needed for industrial cluster development. Therefore, not only the lack of planning and development and policy control, the more important is the Sichuan's cultural tourism industry project is still government-led, private enterprise investment mechanism is not mature. So the development of cultural tourism industry has not yet formed an open development pattern.

#### 3.2.3 Product differentiation

In recent years, based on traditional sightseeing, the Sichuan's cultural tourism industry try to explore the development characteristics of cultural entertainment, theme experience, rural tourism and other diverse cultural tourism products, and it has achieved good results. Such as the 2014 "Jiuzhai eternal love" performance project as a representative, it achieved operating income of 169 million yuan<sup>[7]</sup>. But on the whole, the form of cultural tourism industry in Sichuan Province is relatively single, lack of participation and entertainment. Products lack local characteristics, consumer satisfaction is

still relatively low level of demand.

### **3.3 Evaluation of resilience of cultural tourism industry in Sichuan**

In ecology, resilience refers to the ability of an ecosystem to overcome natural or man-made interference, and then rebound and recover. It is an important indicator of whether an ecosystem is healthy or not. In industrial system, interference mainly depends on the dependence of capital and technology, and the environment is mainly embodied in the factors of production, environment and political and economic environment. Therefore, we evaluate the resilience of Sichuan's cultural tourism industry with three indicators: fund usage, the situation of scientific and technological innovation, and government efficiency.

#### **3.3.1 Fund usage**

Through the change of the proportion of tourism investment in Sichuan Province in recent years, we can see the proportion of enterprises' independent investment, government investment, bank loans and other social funds in the completion of the investment in Sichuan's tourism projects. Tourism is becoming a hot spot of investment in Sichuan Province, and a multi-level and diversified tourism investment pattern has been formed.

#### **3.3.2 Scientific and technological innovation**

The vitality of the cultural tourism industry lies in innovation, and innovation is also an important criterion to measure the resilience of the cultural tourism industry. At present, the scientific and technological innovation capability of Sichuan's cultural tourism industry is still very weak, the patent acquisition is only ranked 26 in the country, and the types of products are mainly focused on the package design of tourism products, and in the fashion style, creativity, process technology, equipment manufacturing, software development, information systems and other aspects of the ability need to continue to improve. A typical phenomenon is that many enterprises take some representative elements in Sichuan, such as pandas and hot pot as their logo, greatly reducing the richness and creativity of cultural tourism commodities in Sichuan Province.

#### **3.3.3 Government efficiency**

The efficiency of government is mainly reflected in the correctness of policy making and the effect of policy implementation. It directly influences the development of industry. In recent years, in order to promote the development of cultural tourism industry, Sichuan has formulated a series of policies and measures, and also carried out many rounds of reforms in the administrative management system, such as the establishment of tourism development committee. However, there are still contradictions and conflicts in the development of Sichuan's cultural tourism industry, and the government lacks planning and co-ordination, and the mechanism of mutual cooperation among governments at all levels needs to be improved.

## **4 Countermeasures and suggestions for promoting ecological development of cultural tourism industry in Sichuan**

### **4.1 Carrying out the cluster development strategy and constructing "the biological community" of Sichuan Province's cultural tourism industry with relative competitive advantages**

The biological community is a collection of various biological populations that occupy a certain space, and the populations of these different organisms interact with each other so that the biological community is more stable and has a stronger viability than a single population. Similarly, the cluster development of the industry has brought many advantages to the industrial development, which is conducive to expanding the scale of the industry, reducing the development cost, improving the service environment, promoting product innovation and improving the market competitiveness of the industry (Shao Jin-ping, 2011<sup>[8]</sup>). Therefore, through the implementation of the cluster development strategy, the construction of a "cultural community" of Sichuan's cultural tourism industry with relative competitive advantages can promote its development.

The first is to scientifically plan the layout. Through planning, we should make clear about the guiding ideology, basic principles, approaches, goals, as well as the relevant policy measures and constraints incentives. Followed by the development of industrial chain. Cultural tourism industry chain is more complex, including the provision of resources, product development, product vendors

and related services. The integrity and extension of the cultural tourism industry chain are directly related to the extent of the development of cultural tourism industry cluster. Finally, regional cooperation should be carried out. Cultural tourism industry cluster development inevitably involves different administrative regions, and it is particularly important to build an integrated regional cooperation mechanism.

#### **4.2 Implementing the brand development strategy and strengthening “the bio-indicator” of the cultural tourism industry in Sichuan Province**

The environment shapes biology, the biological response environment. “bio-indicator” refers to the representative organism in the ecosystem that best reflects the characteristics of its environment. Similarly, the type and degree of development of an enterprise reflects its economic and social environment to a certain extent. In order to strengthen the “bio-indicator” of Sichuan’s cultural tourism industry, we must promote the brand development of Sichuan’s cultural tourism industry.

First of all, shape the brand area. Brand plays a leading role in the regional cultural tourism industry. The proposal highlights the greatest attraction of Sichuan as a cultural tourism destination. Such as “the land of abundance, the hometown of giant pandas” etc. And according to positioning to create their own brand image system, around the image system for cultural tourism products unified molding and management. We should adopt innovative marketing methods to enrich the perceptual cognition of the potential market for cultural tourism in Sichuan and provide a prerequisite for making rational tourism decisions(Guo Mei-bin, 2013<sup>[9]</sup>). Second, we must strengthen the brand products. Products determine the market. The market determines the extent of industrial development. The cultural tourism industry should strengthen the brand line of cultural tourism, the brand festival of cultural tourism and the brand goods of cultural tourism. Finally, we must cultivate brand enterprises. Brand enterprises not only represent the image of Sichuan’s cultural tourism industry, but also strongly promote the development of the cluster of cultural tourism enterprises in the province. The cultivation of cultural tourism brand enterprises should be multi pronged. A large number of overseas and overseas cultural tourism brand enterprises should be introduced. In addition, we should vigorously support the leading enterprises of cultural tourism in the province. Besides, we should implement the strategy of differentiated development and promote orderly competition among enterprises. In accordance with different enterprises and different products, a differentiated support policy should be formulated to meet the increasingly diversified and diversified demands of the tourist market.

#### **4.3 Implementing the strategy of integrated development and expanding “the ecological niche” of Sichuan cultural tourism enterprise**

Ecological niche refers to all the conditions required for the survival and reproduction of a living organism. The wider the niche, the more abundant food, space and other resources. The cultural industry and tourism industry are highly overlapping and intersecting, and almost all of them are cultural tours. The fusion of cultural tourism development in Sichuan Province, not only enrich the cultural connotation of tourism in Sichuan Province, but also provides a new platform and development space to stimulate new industrial form, for the development of cultural tourism enterprises to broaden “the ecological niche”.

First of all, straighten out the development mechanism. Cultural tourism industry is a comprehensive industry, and all related industries must be coordinated and developed at the same time. Resources or scenic spots in the relevant areas must be coordinated and developed. Therefore, we must straighten out the development mechanism, break through all kinds of shackles, and promote market-oriented operation. Second, the government should introduce supporting policies. The development of cultural tourism industry can not be separated from the policy legislation mechanism, otherwise it will fall into a spontaneous and blind mode. The government should relax the industry restrictions and allow more foreign and private enterprises to participate in the development of Sichuan’s cultural tourism industry(Zhang Hai-yan and Wang Zhong-yun, 2013<sup>[10]</sup>). In addition, the government should strengthen policy support, encourage cultural tourism integration enterprises to open up new businesses and become bigger and stronger and build a good faith system, establish a cultural tourism industry information publicity system, and promote the cultural tourism industry to enhance quality and orderly development. What’s more, the government needs to protect intellectual

property rights and encourage individuals and organizations to innovate. Finally, financial support must be strengthened. Through strengthening financial support, we will further improve the channels and systems for investment and financing. By strengthening the support of intelligence, the government, cultural tourism enterprises, universities, cultural tourism research organizations and other innovative subjects are attracted to the innovation platform, and promote the upgrading of cultural tourism industry by using innovation. The most basic is to strengthen infrastructure construction, increase cultural tourism industry infrastructure and hotels, shops and other service facilities into the construction efforts.

#### **4.4 Implementing the strategy of circular development to reduce “the environmental load” of the development of Sichuan’s cultural tourism industry**

Cultural tourism is fundamentally market-oriented. In fact, under the banner of developing cultural tourism, the natural ecology has been destroyed in many places, the cultural lifeline has been cut off, the local features have been weakened or disappeared, and social contradictions have intensified. To implement the strategy of circular development of cultural tourism, we should adhere to the benign development road of “protection, development, proliferation and inheritance”. Properly handle the relationship between the development of cultural tourism and the protection of natural ecology, the protection of cultural ecology and the protection of social ecology, and form a virtuous circle of development model.

The first is to protect the natural ecology. The natural environment is the “ecological background” of the development of cultural tourism industry. Once destroyed, it is difficult to restore the original condition. Therefore, it is necessary to construct a green development mechanism of cultural tourism industry, such as source prevention, process control, compensation for damages and accountability, so as to form a positive interaction between cultural tourism development and ecological environment protection. Through the establishment of sustainable development index system of cultural tourism, green development standards will be formed. We should also improve relevant laws and regulations, strengthen ecological protection, administrative supervision and social supervision, and implement the ecological environment audit and accountability system. We should strictly control the flow of tourists and control the environmental capacity of cultural tourist attractions, so as to reduce the ecological environment load (Xue Jiang-wei, 2008<sup>[11]</sup>). Second, it is very important to protect the cultural ecology. Culture is the vitality of tourism, and it is the most important factor to improve the quality of tourism. Therefore, in order to correctly handle the relationship between development and protection, we must adhere to the concept of effective protection, rational utilization and strengthening management, and explore the ecological development model in the development of protection. Through the establishment of principles and standards for the protection of cultural ecology, cultural protection has been developed in a practical way. In addition, efforts should also be made to explore the cultural and ecological protection methods suitable for the cultural characteristics of Sichuan province. Third, social ecology must be protected. It needs to deal with the interests of the government, investors, managers, local residents and other social parties in the development of cultural tourism industry, establish a community of cultural tourism interests, and maintain the harmonious balance of social ecology.

## **5 Conclusions**

In this paper, the evaluation theory and index system of ecological health in ecology are used to evaluate the development of cultural tourism industry in Sichuan Province from three aspects: vitality, stability and resilience. Based on this evaluation system, the author puts forward some countermeasures and suggestions to promote the ecological development of Sichuan’s cultural tourism industry. First, through the implementation of cluster development strategy, through scientific planning and layout, develop industrial chain, carry out regional cooperation, and construct the Sichuan Province cultural tourism industry biological community with relative competitive advantages. Second, through the implementation of brand development strategy, strong construction of cultural tourism industry in Sichuan brand products, cultivate brand enterprises, build brand reputation. Third, through the implementation of the integrated development strategy, we should expand the ecological niche of

Sichuan's cultural tourism enterprises, straighten out the development mechanism, introduce supporting policies, and strengthen the support of factors. Fourth, through the implementation of circular development strategy, to reduce the environmental load and development of cultural tourism industry in Sichuan Province, correctly handle the relationship between cultural tourism development and the protection of natural ecology, cultural ecology protection, social ecological protection, forming a virtuous cycle of dynamic.

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## ENGOS' Advocacy Activities in China \*

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**Abstract** The development of NGOs in China has already attracted more and more scholarly attention, particularly on their interaction with Chinese governments. A number of studies illustrate various strategies adopted by the Chinese NGOs to co-opt with governments through pointing out the importance of leaderships, personal connections, organizational resources, and political opportunities from resource-mobilization perspective and institutional theory. This paper aims to explore the development and dynamics of advocacy oriented Environmental NGOs in China in terms of their interaction with the governments by utilizing comparative case studies. Two cases are examined carefully, including well-known dam-building case in Nu River, Yunnan province, and the polluted land public litigation case in Jiangsu Province. The finding shows that although formal law and regulations have been established to facilitate the participation of social actors into the policy process, the actual actions taken by Environmental NGOs in China is still relatively weak. In the meanwhile, the opponents, such as local enterprises and local governments are also learning skills to deal with protest and advocacy activities.

**Key words** NGO, Policy advocacy, Relational based

### 1 Introduction

Policy advocacy is broadly defined as an attempt to influence government decisions through direct or indirect uses which include contact with government, public education and grassroots mobilization (Reid, 1999). Although many NGOs engage in policy advocacy activities, their advocacy investments and strategies are different from each other (Boris & Mosher-Williams 1998; Jenkins 2006; Mosley 2011). At present, the rapid development of NGOs in China is confined to the complex political and social environment. Their interactions with the government model has also caused a wide range of academic attention.

Many studies have outlined the advocacy strategies of Chinese NGOs. From the institutional environment perspective, due to the strengthening of civil society, there has been an "official - social group" mode of cooperation; and that the expansion of social groups in China did not lead to the process of democratization, but in consultation with authoritarian conditions, and citizens' satisfaction with securities is also increasing (Jessica C. Teets, 2013). Some scholars have pointed out that marginalized NGOs are more concerned with organizational constraints, political environment and other variables when making policy advocacy. Their participation in the process of advocacy will utilize different strategies to balance and promote the corresponding social system (Gloria DeSantis, 2010). Amy Conley Wright & Sheldon Gen (2013) analyzed 35 clear advocacy strategies. They emphasized the impact of strengthening the democratic environment and increasing public pressure on policy reforms. Due to the dual role of resource dependence and legitimacy pressure, political relations and policy advocacy have an inverted U-type relationship which refers to that too strong or too weak political association will have a negative impact on the policy advocacy of NGOs. Under this situation, NGOs are more likely to be involved in policy advocacy (Li Shuo-yan, 2017).

From the perspective of resource constraints, many literature has pointed out the importance of leadership, personal relations, group cooperation, organizational resources and political opportunities. Through the description of "advocate joint framework" and "Nu River dam case", some scholars explained that the combination of NGOs and resource at least in environmental issues, can produce international pressure and influence. The joint initiatives by NGOs, such as joint provisions, internal interaction, and resource utilization strategies, can influence the policy environment by a broader inlay

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union. (Heejin Han & Brendon Swedlow & Danny Unger, 2014). Under the authoritarianism, the Foundations use multi-year grants to develop NGOs; and nonprofits may strengthen their overall participation in policy investment and advocacy through their collaboration and efforts (Carlos Wing-Hung Lo & Tang Shui-yan and Li Hui, 2016). With regard to the impact of the founders of China's NGOs on their policy advocacy, scholars have shown that the resource strategy of a nonprofit organization often depends on the experience of its founders when the system template is missing; if its founder is a former national government official or related government work experience, then the policy advocacy process tends to ally with party or government organs (Carolyn L. Hsu & Jiang Yu-zhou, 2015). At the same time, research has also pointed out that NGOs have led to the development of their organizations by manipulating opportunities and resources, avoiding external risks and mobilizing informal activities (Hans Jorgen Gasemyr, 2017). However, some scholars have proved that the current NGOs in China, especially civil organizations, policy advocacy intensity is extremely low. Only 9% of the resources are used in policy advocacy. At the same time, the more volunteers work, the higher the intensity of policy advocacy. On the contrary, the more staff work, the less significant policy advocacy is; and many NGOs cannot improve public participation (Zhang Zhi-bin & Guo Chao, 2012).

However, much of the captioned work focuses on service deliver oriented groups and haven't examined dynamics overtime. Therefore, this paper will discuss the development of the environmental protection by advocated NGOs in China under the case of well-known dam-building in River Nu, Yunnan province, and the polluted land public litigation case in Jiangsu Province. The study shows that while the identity of NGOs is defined in the laws and regulations to promote their participation in policy advocacy, but with NGOs becomes more institutionalized, the government is also strengthening its skills to protest and advocate activities as the form of advocacy. Therefore, in the actual environment of NGOs and government interaction is still relational based.

## **2 The case of Nu River dam building**

### **2.1 Background**

River Nu is an international river located in the southwest of the country. The river flows to the Sino-Burmese border with a total length of 742 km and a natural drop of 1578 meters. The installed capacity is 21.32 million kilowatts, which is one of the most important hydropower resources in China. In 2003, The National Development and Reform Commission organized experts meeting to review "River Nu hydropower resources development planning report." Regarding the discussion of the construction of the dam, there were two different groups which stands for the plan while the other was objection. The main reason for the opposition is that the construction of the Nu River hydropower station may cause harm to local ecological environment. In addition, how much benefit will bring to local people when the hydropower station be built is also questioned.

This controversial issue has made a wide range of influence in the media. Two views of the word, some environmental organizations had to take actions to resist the construction of dams in the River Nu. After many environmental experts and environmental NGOs promoting the development of this situation, in 2004, Premier Wen Jia-bao made the following instructions on the construction of the dam on the Nu River. "Such large-scale hydropower projects with high social concern and environmental concerns should be careful and scientific decision-making. "After Premier Wen's direction, the River Nu overall planning and environmental assessment were postponed by the state.

On June 9th 2005, "Chinese Social Transformation Forum" ranked the environmental protection organizations preventing the River Nu hydropower dam project as the ninth of the 20 major events in China's social transformation, pointing out that NGOs began to have a significant impact on public policy, and their efforts have ultimately changed the government's policies. "This is a great leap and a milestone in the process of social development in China."

### **2.2 Institutional environment**

In the case of the Nu River dam, due to the provisions of the Administrative Procedure Law, the plaintiff must sue for his own legitimate rights and interests, and the administrative action against it

must have a direct interest. Therefore, it is difficult for the NGOs to enter the judicial process for environmental litigation. The environmental organizations adopted the way of strategy transferring, that is, other than the form of litigation, discussing the public interest around the question of legitimacy. In this public welfare campaign, the civil society organizations used the consultation, lobbying, public opinion and other links to promote the process of the event.

First of all, including the Green Earth, Friends of Nature and a series of other environmental organizations informed the United States "New York Times" reporters. The newspaper reported on the construction of the dam on March 10th, 2004, and the reprint of the international Chinese media led to an international response. At the end of November, World River and People's Anti-Dams Conference was held in Thailand, and ultimately from more than 60 countries, various types of NGOs in the name of the General Assembly to protect the joint signatures of the River Nu, and submitted to the United Nations Educational, UNESCO replied and said it would be concern the going of the River Nu. In addition, some environmental organizations set up specialized websites and held exhibitions to against the construction of dams. Through signatures of lectures and celebrities jointed to carry out lobbying against the Nu River dam, thus, the voice of against the government building a dam of undemocratic decision-making became more and more intense. Besides, in the government regulation, the environmental organizations have earned the supports of the Yunnan local environmental bureau, held several experts' evaluation meeting. In the discussion of many meetings, experts of hydropower, ecology, agriculture, forestry, geology questioned and denied the construction of the Nu River River rationality and legitimacy. Finally, in the legalization strategy, environmental groups through the emphasis on the public interest as well as the mobilization of national sentiment, making the issue has a legitimate to become the convergence of public opinion, while protecting the ecological environment of the River Nu as the government's primary responsibility and stressed that the trust of the government can be a good way to maintain the ecological balance. Therefore, we can say that the maintenance of national authority, legitimacy and discussion of public interest issues, could be a most important strategy of NGOs to promote policy advocacy.

### **2.3 Resource constraints**

Besides, NGOs can advocate under the institutional environment, the resources constraints within the nonprofit organization are also crucial in policy advocacy. In the authoritarian institutional environment, the resource strategy of a nonprofit organization is largely influenced by its founder's personal experience, beliefs and expertise to create opportunities and circumstance; the initial strategy of a nonprofit organization is strongly influenced by its founder's system experience.

In the case of the Nu River dam, leaders of environmental groups have used their own experience, knowledge and means to call stop building the dam. Green Earth's founder Wang Yong-chen, contacting to the acquaintances of Yunnan University professor and Asia International River Center Director He Da-ming in the advocacy process, he not only strongly protested the construction of the dam in the symposium of the Nu River hydropower development activities of ecological and environmental protection experts held in Beijing, but also the only one expert holding opposition to the construction during initial period of the dam at local. Similarly, Yu Xiao-gang, the leader of Yunnan's local private environmental organization, Yunnan Green Watershed, also made use of its influence at Oxfam Hong Kong and the Asian Development Bank (ADB) that the River Nu should be protected as an ecological river and strengthen the pressure of public opinion. The During the two sessions, the founder of Friends of Nature Liang Cong-jie, through its channels of the CPPCC members, submitting to the CPPCC National Committee and the National People's Congress "Protecting River Nu, stop hydropower cascade development" and "The classification planning River basin, coordination of ecological protection and economic development proposal" two proposals, which were written by the Chinese People and Biology of the National Committee members Shen Xiao-hui during his tour in the Yunnan. It is worth noting that many of the members of the private organizations involved in the media background, in addition to the Green Earth founder Wang Yong-chen has been worked as a reporter for the Central People's Broadcasting Station, ten percent of the members in Friends of Nature are media practitioners, in order to pouring out to the media and manufacture public opinion. These environmental groups use their founder personal ties to promote their advocacy strategies and actions.



### **3 The case of Changzhou poisoned soil**

#### **3.1 Background**

In mid-April 2016, CCTV news and other media press reported that the Changzhou Foreign Language School environmental pollution incident, causing social concern, the 500 students suspected of chemical plant pollution plots poisoning, the north of the school area of about 26.2 hectares of flat. Three chemical plants have been thriving there, respectively was built in 1958 in Jiangsu Changlong Chemical Co. Ltd., built in 1983, Changyu Chemical Co. Ltd., and was built in 1990 in Changzhou Huada Chemical Plant.

Around 2010, three factories were relocated, followed by land repairs by the government. As the repair unit, Changzhou Black Peony Construction Investment Co. Ltd. has submitted a “construction project environmental impact report form.” to the Jiangsu Environmental Protection Department. The report revealed the three companies: the use of a large number of toxic and hazardous chemical raw materials, some chemical raw materials and intermediate products with high toxicity or carcinogenicity. However, as the school based on the EIA report approval time is March 31, 2012, but the school foundation construction time is August 21, 2011, that is to say, the school’s construction time is advance of more than 7 months of the EIA approval time, which makes it a typical unapproved but building the project first.

But in fact, from the end of 2015, Changzhou Foreign Language School parents began to report to school, a number of government departments and the press of the emitting a pungent odor in the north side of the school in the original Changlong block during the soil repair process, and some students have adverse reactions. Facing the questioning of the parents and the press, the Changzhou municipal government first through the city environmental monitoring center of the surrounding air quality testing, and published that the test results are in line with national standards. The relevant government departments in turn published the views of experts: “the expert group concluded that the air quality monitoring is fully standard; late March, they published that the testing results of Changzhou foreign language school campus indoor air, soil, groundwater are in line with national standards and claimed related”.

After the exposure of the press, on April 29, 2016, the Friends of Nature, the Friends of Nature and the China Foundation for Biodiversity Conservation and China Biodiversity Conversation and Green Development Foundation (short as “Green Development”), as the common plaintiff to submit environmental public interest litigation filing materials to Changzhou Intermediate People’s Court, filed a public interest litigation against the Jiangsu Changlong Chemical Co. Ltd., Changzhou Changyu Chemical Co. Ltd., and Jiangsu Huada Chemical Group Co. Ltd. Civil indictment pointed out that the three defendants seriously polluted the original site of Changlong block in the production and operation process. After moving away, they did not properly repair the pollution site, seriously damage the public interest, its behavior in violation of environmental law, solid waste pollution prevention and control laws and regulations and also other relevant laws and regulations, they should bear the legal responsibility for environmental infringement. What’s more, the plaintiff asked the court to order the defendant to eliminate the original site of the impact of pollutants on the surrounding environment, and bear the cost of ecological restoration. on January 25th, 2017, Changzhou Intermediate People’s Court first instance verdict, the judgment of the government of Changzhou City in the case of land has already been in accordance with the law to carry out environmental pollution damage repair work, environmental pollution risk has been effectively controlled, the plaintiff brought the case of public welfare litigation to maintain the social environment of the interests of the public interest has been gradually achieved, on the grounds of the two environmental protection organizations, “Friends of Nature” and “China Green Department” lost and had to bear the burden of 1.8188 million legal fare. The plaintiffs are dissatisfied and are preparing for the appeal.

#### **3.2 Institutional environment**

In the case of Changzhou poisoned soil case, the reason of Friends of Nature and China Biodiversity Conversation and Green Development Foundation could be public plaintiffs to file the lawsuit, which are derived from the revision and approval of relevant laws and regulations. New

revised “Civil Procedure Law” in 2012 has added the legal provisions on environmental public interest litigation, Article 55 clearly states: “on the pollution of the environment, against the legitimate rights and interests of many consumers and other acts of social and public interests, the provisions of the law and the relevant organizations may bring a lawsuit to the people’s court.” However, the new law does not clearly define the main body of environmental public interest litigation, leading to the practice of the courts in the practice of environmental public interest conservative attitude. For example, in 2013, the China Environmental Protection Association filed eight environmental public interest litigations were dismissed due to the main lawsuit without legal clear provisions. By 2014, the new “Environmental Protection Law” revised, the article 58 of the subject qualification also gave a clear definition of the conditions, many environmental organizations have the main qualification of public interest litigation, there are many environmental organizations to take public interest litigation into policy advocacy strategy, and get initial results.

In this issue, the staff and volunteers of the two environmental organizations arrived at the site immediately to collect information, contact the relevant interests of the public and prepare for the proceedings to the lawsuit, also they formed a report according to the existing “Environmental Law” to the plaintiff to the court. After the filing of the case, the environmental organizations arranged another expert assessment, with its professional and technical means to the court to show the toxic environment of the investigation report. Although the first instance of the decision-making environmental organizations lost, and bear a high trial fee. This is the living proof of the performance of the legal status of NGOs has been improved in the process of legalization, and regulatory regulation under the policy of standardization and institutionalization. It is worth noting that, because the environmental organization’s public interest litigation is still in its infancy, the identity of the litigation is not recognized by the court, the trial was rejected or the evidence of the litigation process difficulties are obstacles in this process.

### **3.3 Resource constraints**

The two NGOs in this issue can successfully brought environmental litigation, is inseparable from their resource qualifications. First of all, like the previous Nu River dam case, the founder of the Friends of Nature, Mr. Liang Cong-jie served as a member of the CPPCC National Committee, the CPPCC Population, Resources, Environment Committee members, and use his own identity for the NPC proposal, called for the establishment of a sound environment in China litigation system; called for the expansion of public interest litigation in “Civil Procedure Law”. Under his influence, the Friends of Nature took actions as the plaintiff’s first environmental public interest lawsuit under the new “Environmental law”, and they gradually expand the scope of public interest litigation, including environmental pollution, air pollution, water pollution, ecological protection and other environmental fields.

Similarly, the other plaintiff in this issue was approved by the State Council in 1985, and was appointed by Vice Chairman of the CPPCC National Committee of the Chinese People’s Political Consultative Conference, Lv Zhen-gong, Qian Chang-zhao and Bao Er-han. The current chairman is the former Deputy Minister of the United Front Work Department of the CPC Central Committee, The National Federation of the former secretary Hu De-ping. What’s more, the current Secretary-General Zhou Jin-feng, is the member of the CPPCC National Committee and the Standing Committee of the National Federation of Industry and Commerce. After the defeat suit in the first instance, he repeatedly organized meetings, experts and lawyers to apply for appeal, proposed to use Changzhou poisoned soil case to solve the plaintiff’s cost of the problem, but also to solve a series of other issues of environmental public interest litigation.

## **4 Conclusions**

In recent years, after the experience and accumulation of non-profit organization advocacy model, NGOs has become the main body of environmental public interest litigation policy advocacy. Giving the comparison of the Nu River dam issue in 2003 and Changzhou toxic solid issue in 2016, it is worth noting that although formal law and regulations have been established to facilitate the participation of social actors into the policy process, the actual actions taken by Environmental NGOs in China is still

relatively weak. In the meanwhile, the opponents, such as local enterprises and local governments are also learning skills to deal with protest and advocacy activities.

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## Research on the Supply Side Reform of Government New Media Policy from the Perspective of Gain in China

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**Abstract** Most studies explore government new media based on the government and public perspective. For the government perspective, it mainly studies the determinants, specific behaviors, policies and using effects; several researches focusing on the impact of government new media usage on government trust has been done from the public perspective. However, previous researches have rarely studied the promotion of sense of gain in the light of policy supply. Therefore, based on the enhancing the sense of gain, this paper firstly analyzes the network and new media policies introduced by Chinese government from 2016 to 2017, reveals the current situation of policies and the existing problems of policy supply in combination with the questionnaire analysis of public sense of gain; secondly, it clarifies the causes of policy supply problem; finally, proceeding from the cause of problems and the goal of sense of gain promotion, the paper discusses the policy supply adjustment of government new media and gives specific adjustment proposals in terms of supply content, supply mode and supply quality so as to promote the harmonious development of policy supply adjustment and the promotion of public sense of gain.

**Key words** Government new media, Policy supply, Reform, Gain

### 1 Introduction

In a key speech on April 19, 2016, General Secretary Xi Jin-ping proposed that: “Making hundreds of millions of people have a sense of gain in the sharing of Internet development results.” “Implement governance by network” has become a realistic extension of the Chinese government in cyberspace and new media fields. Governments and institutions have entered local and international new media platforms, trying to discover the growing public will in cyberspace and meet different demands of the public through government new media that carries such missions as providing public services, promoting benign interaction between government and public, and improving government legitimacy.<sup>[1]</sup> Thus, under the current background of “supply front reform”, there are also reform requirements for innovation policy supply. Lou Cheng-wu claims that the supply side reform is the core of streamlining administration and delegating power, including four dimensions: institutional supply side, policy supply side, resource supply side and environment supply side.<sup>[2]</sup> Starting from the policy supply side, this paper focuses on the adjustment goal of the public sense of gain and explores the adjustment of the policy supply.

### 2 Theoretical basis and analysis framework

#### 2.1 The connotation of the sense of gain

In 2015, “sense of gain” officially came into being. Nowadays, scholars have mainly focused on two issues in the study of sense of gain, one is the meaning of the sense of gain, and the other is the promotion of sense of gain. As for the definition of the sense of gain, Wang Ji-bing (2015) believes that the sense of gain is divided into concrete gain and abstract gain.<sup>[3]</sup> Sun Yuan-tai (2015) thinks that the sense of gain is people’s gain and possession status of the resources, it reflects their identity of resources they obtained and occupied to a certain extent. Therefore, the sense of gain is in accordance with social status.<sup>[4]</sup> Zhang Pin(2016) believes that the Zhang Pin(2016) believes that the Sense of gain refers to the long-lasting satisfaction resulting from the acquisition both in material and spirit, emphasizing a real gain on an individual basis.<sup>[5]</sup>

This paper argues that the meaning of sense of gain is to adhere to the people-centered governing idea, carry out the reform which is conducive to enhance people’s sense of gain based on people’s expectations and needs so as to enable the people to share the fruits of reform and development.

## 2.2 The logic of sense of gain

With the increasing demand of the public, the government's supply of public policy is more an innovation of the existing policy supply based on the real demands of the public than a process of providing production and allocation of public goods. Only in this way can policy supply quality of the government be improved efficiently, which means that policy supply steps into the logic stage of "sense of gain". General Secretary Xi Jin-ping said: "It is an evaluation criterion of the reform results to verify if it promotes economic and social development, if it gives the people a tangible sense of gain."<sup>[6]</sup> Therefore, "sense of gain" has become an evaluation criterion and important reference for the reform effect of policy supply side.

## 2.3 Analysis framework of sense of gain

The reform of innovation policy supply requires to take the promotion of the public "sense of gain" as an important evaluation criterion and reference. Through the comprehensive study of the sense of gain, the following analysis framework is formed in this paper:

Three elements are involved in the analysis of policy supply adjustments: supply content, supply mode and supply quality. As for the promotion of sense of gain, the four factors: public ethical values, public expectations, public recognition and public satisfaction are analyzed in this paper, among which public ethnic values and public expectations are the influence factors of sense of gain; while public recognition and public satisfaction are the explicit indicators of sense of gain. This paper studies the promotion of sense of gain by focusing on public recognition and public satisfaction. That is, the analysis framework of sense of gain in this paper is to enhance public satisfaction with policy supply quality on the basis of improving public recognition of the content and mode of policy supply in order to promote sense of gain of the public.

## 3 Analysis on the current situation and problems of policy supply of government new media

This part analyzes the network and new media policies introduced by the Chinese government from 2016 to 2017, revealing the developing situation of the current policy, and points out the existing problems of policy supply through analyzing policy texts and questionnaire of public sense of gain at the same time.

### 3.1 The current situation of policy supply government new media

#### 3.1.1 Word frequency analysis results of policy text

This study analyzes the policy documents issued in 2016-2017 and finds 16 policy documents related to the network and new media. The hot word analysis tool is used to analyze word frequency, according to the initial statistics, there are 160 words of the top ten high frequency in the 16 documents in all, these 160 words are analyzed in return to find out the top ten high frequency words as shown in table 1. Statistical analysis shows that the high frequency words in the policy text are government affairs, Internet, security and construction, that is to say, nowadays, more emphasis is put on government information disclosure and certain government services via internet at the policy and institution level, as well as security construction and protection of the internet, while less on the public and new media.

**Table 1 Word frequency analysis results of policy text**

Keyword	Word frequency	Weight
Government affairs	8	1
Internet	7	0.9652
Security	6	0.9281
Construction	6	0.9263
Government	5	0.898
Disclosure	4	0.8738
Internet	4	0.8693
Resource	4	0.8693
Technology	4	0.8655
Data	4	0.8585

### 3.1.2 The situation and characteristics of policy supply

(1) The classification and governance of Internet filed have become the focus. In June 2016, State Internet Information Office issued Regulations on Internet Information Search Service of the People's Republic of China, which became a milestone in the legalization of network search service. In order to strengthen the management of mobile Internet application information services, State Internet Information Office issued Regulations on Mobile Internet Application Information Service Management on June 28. In September, the State Council issued The Interim Measures for the Administration of Sharing of Government Information Resources, which became an important document to solve the problem of sharing government information resources and promote the institutionalization of government information resources sharing. In December, the "Internet + Government Affairs Service" Technical System Construction Guide was issued; based on "Internet + Government affairs service" business support system, the basic platform system, key security technology, evaluation system, the Guide proposed solution path and operation method for the informatization of optimizing government affairs service supply so as to provide guarantee for establishing a unified, normative, multiple-level interactive "Internet + Government Affairs Service" technical and service system.

(2) The top-level design of the system is further deepened. In July 2016, Outline of National Informatization Development Strategy was issued. It is the programmatic document to normalize and guide the national informatization development in future ten years and it is also an important basis for policy-making. In November, the Standing Committee of the National People's Congress passed People's Republic of China Network Security Law and scheduled to implement from June 1, 2017. "Network Security Law" clarifies the existing problems of network security in our country and countermeasures from such aspects as general principles, support and promotion of network security, network operation security, key information infrastructure operation security, network information security, monitoring and emergency response as well as legal liability. In December, National Cyberspace Security Strategy was issued to require all necessary measures to protect critical information infrastructures and prevent their critical data from attack.

(3) The promotion of government affairs disclosure becomes a bright spot of policy. In August 2016, the General Office of the State Council issued Notice on Further Responding to the Public Opinion of Government Affairs in the Public Affairs, stressing that the various departments in various regions further improve the opening rate of government micro-blog, WeChat and client and increase arrival rate of the response. The emergence of "public opinion toward government affairs" suggests a major upgrading of the idea "online public opinion" and provides a standardized document and action guidance for government new media in terms of public opinion responding.<sup>171</sup> According to the Implementation Details On the Full Promotion of Public Affairs Work Opinions, the central news media, micro-blog, WeChat and the client should be fully used to propagandize and interpret major policies of the State Council, thus playing an orientation role as mainstream media to correctly guide public opinion. Governments at all levels should utilize such news media resources as government websites, micro-blog, WeChat, client to make government affairs transparent.

### 3.2 The current problems of policy supply of government new media

Based on the analysis of the 16 policy documents and the public sense of gain questionnaire, the main problems found in the policy supply are as follows:

(1) The coexistence of inadequate and duplication of policy supply. It is observed that the special guidance documents of the government new media have not been introduced yet after analyzing the 16 policy documents, and the regulation of the government new media is scattered among different policies. Meanwhile, different policies on the government new media are of duplication to a certain extend. As it was mentioned in Regulations on Internet Information Search Service of the People's Republic of China that the providers of internet information search service shall publish complaints and reports information at a notable location, accept public oversight initiatively and deal with complaints and reports in time. Regulations on Mobile Internet Application Information Service Management also mentioned "set a fast complaints and reports access and deal with complaints and reports in time." The "Network Security Law" normalizes individuals' and organizations' reports as well.

(2) The provisions related to government new media and the public are rare and high-quality policy is undersupply. For example, People's Republic of China Network Security Law provides more provisions for network operators, network products and services suppliers, national network and information sectors as well as the staff worked in related departments, while the public and their relevant interests are ill-considered. Moreover, the policy documents issued in 2016 mostly took the State Council as the main body, only People's Republic of China Network Security Law was issued by the National People's Congress. It is observed that the legal effect of existing policy documents need to be further improved. Meanwhile, it means that the policy supply of government new media is lack of civil and criminal legal supply. It is difficult to give citizens effective civil legal weapons to safeguard their rights and interests only by virtue of the policy documents issued by the State Council and it is also difficult to impose more effective criminal laws on severe behaviors that endanger the interests of society and the citizens.

(3) Based on the statistical analysis of 146 effective public sense of gain questionnaires, the questionnaire survey results showed that nearly 65% of the audience had uncertain and negative attitude on the interaction with the public in the process of generating government new media policies; 45% of the audience had positive attitude on the government's new media policy reflects the public opinion clearly; only 44% of the audience were satisfied with the process of generating new media policies. Therefore, it was observed that the policy supply in the "production side" encountered a greater public recognition crisis. Secondly, more than 79% of the audience believed that the professional construction of new media operators need to be strengthened; only 39% of the audience were satisfied with media literacy of government new media operators. In the policy adjustment and revision, more than 66% of the audience had uncertain and negative attitude on the timely policy adjustment, indicating that the policy was imperfect in the process of output, implementation, adjustment and other aspects.

(4) In regard of the quality of policy supply, the questionnaire results showed that more than 70% of the audience suggested that the current government new media policy is useful to the public, but only 44% of the audience thought that the current policy can effectively solve their own problems and the effectiveness in public problem-solving needs to be improved. 28% of the audience said that the current government new media policy achieved their expectations; 30% of the audience were satisfied with the current policy quality of new media. Obviously, the quality of policy supply needs to be further enhanced.

#### **4 The reasons for the existing problems in policy supply**

(1) Policy supply lag behind, and legal system is missing. In the face of the rapid development of information technology, the government's policy supply in government new media is lagging behind technology-driven development of new media. First, there is a "policy deficit" for Chinese government on the management of government new media, and Chinese government did not introduce laws and regulations on standardized management of government new media. Second, the existence of multiple policy supply subjects results in some duplication of the contents of policy files issued by different subjects. At present, although the existing policy documents can play the role of law, neither policy is the law, nor can it replace the law.<sup>[8]</sup> Due to the lack of legislation of the National People's Congress, the legal effect of policy documents needs to be further improved. Finally, due to the lack of policy documents on standardized management of operators of government new media, strengthening professional construction of operators of government new media becomes a strong demand of the public.

(2) The degree of specialization of operational staff is low, which affects supply quality of policy. The development of new media such as government new media leads to strengthening of public supervision of governments. Policy has been widely perceived and supervised by the public in aspects of production, output, implementation, feedback and adjustment. Due to the low degree of specialization of some operators, the lack of sense of service, or the influence of official standard consciousness, operators can be perfunctory in policy output and implementation process, who do not provide the public with good service or do not provide service at all. At the same time, because policy

is not developing with new situation to add, amend and update, lagging policy supply adjustment causes certain constraints on the development of government new media and improvement of public sense of gain.

(3) There is lack of a public-centered concept in policy supply, as well as lack of public sense of gain criteria and reference in policy performance and evaluation. First, because policy supply does not focus on the real needs of the public, policy content does not reflect public opinions, the quality of policy supply needs to be improved. Second, the lack of policy supply results in lack of supporting policy in government new media, thus it is difficult for policy resource to make a difference, and it cannot fully protect public sense of gain in government new media. Finally, the failure to establish a reference system of public sense of gain to policy is an important reason that policy supply fails to bring the public real benefits.

### **5 Suggestions for supply adjustment based on the sense of gain**

This part is based on the goal of “sense of gain” promotion and the existing problems found through the policy text analysis and questionnaire analysis in policy supply, starting from the cause of problems and policy supply adjustment target of sense of gain promotion and gives specific adjustment suggestions in terms of the public’s recognition and satisfaction of policy supply content, supply mode and supply quality so as to bring the public tangible gain in policy adjustment.

(1) Strengthen the legislation for government new media, change the “policy deficit” and the short supply situation.

At present, the State Council and the National Internet Information Office and other authorities have issued a number of network and new media-related policy documents, but the legislation for government new media is still lagging behind. Therefore, the government should promptly introduce the laws and regulations of government new media, strengthen the provisions of the legislation on civil and criminal laws, clarify the guiding thought, development goals, main tasks and safeguard measures of the development of government new media. Secondly, the contents of policy documents issued by different subjects are duplicated due to the existence of pluralistic policy supply subjects. The unified planning and effective communication shall be strengthened for the policy supply subject to avoid duplication of policy content and invalid supply. Thirdly, in view of the specialization of government new media operators, the improvement of the management methods of the operators becomes an important link in the legislative construction.

(2) Make the policy supply adjustment match public demands, take the solution of the problems that not match public demands as both our starting point and ultimate goal of the policy supply adjustment.

It’s can be find that China’s current network legislation tends to regulate network security and network behavior, restricting right is more than protecting right. Therefore, the government needs to use the Internet and big data technique to collect public demand information. Then, we can learn from the power list system and amend the policies that are useless for protecting the public’s rights so as to make the policies match public demand on the basis of clear real demand. Secondly, relying on the platform of government new media, we need to implement the network identity management system, promote online acceptance of complaint and reporting system, and improve the interest coordination and right protection mechanism for the masses. Thirdly, we need to regulate the government new media platform based on the public “I want to check”, “I want to do”, “I want to comment” and other targeted demands to further normalize the opening rate, the response rate and the arrival rate of government new media platform in the institutional aspect.

(3) Optimize the way of the policy supply generation and improve the policy generation system.

The analysis result of the data collected from questionnaire shows that the positive correlation between the public’s sense of gain and the mode of police supply is higher than that between the sense of gain and the supply content and quality. Thus, the adjustment of policy supply mode shall be the key emphasis in work. Therefore, it is of great significance to make full use of Internet technology, including “two micros and one terminal” and other mobile government APPs, which contributes to realize listening to public opinions through multi-channels and protect citizens’ right to know, to



participate and to supervise the policy. Secondly, the supply of major public policy needs to be scientific verified and the the policy judgment system should to be improved, which are helpful to achieve the standardization, routinization, and legalization of the policy supply mode. Only by means of information technology to understand the social situation, unblock communication channels, while assist policy supply, can the public get more sense of gain from the policy supply through government new media.

(4) Strengthen the management of policy output and implementation process, optimize the policy output end.

It is necessary to enhance the professional construction of government new media operator team and improve the media literacy of the operators. For example, we must normalize the management of the operators who are lack of sense of service and sense of responsibility so as to gain good policy output and implementation effect. Firstly, establishing a network spokesperson system in government new media platform, which coordinates with the traditional news spokesman system, will be a advisable choice. Secondly, we can list the personnel qualification for operating government new media and qualification limitation from the aspects of legal knowledge and professional skill. Thirdly, government should strengthen the operational training and work assessment of the operators and normalize the system in accordance with the duties of the job, the right to work, work procedures to enable operators to assume the application of administrative ethics and social responsibility. What's more, operators must get close to the masses to better enhance public recognition. Finally, the lagging policies and regulations should be adjusted timely to ensure the lasting efficiency of new laws and regulations for government new media.

(5) Combine the policy supply adjustment and the public's sense of gain; actively explore the establishment of the public's sense of gain to policy indicator reference system; clarify the definition of indicator elements of the public's sense of gain.

In the process of policy adjustment, government need to coordinate the policy adjustment and the policy objectives of the promotion of the public's sense of gain. Firstly, we will develop an action plan for promoting the public's sense of gain, strengthen the policy supply and services and improve the supporting policies. Secondly, we should set a public-centered supply concept. In the process of policy supply adjustment, we should strengthen the usefulness, effectiveness and accessibility of policy content, and strive to solve the public difficulties in the network society. The three point is that the policy quality and performance will be under supervision and the public's sense of gain and satisfaction to the policy quality will be promoted, if we can mobilize public participation and rely on public supervision.

## 6 Conclusions

As an important public product provided by the government, Policy has a significant impact on the public's sense of gain. We should not only enable the general public share the achievement of the reform in the economic field, but also guarantee the more access to getting the sense of gain from the development of the internet under the background of the supply-side reform.<sup>[9]</sup>Therefore, focusing on the logic of the sense of gain is a preferable choice on the adjustment of policy supply in government new media. Only by this method can we promote the sense of gain of the public. Finally, what we must make it clear is that, the development of the most society will inevitably experience the policy supply readjustment. As for the promotion of the public's sense of gain, the public's demands should be satisfied and their rights should be guaranteed. And on the other hand, it's necessary for government to innovate the policy supply and create a favorable environment so as to stimulate the relationship between the policy supply and the public's sense of gain develop coordinately.

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## Research on Innovation Mechanism of Property Management in Big Data Age in China \*

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**Abstract** As part of the real estate industry, property management develops far behind the booming house property; however, on the whole, China's property management market is becoming mature day by day. With development of the Internet, property industry is facing a new challenge, namely, thanks to big data, much more scientific and intensive management will replace the traditional extensive management gradually. In big data age, how to establish an innovative mechanism based on big data to manage property is an important research topic currently. In this thesis, real connotation of property management is clarified through teasing out concepts and summarizing relatively researches. Based on definition of property management, this paper puts forward that integration mechanism between stages, modern property management mechanism, multidimensional cooperation mechanism of property services need to be established, so as to realize the sustainable development of property management and play its positive role in real estate and social development. Consequently, the property management can exert the largest effect to drive economic growth.

**Key words** Big data, Property management, Mechanism

### 1 Research background and significance

With economic development, people's habitable form has changed from traditional scattered living to modern centralized residence because of population urbanization, population centralization and the change of the habitable place into three-dimensional housing now. Against this background, property management and related issues appeared. In same time, as the development of the Internet and the advent of big-data age, mechanism of property management becomes a more and more significant restraining factor in the development of this sector.

#### 1.1 Background of the research

As far back as 1960s, early forms of property management appeared in the UK. In the end of the 19th century, George A. Horton, the owner and manager of Chicago skyscraper, organized the first national conference joined by construction managers in CBMO(Chicago Building Managers Organization). This conference marked the birth of the first professional organization in property management industry worldwide( Zhang Zuo-xiang, 2014<sup>[1]</sup>).

Shenzhen Property Management Company, the first professional foreign-related commercial property management company was found in Shenzhen, China, on March 10, 1981(Zhang Hong, Liu Wei, 2006<sup>[2]</sup>). This marked the birth of property management industry in China. In June 1993, Shenzhen Property Management Association, the first industry association in this sector was founded(Jiang Zao-long, Liao Yang, 2013<sup>[3]</sup>).

Soon afterwards, the property management industry in China has been developing rapidly. In March 1994, the Ministry of Construction issued *Regulation on Newly Built Residential Communities Management in cities (Order No.33)*. In 1999, the Ministry of Construction held a national property

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working conference. Spirits in the conference got positive responding nationwide.

Idea of big data was firstly put forward in *Science* to discuss the new information age (PB time). Also, this idea appeared in an article entitled “The Data Deluge” in *The Economist* published in Feb. 2010. However, the first definition of big data appeared in a research report entitled “The next frontier for innovation, competition and The productivity”, published by MGI (McKinsey Global Institute) in May, 2011. After this, big data quickly caught attention of governments and business circles around the world. In January, 2012, big data became one of the main themes in Davos Forum. In March, 2012, 12 ministries of U.S. government launched 82 research and develop plans related to big data. In 2013, following America and Britain, nations including France and Australia successively apply big data into national policies. In the same year, Internet corporations in China including Alibaba, Tencent, Baidu, JD.com launched their researches and application of big data one after another. In March 2014, concept of “big data” firstly appeared in China’s government work report. In March 2015, Premier Li Ke-qiang clearly put forward the “Internet +” action plan, emphasizing that big data should be combined with and applied in modern manufacturing.

In the era of big data, traditional property management industry can’t adapt to development in the new age, thus seeking innovation and development is the top priority in this sector currently. Establishment and application of property management information system improves the efficiency and management level. Smart technology application improves the service efficiency. Application of energy conservation technology decreases the enterprises’ cost. Against the background that there are many difficulties in this industry, making some brand new attempts in the field of the enterprises’ inner work and extension of services and realize “Property management+” is an inevitable tendency.

### 1.2 Significance of the research

As part of the real estate industry, the underdeveloped property management industry is far behind the rapidly developing real estate. Currently, as an important part of the economic development, property management plays an more and more significant role and gets recognition from people gradually. The irreplaceable position of it has also been established. Thus, in the pursuit of sustainable development in this sector, research of innovative mechanism of property management enjoys much significance. In terms of social contribution, this sector can drive economic development. Property management belongs to after-sale services in the real estate industry. With rapid development of the real estate industry, the unlimited potential of property management industry will be exerted. With the increasing number of people working in the property industry gradually, study of innovative mechanism of property management can improve services quality of property management, increasing the overall value of the property management industry and making contributions to economic development. When it comes to property enterprises, this research can help them to find shortcomings in their services. This study can also give enterprises information about their advantages, disadvantages, how to improve and the develop directions in the future. This is also helpful for enterprises in many aspects including solving problems quickly, providing services with higher quality, promoting enterprises to continually improve themselves and increasing their competitiveness.

## 2 Summary of researches of property management

Researches on connotation of property management, satisfaction evaluation and other aspects had been done both abroad and domestically. Comparatively, property management in foreign countries started early, thus relative researches on property management are abundant.

### 2.1 Summary of researches of concept of property management

As far as Yin Li concerns, property management means that property managers provide safe, timely, considerate, qualified service and create safe and convenient environment through enterprise, socialized, professional and regulated management using their manage rights given by property owners or users according to laws, regulations and commission contracts, thus the use value and economy value of the property can be improved (Yin Li, 2004<sup>[4]</sup>).

Jiang Zao-long thinks property management can be defined in a broad and a narrow sense respectively. Property management in a broad sense means all the management and services provided for property owners and users to maintain normal use and operating of the property. Property management in a narrow sense means that property management enterprises accept the entrust from

property owners or owners association to provide multiple complementary services and do some professional maintenance, protection and management for all kinds of buildings, ancillary facilities and sites according to appointments on the contracts and uphold transportation, fire safety, environment, sanitation and order (Jiang Zao-long, Liao Yang, 2013<sup>[5]</sup>).

Other scholars believe that property management refers to “Property owners and property management enterprises maintain, protect, manage and uphold the environment cleanness and disciplines according to the contracts signed between property owners and the enterprises they chose” (Lin Guang-zhi, Gan Yuan-xin, 2003<sup>[6]</sup>).

In the newly revised *Property Management Regulations* issued in 2007, the 2ed order defined that “Property management refers to activities including maintaining, protecting, managing and upholding the environment cleanness and orders in certain areas which are being managed by enterprises according to the contracts signed by property owners and their selected property management enterprises.”<sup>[7]</sup>

Harold D. Lasswell, Yehezke Dro and others pointed out in the study that when the property ownership and management separate, then property management companies have property management right while the ownership belongs to owners. Enterprises and owners have employment relationship.

Research made by Richard I.H , Peter Wolf and others pointed out that the property management fees should be formed by the market and be determined by market supply and demand. The government should not set property management fees.

Above all, the author thinks that the main body of property management is the property owners. By signing contracts with enterprises, owners enjoy various services provided by enterprises. These services mainly include maintenance, protection and management of facilities, sites and so on.

## 2.2 Summary of researches on property management

Qi Xuan put forward a benefits evaluation model used in property management. This model evaluates services provided by property management enterprises according to several factors including management of supporting facilities and equipment, safety management, community culture, maintenance of the property, complaints and the quality of the enterprises themselves. What’s more, this model also has some evaluation indexes relating to economic benefits mainly include that of the developers, the property management enterprises and the property owners (Qi Xuan, 2002<sup>[8]</sup>).

Huang An-yong proposed some principles which should be followed when establishing quality evaluation model of property management. He hold the idea that the evaluation methods should be various and adaptive that it can evaluate a single property service item and also a single unit of property management. The assessment shouldn’t be limited in macro property management items, rather it should be ensured that the model can also assess some specific contents or items of services. Evaluation need adaption to reality and give different standards according to different property management services. However, he only put forward some principles, but didn’t establish any specific quality evaluation model.

Cao Lin-jian puts forward that the competitiveness needs to be evaluated. He thinks evaluation indexes built scientifically and completely are needed to evaluate the competitiveness of the property management enterprises objectively. According to the operating characters and a long-term development anticipation of the property management enterprises, the competitiveness of enterprises should be evaluated according to factors including comprehensive services, financial status and invisible assets , etc (Cao Lin-jian, Luo Xin-po, Wang Jian-ting, 2002<sup>[9]</sup>).

Ruan Lian-fa introduces the theory of “customer satisfaction”. According to this theory, enterprises can understand appraises from property owners. This is also helpful for property enterprises to perfect their services and improve their management level and quality (Ruan Lian-fa, Zhai Dong, Huang Qin-bo, 2004<sup>[10]</sup>).

Zeithaml, Parasuraman and Berry from the USA put forward that S “Service Quality” method can be used to solve the difficulty of evaluating service quality. Quality evaluation is difficult and whether customers satisfied about service quality or not is depend on various factors. Thus this method got praises from both property management industry and academia. Since 1990s, governments and various

industries began to widely use customer satisfaction strategy to evaluate their operating, in order to increase profits enhance competitiveness and customer loyalty.

Frederick Winslow and others introduced property management in Singapore and Hong Kong P.R.China. Governments in Singapore and Hong Kong P.R.China make detailed regulations and laws for property management industry. Rights, obligations and responsibilities of developers, property management enterprises and property owners have been detailed stipulated respectively. When there appear disputes, there are laws to abide by. However, governments can't intervene the standards of property management fees.

Dennis C. Mueller, Michael M. Harmon and others put forward in their research that different countries and regions have their own characters according to their conditions respectively. For instance, property management in Singapore is coordinated by government because of the land scarcity. In Hong Kong P.R.China "double-track pricing system" is applied in property management industry, namely combinative management between Housing Authority and the market because Hong Kong P.R.China is a place with large population and relative little land.

In conclusion, both domestic and foreign scholars have done some researches on property management model and quality evaluation of property management services. With progress in new ages, economy development and improvement of comprehensive strengths, more and more countries are regulating property management through relevant laws and regulations. Scholars also turn their researches from the connotation of property management to how to evaluate quality of property management services and the property owners' satisfaction.

### **3 Establish innovative mechanism of property management in big data age**

Establishing innovative mechanism of property management in big data age can not only help to provide more scientific and efficient property management services, but also be more beneficial to improve quality of property management services, thus improve the satisfaction of the property owners. In this way, benign relationship between property owners and property management enterprises can be built to construct a harmony society.

#### **3.1 Establish integration mechanism between various stages of property management**

##### **3.1.1 Apply big data in leading stage**

Following the idea of "people-oriented", work of property management enterprises is closely LINKed with the building course and they can also take responsibilities to supervise the quality of houses built by developers. With advent of the cloud era, property management companies can survey citizen's housing demands. They can collect data, rent cloud service developing processor to analyze data, and then give the feedback to residential planning designers belonging to developers, thus lay a good fundamental services before the property owners reside.

##### **3.1.2 Apply big data in initial stage to help making decisions intelligently**

When developers start to develop houses, property management companies can provide constructive advice on the basis of big data. Developers designers can develop land rationally. This can not only help developers to get the largest economic benefits form land, but also be helpful for property management enterprises which are going to enter the communities and do management and make develop plans in the future later stage.

In construction, the property management company should supervise positively. Taking precautions is extremely important for enterprises' development when they enter community later. Qualities of constructive materials used by developers can not be ensured. In order to uphold their own benefits and the customers' benefits, property management enterprises must supervise all the time.

##### **3.1.3 Apply big data in normal property management operating**

Property management enterprises can communicate directly with the members of the property owners committee through WeChat group, QQ group, etc. Owners find problems and then reflect to owners' committee. Owners' committee records these problems and tell enterprises the key problems. Then enterprises can solve the problems immediately. The three parties can achieve rapid transfer of information through this channel. Problems of the owner can be solved in time by immediate service from the property management enterprises. In this way, the serve efficiency can be improved and the

service quality can also be enhanced.

### **3.2 Build modern property management mechanism**

#### **3.2.1 Build Internet modern property management model**

Based on basic property management, intelligent residential communities management by fully using Internet technology. Build data resource center of residential communities in cities. Comprehensively develop and use information resources in society to improve quality and efficiency of their services.

For example, the basic form to know intentions of owners is questionnaire. Property management enterprises should firstly make a questionnaire. These questions should be divided into several major categories including building appearance, public facilities, fire equipment, environment clearness, virescence etc. WeChat platform can be used to give out questionnaires through Internet to collect and sort a large number of questionnaires in a rapid and convenient way. In this way, appraise about the residential community can be known by property management enterprises in a short time, thus they can rapidly make plans to transform. Convene property owners commission to discuss. Enterprise should contact the committee to convene such meeting and and create meeting content before the transformation. How to transform should based on the result of questionnaires before and be discussed again in the meeting to decide the transform plans and develop budget.

#### **3.2.2 Create communication mechanism using new media**

The property management companies need to exchange more with the owners to enhance communication between them. This communication can enjoy various forms and rich contents. For instance, the property management companies can operate a WeChat Official Account in order to comprehensively understand needs of the property owners, which is helpful for transform. Property owners may not understand the management of the companies and hold some bias. In this situation, enterprises need using modern communicative methods to help them know enterprises' work better, thus the later plans can be exerted and popularized better.

#### **3.2.3 Build modern corporate culture**

Building corporate culture is an important Link to give qualified services. It is the first choice for the property management companies to raise the threshold of recruitment and choose practical talents as their staff. Property management companies should establish the idea of "people-oriented", in order to release the potential of talent and improve the talents benefits. Strengthen the training of internal staff and energize the staff, thus lay a good foundation for the formation of good corporate culture.

For instance, communication is one aspect of modern corporate culture. Property management company should establish customer visit system and make visit plan every season, thus the connection between the enterprises and the owners can be strengthened.

#### **3.2.4 Establish market-based operating model**

Property management companies should try to build market-based models, which are mainly in the form of expanding their businesses thus increase their capital. On the one hand, the model can well meet the requirements of the owner and on the other hand it also can raise the companies' profitability. Ultimately they can solve the probable problem of capital shortage in the course of long-term management and sustainable development. For instance, the property management companies can extend their business activities to the whole real estate industry including initial plan, middle business canvassing and acting as marketing agency, preserving and increasing value of the property, managing property, etc. The property management companies can also introduce other industries into the residential communities and get great profits from the renting fees.

### **3.3 Build a multi-cooperation mechanism of property management services**

#### **3.3.1 Organic cooperation between property management enterprises and communities**

Communities are cells in social. The first thing to do in building harmonious society is to build a harmonious community. Property management is an important force in community services and plays an important role in community construction. Property management plays an integral role in community culture, sanitation and public safety. Fundamentally, the goal of property management to comprehensive improve the living quality of property owners in the principle of human oriented is same as goal of community construction. Community construction should create a good environment

for property management while property management should be incorporated into community construction and provide services. The two can complement each other.

### **3.3.2 To establish “win-win” model between property management companies and other companies**

Property management companies can take advantage of their mass base to help other companies which want to expand their influence by co-organize large scale public beneficial activities. A property management company manages a lot communities as special capital while other companies have strong capital but lack influence. These companies long for influence but they don't have transmission ways. The two parts need each other, thus once they cooperate, they can create great value. The property management companies can operate more public beneficial activities while other companies can promote their products and expand their influences in the activities.

### **3.3.3 Establish O2O business model to provide services**

O2O business model, namely combination between Online stores and Offline consumption. Property management companies show their company information and products information to the property owners and the property owners can choose services they want and pay after experiencing and comparing Offline.

Property management companies needn't to pay for cost of renting stores, thus the cost savings can be used to improve service quality. Specific application of this model is developing their own localized APP. The APP can help to provide punctual services thus optimize the services provided by companies. Services people can choose in the APP include maintenance of home facilities, indoor cleaning, car maintenance, helping to take delivery, child care, etc. By sorting the consumption data of property owners, the enterprises can understand the preference and appraisal of customers, thus provide punctual services. In the same time, the O2O model also gains more business resources, thus make up service shortage of enterprises and meet the various needs of property owners.

## **4 Conclusions**

Currently, in such mature market, qualified service has become the most critical factor in the competition between property companies. From the order-less and sensitive initial stage to the booming middle stage and to the stable and reasonable later period, property management industry in China has been developing day by day through setbacks. With the more and more mature market, development of this industry also meets some new difficulties. Property mechanisms, as an important factor of competition in this industry has gained more and more attention. In this essay, real connotation of property management is clarified through teasing out concepts and summarizing relatively researches. Based on definition of property management, this paper puts forward that integration mechanism between stages, modern property management mechanism, multidimensional cooperation mechanism of property services need to be established, so as to realize the sustainable development of property management and play its positive role in real estate and social development. Consequently, the property management can exert the largest effect to drive economic growth.

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## Research on the Convergence Mechanism of Rural Resettlement Planning and General Land Use Planning for Hydroelectric Project \*

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**Abstract** The main means of rural resettlement of hydroelectric project is the way of farmland-orientated resettlement and the main source of land for resettlement is from paid land adjustment. In consideration of more and more serious contradiction between people and land, the establishment of real right attribution of management power over farmers land contracted, it has become more difficult to solve land problem of rural resettlers through the paid land adjustment. Under such circumstances, this paper is to analyze standardized and scientific channels of land which are supplied to the rural resettlers caused by construction of hydroelectric project, that is, the land for large-scale centralized resettlement need to be solved through convergence mechanism of the rural resettlement planning and the general land use planning. After discussing the practical significance and policy basis of the convergence mechanism, this paper deeply analyzes three problems which need to be paid attention to in the process of the convergence mechanism. First, management problems in transitional period before rural resettlers move into delineated land; Second, the local residents' willingness to put their land into the general land use planning; Third, coordination problems of planning time and institutions. Finally, some countermeasures and suggestions are put forwards pertinently.

**Key words** Hydroelectric project, Resettlement of the resettlers, Rural resettlement planning, General land use planning, Planning convergence, Farmland-orientated resettlement

### 1 Introduction

With the overall acceleration of China's modernization process, the resettlement of rural resettlers caused by construction of large-scale project has become a difficult problem in China's economic and social development (Ma De-feng, 2006<sup>[1]</sup>). The resettlement of the resettlers is an important part of the project construction, and whether the rural resettlers are properly resettled or not will have a significant impact on the normal operation of the project and the social stability in project area (Liang Yu-bao, 2010<sup>[2]</sup>). For the resettlement of rural resettlers, China follow the developmental resettlement policy and adheres to the policy of "land for land", which is the basic resettlement strategy. "The Regulation on Land Requisition Compensation and Resettlement of Migrants for Large and Medium Water Conservation and Power Construction Projects" (State Council No.471) clearly defined that "after resettlement of the rural resettlers, there will be roughly equal amount of the means of agricultural production for the local residents and the resettlers, such as land." In addition to this, because the resettlers caused by hydroelectric project tend to have the characteristic of "many persons, centralized, and mostly farmers", accordingly, in order to assure that the resettlement work can be finished on time and avoid delaying the progress of construction, the production and living land demanded for resettlement are mainly from the paid land adjustment in the past. The essence of the paid land adjustment is that the rural resettlers as new members share land resources with the local residents within certain areas, finally realizing an interpersonal re-allocation of land resources in resettlement areas. Although the resettlement work has a certain property of "public interest", the nature of sharing land resources between the rural resettlers and the local residents not belong to land expropriation. After the establishment of the real right position of land contractual management right, the local residents can protest against the resettlers' participation in land allocation by right of the exclusivity of

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property rights, therefore, if the government does not take some measures to properly solve the resettlement land for the rural resettlers, a lot of whom will become either landless peasants or unemployed man. In that case, it will cause complicated leftover issue of resettlement and threaten social harmony and stability, so this essay holds that the key to solving the problem is to coordinate the contradiction between the exclusivity of the local residents' land property right and the necessity of land acquisition for the rural resettlers.

## **2 Methodology**

### **2.1 Theoretical foundation**

(1) Theory of government under the rule of law. The construction of the law-based government is to make the executive power granted with regulation, exercised with rules, and supervised effectively, preventing the lack and abuse of executive power, protecting civil rights and safeguarding social interests (He Shi-qing, 2006<sup>[3]</sup>). Therefore, government under the rule of law has increasingly become the target paradigm of building a modern government (Li Xia and Ming Hui, 2011<sup>[4]</sup>). Although the rural resettlers has made great sacrifices due to the construction of the project and has a realistic demand for land placement, however, the local residents own the legal right that excluding the others from the illegal infringement, interference or obstruction and the law stipulate explicitly that the contracted land may be not adjusted during the contracted term. So if the government forcibly transfer the land from the local residents to the rural resettlers, although this strategy can solve the land sources for the rural resettlers, it inevitably impose a negative effect on the legal construction of the whole society and the protection of land rights for the collective organization and the local residents. As a result, the issue of land for resettlement caused by hydroelectric projects demand the government to uphold the administration by law and build a law-based government.

(2) Theory of public participation. At this stage, that the rural resettlers move into the resettlement areas and obtain the land resources are mainly in a way of distributing the administrative task, which has a certain mandatory color. The local residents have to accept to transfer a certain amount of contracted lands under the established land exchange price without expressing their true intention. Public participation's improvement and protection for land-use planning as an important part of land-use planning aren't exerted sufficiently (He Zu-wei, 2006<sup>[5]</sup>). Therefore, converging the rural resettlement planning and the general land use planning for hydroelectric project can make the voice of the local residents be heard at all stages: Are they willing to accept the rural resettlers? Would they like to transfer land out to the rural resettlers? How much land are they willing to transfer out to the rural resettlers? Where the land are they willing to transfer out to the rural resettlers? What is the acceptable price of land transference? Only when various subjects involve in consultation in the convergence of rural resettlement planning and the general land use planning with full participation, can the problems and conflicts at the implementation stage of the resettlement and integration stage between the rural resettlers and the local residents be effectively avoided.

(3) Theory of sustainable development. Immigration of the rural resettlers caused by hydroelectric projects will inevitably lead to competition between the local residents and the rural resettlers due to the limited resources (land, water, etc.). The function and value of the contracted land can not only provide food sources and economic benefits for the contemporary people, but also provide basic resources for the future generations with protecting the survival and development. For this reason, it is necessary to scientifically screen out a certain number of appropriate resettlement areas accepted by the rural resettlers, and then determine reasonably the land placement standards for resettlers, making the amount of the rural resettlers and the land transferred out be limited within the threshold of resettlement area's environmental capacity, in order to avoid "emphasizing the resettlement of the rural resettlers and neglecting the interests of local residents blindly", then influencing the local residents and their descendants' survival and sustainable development.

### **2.2 Research hypothesis**

(1) For the solution of the production land for the rural resettlers of hydroelectric projects, the strategy of combining market-oriented land transfer with the general land use planning is superior to the prevailing method of land paid adjustment.

(2) There is no any obstacle in the legal policy, regulatory agencies, and other business processes for the convergence between the rural resettlement planning and the general land use planning for hydroelectric project. Meanwhile, with respect to the state of independent preparation, the compilation under the overall organic convergence of the rural resettlement planning and the general land use planning for hydroelectric project will achieve better effect of resettlement.

(3) Incorporating the rural resettlement planning for hydroelectric project into the general land use planning needs to consult the local residents and collective economic organizations of resettlement areas, achieving the ideological agreement and balance of interests among the subjects of right. In consequence, the public participation in incorporating the rural resettlement planning into the general land use planning will be higher and more adequate.

### 3 Research design

#### 3.1 Ideas presented: A new approach to solve the land for resettlement of rural resettlers—The combination of market-oriented land transfer with the general land use planning

The resettlement mode mainly refers to the path, the measures and the way of income restoration, reconstruction of career development system and production recovery of the rural resettlers (Wang Bin, Gong He-ping and Zhang Yi-jun, 2008<sup>[6]</sup>). Rural resettlement mode has the characteristics of complexity and diversity, which can be divided into nearby settlement, close settlement and remote settlement according to the relocation distance. According to the occupation, it can be divided into agricultural settlement, secondary and tertiary industry settlement. According to whether resettlement need unified planning and construction by government or not, it can be divided into centralized settlement and decentralized settlement. In the case of decentralized settlement, the amount of the rural resettlers that each resettlement area need accept is often small, and so the amount of the production and living land for resettlement is relatively few. In the case of centralized settlement, the amount of the rural resettlers that each resettlement area need accept is often large. And this resettlement mode needs to solve the rural resettlers' production and living land which should meet the specified placement standards within the limited geographical scope. Furthermore, the centralized settlement involves the unified planning and construction of resettlement site, the selection of land sharing mode and the right transference between the local residents and the rural resettlers, the distribution rules of the contracted land and the residence for the rural resettlers, the late integration of the local residents and the rural resettlers and other problem. Therefore, it is more difficult to solve the land for resettlement under centralized settlement mode and the contradiction is the most prominent.

Based on the above analysis, this paper puts forward a standardized and scientific approach to the source of land for resettlement in rural areas, that is, solving the land resources for large-scale and centralized settlement through the convergence between rural resettlement planning and general land use planning, which refers to the process of indicators phased implementation and spatial orientation of various land (contracted land, homestead and infrastructure land, etc.) within the general land use planning. In light of the fact that not all rural resettlers adopt a large-scale centralized settlement and the strategic, macroscopic and overall characteristics of the general land use planning, resettlement should focus on solving the problem of land resources for centralized settlement. Under the background of the differentiation of dependence on land caused by economic differentiation of farmers and the legalization of land transference, it is realistic to use market-oriented land transfer model to solve this problem. Therefore, for the rural resettlers who choose decentralized resettlement or turn to relatives, etc., they can solve the production and living land through sublet, lease, transfer, etc.

#### 3.2 Thinking Basis: Legal policy basis for the convergence between rural resettlement planning and general land use planning for hydroelectric project

“Regulations on Residents-Resettlement for the Yangtze River Three Gorges Project Construction” [State Council Order No. 299], published in February 2001, first proposed the idea of converging general land use planning with rural resettlement planning for hydroelectric project. The article 9 of State Council Order No. 299 explicit request that “Resettlement for the Three Gorges Project Construction shall compile resettlement planning, which should be converged with the general land use planning”. Back in March 2004, Yunnan province clearly demanded ahead planning and

advanced development and included the resettlement land for large and medium-scaled hydroelectric construction into the general land use planning of Yunnan Province for unified planning and arrangement, making the majority of the rural resettlers get necessary land resources for their survival and development (Yang Zi-sheng, Yang Long-fei and Liu Yan-sui, 2007<sup>[8]</sup>). The main current reference standards of compiling rural resettlement planning for hydroelectric project are “Regulations on Land Acquisition Compensation and Resettlement of Migrants for Large and Medium Water Conservation and Hydroelectric Projects” (State Council Order No. 471) and “Specifications on land Requisition and Resettlement Design for Construction of Water resources and Hydroelectric project” (DL/T 5064-2007). The contents of both policies require “converging rural resettlement planning with the national economy and social development planning, general land use planning, urban master planning, village and town planning”. This marks that the government departments come to realize the importance of convergence between resettlement planning and local planning like general land use planning. Therefore, it has policy and regulatory basis to put the production and living land, infrastructure land, special facilities’ rebuilding land in the resettlement planning into the scope of general land use planning.

The general land use planning is a macro strategic activity, which refers to the overall arrangements and layout for land management, use, development and protection, meanwhile, coordinating and balancing the aggregate land demand and supply, and optimizing the land utilization structure and macroscopic strategy of land use layout in a certain planning area according to the natural and socioeconomic status and the needs of the national economic development (Yan Jin-ming and Liu Jie, 2012<sup>[9]</sup>). Essentially, the general land use planning is space-time orientation for the future land use in a certain region, that is, forecasting the best prospective space-time layout of various types of land use through scientific planning, and guiding the present situation of land use toward the settled direction through a series of means such as administration, law, economy and management. The general land use planning is a kind of government action under public participation. Once it is approved by government and then shall be implemented strictly. The construction of each project shall conform to the general land use planning and shall not break through constructive land scale determined by the planning (Wang Zhi-cheng, 2016<sup>[10]</sup>). The key point of the convergence of rural resettlement planning and the general land use planning for hydroelectric project lies in resettlement land use planning, which belong to the specialized planning with special purpose in the general land use planning in nature. It can solve the necessary production and living land for resettlement of hydroelectric project (Yang Zi-sheng and Liu Yan-sui, 2006<sup>[11]</sup>).

Under the current framework of land laws and policies, it is essential to link the rural resettlement planning and the general land use planning organically in order to realize the standardization and scientification, which needs to converge the rural resettlement planning and general land use planning and put the production and living land, infrastructure land which are required for resettlement into the general land use planning for overall arrangement in order to realize the change of means of obtaining land for resettlement in rural areas from paid land adjustment under government administrative intervention to direct delineation by the general land use planning under the public participation. It is not only conducive to make the government departments’ behavior of obtaining land for resettlement have regulations as basis, but also make procedures of land rights transference between rural resettlers and local residents become more scientific and standardized. At the same time, it set a longer buffer period for land transfer to avoid the temporary and campaign-style land transfer bringing the psychological shock and behavioral contradicts to the local residents in the context of full respect on their willingness.

### **3.3 Thinking operation: Operation process of convergence between the rural resettlement planning and the general land use planning for hydroelectric project**

(1) Scientifically planning the construction process of hydroelectric project in a certain region and accurately predicting the number of resettlers at all stages. The people’s government of all provinces (autonomous region and municipality) shall rationally plan the schedule of development of big rivers’ hydroelectric projects in all period and compile development planning of hydroelectric resources within the jurisdiction according to the needs of social and economic development and factors of

ecological environmental protection. At the same time, in order to improve the accuracy of forecasting the demand of land for resettlement of the hydroelectric project and practicability, scientific nature, and feasibility of general land-use planning, it is necessary to analyze and forecast the amount of resettlers caused by the construction of hydroelectric projects. Predicting the total amount of all kinds of resettlers including moving resettlement population and production resettlement population at different period, region and project. According to the different types of land for resettlement, the total amount of resettlers can be subdivided into population of only production land (contracted land), population of only living land (homestead) and population of both kinds of land.

(2) Determining the reasonable and various demand of land use for resettlement. According to the “Specification of Planning and Designing for Resettlement Special Item for Hydroelectric Project” (DL/T5379-2007), “Specification on Relocation Planning and Design of Rural Resettlement for Contraction of Water Resources and Hydroelectric Project” (SL440-2009) and other current industry standards. The standard of production and living land for resettlement and the land standard for professional supporting facilities like transportation, water conservancy, electric power is determined rationally after comprehensive considerations of the following factors, a) The amount and value of the production land and living land of inundated area, b) Resource endowment of the quasi-resettlement area, c) The contrast of location between resettlement area and the flooded area, d) The average living standard of the resettlement area, e) The life recovery target of the resettlers. Finally, estimating the total amount of various land for resettlement according to the total amount of the resettlers,

(3) Investigation of resettlement intention for the resettlers and acceptance intention for the local residents. Before the location of land for resettlement is determined, we should seriously consider the following two questions, firstly, are the resettlers satisfied with the natural socioeconomic status of the resettlement areas? Secondly, are the local residents willing to accept the resettlers? Therefore, the government departments should fully solicit the views and requirements of the local residents and the resettlers. For the resettlers groups, focusing on seeking the resettler’s intention on the location of resettlement areas and production and living conditions. Furthermore, the regional scope of resettlement areas should not be too specific but should be a general description, and the willingness of production and living conditions should meet or achieve the specific targets from the resettlers. For the local residents groups, focusing on seeking their intention whether are they willing to accept the resettlers to move into the collective economic organizations, how much contracted land do the local residents would like to transfer out? What is the expected compensation standard of contracted land transferred to the resettlers? How to distribute the compensation between the collective economic organizations and the local residents, and among the local residents as well?

(4) Convergence of plan and spatial location of land for resettlement. On the basis of the survey on the full willingness, counting out all the large-scale land for resettlement, supplemented by the specific introduce about the circumstances of the resettlement areas (location, situation of economic development, major industries, existing population, etc.), and all the information should be exposed to the public. After the subjective primary selection, field study and democratic decision-making by the resettlers, the place for resettlement and the corresponding land scale that the resettlement areas can supply is initially determined. In the next, putting the resettlement sites selected by the resettlers into the general land use plan, and compiling adjoining pictures of the rural resettlement planning of hydroelectric project and the general land use planning. The resettlement homestead, newly-added construction land such as infrastructure land and occupation quota of cultivated land all should be put into the scheme of the general land use planning of the county (municipal or district).

(5) Immigration of the resettlers and the transfer of land rights. In line with the convergence between the rural resettlement plan and the general land use plan, in the light of the established immigration planning of the resettlers and land supply planning, the government can directly use the resettlement land determined by the general land use planning to solve the land demand of the resettlers caused by hydroelectric project. In the process of immigration of the resettlers, not only is the docking procedures between submerged area government and the resettlement area government handled, but also both the area’s collective economic organizations should go through the related transfer procedures of land rights and register the right in the land administration department. The

resettlers get the land usage right, and the collective economic organizations of the resettlement area obtain the land compensation fee and carry out the scientific distribution among the relevant stakeholders according to the corresponding rules.

### **3.4 Barriers of thinking: The possible problem in the convergence between rural resettlement planning and general land use planning for hydroelectric project**

(1) The problem of using and managing the land which is delineated in the general land use planning before immigration of the rural resettlers. The land contracted by the local residents can be transferred out to the rural resettlers after the agreed consensus, and the relevant departments shall promptly register the changes of time limit for household land in rights certificates of these local residents. However, the land which is delineated in general land use planning are still occupied and used by the local residents and don't have any actual transfer (matter and right) before immigration of the rural resettlers, whilst land contracted management right of the local residents should be automatically terminated when the rural resettlers move into resettlement area. This situation should be indicated in the contract and reflected on the right certificate. With regard to using the backup land for the resettlement and because the local residents don't enjoy land contractual management right, so collective economic organization could directly sign the agreement of land transfer with the rural resettlers, explicit the payment methods, time, price, and other points, use and manage the backup land before the immigration of the rural resettlers. This can avoid the inefficient use or waste of the land delineated. When the rural resettlers move into the resettlement areas, the collective economic organizations of the rural resettlers (the rural resettlers) get the corresponding contracted land, and the government should timely issue the possession certificate of land or certificate of rural land management right for them while the area of contracted land should be changed on the local residents' corresponding certificate. For the resettlement areas which have been selected but are abandoned later for various reasons, conditions of abolition attached to the land right of the local residents will be automatically discharged. At the same time, the local residents' expectant right for compensation will eliminate as well and the rural resettlers do not bear the corresponding liability for breach of contract.

(2) The local residents refuse to include their contracted land into the general land use plan for resettlement. It is not mandatory to bring the resettlement land into the general land use planning, if we want to achieve the effective convergence of the both planning, it still need to be based on the willingness of the local residents. If the plan which admits the rural resettlers into and transfers the land to them can get more than 2/3 members of the villagers or more than 2/3 members of the villagers' representatives consent, then the village could be successfully included in the land scope for resettlement. However, resettlement work involves many settlement areas, not all of which can reach a consensus on the plan, therefore, in the case that this problem can't be solved with the participation and coordination of government, we can address the issue through the following ways. Firstly, if the majority of the members can't come to an agreement with the plan, it is possible to reduce the scope of the negotiations and only consult with the farmers who need to transfer land out to the rural resettlers. The agreement of land rights transfer can be reached with this part of farmers through appropriately improving the compensation standard, supplemented by providing preferential policies and other ways. Secondly, if there are other resettlement areas available for selection and the local residents in these areas can reach a consensus on the plan, the government could consider change the resettlement area. Thirdly, if the alternative resettlement areas do not meet the requirements of the rural resettlers, taking into account that the improper resettlement for the rural resettlers will affect the social stability, so the problem of homestead land for the rural resettlers can be solved by land expropriation. The problem of contracted land for the rural resettlers can be solved by the market-oriented land transference, or be replaced by the long-term and annual compensation mechanism of pooling land as shares of power station, the one-time monetary compensation, the old-age insurance resettlement mode and other method.

(3) Coordination of preparation time and compilation institutions of convergence of rural resettlement planning and general land use planning. The rural resettlement planning is compiled by the local governments of resettlement area and migration area above county level or project entity, the preparation of the rural resettlement planning is compiled in units of the project and has obvious task

orientation, the content of which is only binding on the project. But the general land use planning generally is compiled in units of all levels of government and has stronger macro orientation, the content of which is binding upon all the land within the region. According to the administrative region, the general land use planning is divided into five levels, the whole country level, provincial level, municipal (or prefectural) level, county (or city) and township (or town). The validity term of the general land use planning should consider both the long-term land using target and the national economy and social development plan, which is general ten to fifteen year. So there are two kinds of methods compiling the rural resettlement planning. If project legal person has been established, then the project legal person can compile the rural resettlement planning according to the approved outline of resettlement planning. And if project legal person has not been established, the competent department of project jointly with the local people's government at or above the county level of the resettlement area compile the rural resettlement plan. Simultaneously, rural resettlement planning is generally only for a single hydroelectric project and the time of operation is random, therefore, the convergence of the rural resettlement planning and the general land use planning needs to coordinate both preparation time and compilation institutions. Local governments at all levels should do the preliminary work in advance, which includes the calculation of the amount of the resettlers caused by various hydroelectric projects, the scale of land for resettlement, the survey on willingness of local residents, the screening and positioning of resettlement areas, and the environmental capacity of resettlement areas. The government should compile the rural resettlement planning in due course. If the editing and compiling work of the general land use planning has not been completed yet, the project manager should promptly report the data of land using that are associated with the rural resettlement planning to the local department which are in charge of compiling planning and directly incorporate it into the planning for convergence. If the general land use planning has been completed, due to approval of the alteration of the resettlement plan of hydroelectric projects or the resettlement land demand caused by new approved hydroelectric projects, the relevant departments should timely ensure the modification and partial adjustment work in accordance with the relevant regulations. Putting the resettlement land into the general land use planning, submitting reports for approval according to the regulations, and unlawful practices such as use before approval are not allowed.

### **3.5 Countermeasure of thinking: Coping strategies of government on the problem in the convergence of rural resettlement planning and the general land use planning for hydroelectric project**

(1) Perfecting relevant laws and regulation and clearing the right nature of land transfer from the local residents to the rural resettlers. The current laws stipulate explicitly that: "No unit or individual shall infringe on and occupy, buy and sell or illegally transfer land in other forms. Land use right shall be transferred in accordance with law." However, the conduct that the rural resettlers move into the resettlement areas and share land has its particularity. Firstly, after moving into the resettlement areas, the rural resettlers can obtain the membership of the local collective economic organization based on the mandatory administrative order and can be entitled to the long-term and stable right to contracted management and the right to use the homestead, which can be inherited legally. Secondly, there are two kinds of cases in centralized settlement including "resettling the migrants in the other economic collective, and no new collective are established", "resettling the migrants in the other economic collective, and the migrant consist of a new collective". In the case of the former, the land delineated by the general land use plan is actually transferred to the new collective economic organization of the rural resettlers, and there is a change in the subject of land ownership. In the author's fieldwork investigation in the migration-relocation setting points (Sanwan new village) of Liuzhi Street Office, Huangpi district, Wuhan City and latter resettlement area of Mawan Village, Sanguandian street office, Danjiangkou city which are caused by the Middle Route Project of S - N water diversion. Both of the two sites have the situation that the rural resettlers establish the new collective economic organizations in resettlement areas and local governments handle the certificate of ownership of land for the new collective economic organizations. Therefore, it is necessary to distinguish between various resettlement situations and clarify that the nature of the land rights transfer between the collective economic organizations of the resettlement areas (the local residents) and the collective economic organizations of the rural resettlers (the rural resettlers) is whether transference of ownership or land



use right by law. Only with clearly defining the nature of the transfer of land rights between the local residents and the rural resettlers, will it be advantageous for the local residents to decide whether to transfer the land rights or not in the state of complete clearance for loss and income and ensure the rural resettlers obtain the long-term stability of land rights.

(2) Raising the compensation standard for resettlement land and establishing the negotiation and bargaining mechanism of the local residents and the rural resettlers. The nature of the production resettlement is to seek the land capacity in the resettlement areas in the range of the compensation fee and the resettlement subsidy for the requisitioned land in the flooded area (Liu Dao-ming, et al, 2006<sup>[12]</sup>). At the present stage, the standard for land remuneration in resettlement areas is not determined according to the factors such as the change of land rights and the degree of damage to the interests (Liu Ling-hui, 2012<sup>[13]</sup>). The standard for land remuneration in resettlement areas is limited by the amount of land compensation in the flooded areas and the compensatory method is made according to different period and reservoir area. Although the compensation standard of land for resettlement is becoming more and more normal and gradually approached to the compensation standard for land expropriation, which is not the result of market transaction, but the result of the government with the monopoly power forcing the farmers to sell the land with the price below the full market price. With the increasing awareness on farmers' land rights protection, this compensation standard which can not fully reflect the full value of farmland is not conducive to attract the collective economic organizations and the local residents to put their land into the general land use planning for resettlement. Therefore, under the premise of government setting the guiding price, the direct bargaining mechanism between the rural resettlers and the local residents should be established, and the price standard of land for resettlement should be determined under the bilateral negotiation. the differentiation of the land compensation standards in different resettlement areas is allowed, and the conflicts of interest caused by the "one size fits all" pricing mode should be avoided, guiding the land resources transfer from resettlement areas to the rural resettlers by playing the configuration effect of price mechanism.

(3) Expanding the rural resettlers' non-agricultural resettlement channels and relieving the pressure of land for resettlement. Innovating the rural resettlement mode and building a resettlement system with diversified combination, and then, under the premise of showing full respect for the property rights of the rural resettlers (Chen Shao-jun and Shi Guo-qing, 2003<sup>[14]</sup>), according to their actual situation, they can choose the appropriate resettlement mode, which is an expand to the large traditional agriculture resettlement way in the new era, new situation (Hu Bao-zhu, Wang Ling and Su Yu-yan, 2013<sup>[15]</sup>). Specifically, in addition to the land resettlement model, the rural resettlers can discount the submerged land into the power station in lieu of shares, can choose the long-term compensation mechanism which is compensated by the annual output value, or choose the one-time monetary compensation. Meanwhile, exploring the dynamic management mechanism of the resettlement mode, giving the rural resettlers the right to change the resettlement mode according to the real need at different stages and enjoying the corresponding resettlement benefits. The diversification of resettlement channels can enhance the flexibility of resettlement work, improve the scientificity of resettlement work, make the resettlement work be more people-oriented, alleviate the pressure of land demand for resettlement, reduce the government's a lot of investigation and docking work in resettlement areas, make resettlement work go on smoothly and effectively improve the resettlement effect.

#### 4 Conclusions

(1) The convergence of rural resettlement planning and the general land use planning for hydroelectric project can not only solve the problem of land resources for large-scale and centralized resettlement well, but also avoid the suspect of administrative violation caused by traditional land adjustment methods.

(2) The convergence of rural resettlement planning and the general land use planning must follow a certain steps and procedures. Firstly, scientifically planning the construction process of the regional hydroelectric project, accurately predicting the amount of the resettlers at all stages, and reasonably determining the resettlers' demands for various types of land for resettlement. Secondly, bringing the

resettlement land into index implementation and spatial orientation within the general land use planning on the basis of the resettlers' willingness on resettlement and the survey of the local residents' acceptance intention. Finally, handling the procedures of immigration of the resettlers and land rights transfer.

(3) The convergence of rural resettlement planning and the general land use planning will face a series of problems such as coordination of the compiling time and institution, the efficient use of land, the orderly transfer of land right, and the local residents refusing to transfer the contracted land. Therefore, it is necessary to reasonably determine the compensation standard for resettlement land use and establish the consultation and bargaining mechanism of the rural resettlers and local residents on the basis of clarifying the nature of the land rights transfer. At the same time, we should expand the channels of non-agricultural resettlement and alleviate the pressure of land using for resettlement.

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# Research on Synergistic Governance Mechanism of Environmental Problems by Cross-regional Governments—A Case Study of Haze Governance in Chengdu-Chongqing Region

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**Abstract** With the rapid development of China's economy, the environmental problem such as haze is increasingly prominent, and synergistic governance of haze has become a domestic hot issue in recent years. In recent years, the haze problem in Chengdu-Chongqing area has been highlighted. Due to the particularity of haze, which doesn't exist in a certain area and will have an impact on the neighboring area, coordinate governance in Chengdu-Chongqing region must be enforced. This paper attempts to study the synergistic governance of haze in Chengdu-Chongqing area by means of literature analysis and case analysis, analyze the problems and influencing factors of governing haze coordinately in Chengdu-Chongqing area, and put forward some suggestions and countermeasures to improve the coordinate governance of haze in Chengdu-Chongqing region.

**Key words** Environmental problems, Synergistic governance, Haze governance, Cross-regional

## 1 Necessity of synergistic governance of haze problems

### 1.1 Cross-regional characteristics of haze problems

Haze is the atmospheric phenomenon which particles such as PM2.5, dust and aerosols are floating in sky on relatively stable conditions such as certain humidity and temperature. At the same time, the haze problem has a cross-regional characteristic, that is, haze occurs in a certain place and is dispersed to the neighboring area, and the haze concentration and degree of pollution will gradually decrease accordingly when the scope of haze gradually is expanded. But the dispersion of haze in one region doesn't mean the settlement of the problem. On the contrary, it only means that haze spreads to the surrounding area. Thus, cross-regional coordinate governance of haze must be adopted in Chengdu-Chongqing region owing to this cross-regional characteristic of haze.

### 1.2 The concept of synergistic governance

The concept of public governance is derived from the central concept of governance. Public governance is the process that the public power departments integrate the whole society, manage public affairs, solve public problems, provide public services and realize public interests.<sup>[2]</sup> The predecessor of public governance is "management". In the mode of "management", the status of government and the public is naturally incoordinate and they are in two levels of the government management. Respectively, government is the dominator of managing public affairs, while the public is only the managing object of the government. The government's management is the embodiment of manager's will and it's reflected by the unidirectional operation of power. Most of the government's management of public affairs is realized by organizing and managing the public unilaterally, whose main practices include issuing orders to the public and enforcing them to obey it. Consequently, the public, who could only accept the organization and management passively, are in a passive position. In a word, the status of government and the public is totally incoordinate.<sup>[3]</sup> What varies from the top-down management mode is that the main body of public governance is more diverse, including the government, the public departments, the third sector or non-governmental organizations (NGOs), enterprises and social volunteers.<sup>[4]</sup> The concept of cooperated governance comes from the west, which mainly refers that "under the support of the network technology and information technology, social elements such as governments, non-governmental organizations, enterprises, the public and so on cooperate and govern public affairs together in order to pursue the maximum management efficiency and ultimately achieve the purpose to maintain and promote public interest maximally in public management activities."<sup>[5]</sup> Collaborative governance requires the diversification of the body and the collaboration between them in the process of public governance .

### 1.3 Necessity of synergistic governance of haze problems

In economics, there is the concept of “spillover effect”, which refers that the activities of an organization may not only have an expected influence on this organization, but also have an active influence on individuals or organizations besides the organization itself in the process of organizing an activity. In this paper, “spillover effect” theory is adopted to demonstrate the positive influence of the original regions of haze on adjacent areas. Because of cross-regional mobility and spillover effect of haze, its governance must not be inevitably unilateral activities of one region. Synergistic governance emphasizes mutual cooperation and governance coordinately, and the development of regional economy calls for cooperative governance of haze problems. A large number of domestic and foreign practices also show that the haze problem requires coordinated development between regions, such as “blue sky project” during the Olympic Games and Expo, synergistic governance in Pearl River Delta region, British cross-regional water resources management and inter-governmental cooperation in the US regional environmental protection. Therefore, it’s necessary to govern the haze coordinately.

## 2 Current governing situation of haze in Chengdu-Chongqing Region

### 2.1 Effect of synergistic governance

Air is boundaryless so that the haze must be governed in a coordinate way. In 2010, Chengdu-Chongqing region begun the initial exploration of synergistic governance of haze. At the same year, the project named Research on the Characteristics of Atmospheric Haze and Control Measures in Chengdu-Chongqing Region is initiated, which is led by Peking University, Environmental Monitoring Center Station in Sichuan Province, Environmental Monitoring Center in Chongqing Province and Environmental Science Research Institute of South China in Environmental Protection Department. It analyzed the reason of haze in Chengdu-Chongqing Region and put forward corresponding solution, which is the first research on the haze in Chengdu-Chongqing Region from the regional level.<sup>[6]</sup>

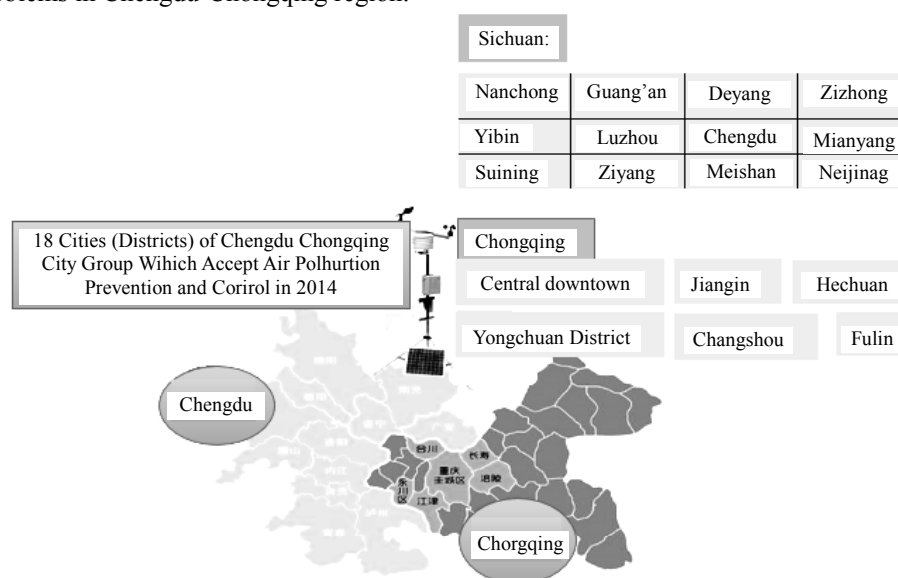
In 2013, Chengdu and Chongqing signed a strategic cooperation agreement on environmental protection in order to realize information mutual connection and cross-check study of these two places.<sup>[7]</sup> In 2015, Sichuan and Chongqing jointly signed the Memorandum of Building Chengdu-Chongqing City Group by Strengthening the Cooperation Between These Two Regions, stressed coordinating efforts to prevent and control, and finally broke the administrative limits to govern haze.

In 2016, the National Development and Reform Commission issued the Development Plan of Chengdu-Chongqing City Group with the consent of the State Council and made a plan towards the coordinated development in Chengdu-Chongqing Region in economics, environment, culture and other aspects. It put forward a series of specific requirements in this plan and strived to work together to combat with air pollution prevention and control. Besides, it emphasized to strengthen coordinating efforts to prevent and control air pollution of city group, further govern industrial sources, mobile sources, living sources and agricultural sources comprehensively, and strengthen the cooperative governance of pollutants such as sulfur dioxide, nitrogen oxides, particulate matter, volatile organic compounds and so on. It established the goal of realizing qualified urban air quality until 2030. In addition, it also paid attention to control the increasing range, promote the clean and efficient use of coal comprehensively, transform part of the key industries and coal-fired boilers and industries with volatile organic pollutants, promote green traffic, strengthen weeding out the standard yellow cars and old vehicle, promote atmospheric pollution control of ships in port and non-road mobile machinery.<sup>[8]</sup> It determined that collaborative governance of haze in Chengdu-Chongqing region is imperative from the national level.

On December 12<sup>th</sup>, 2016, Sichuan and Chongqing signed Agreement of Joint Prevention and Control on Air Pollution in Chengdu-Chongqing region in Chongqing, promised that the two sides will establish a cooperation mechanism and jointly set up leading group which cooperates to promote the work, whose team leader is constituted by the Sichuan Provincial Environmental Protection Office and Chongqing Environmental Protection Bureau. It will hold atmospheric environmental quality notification and situation analysis once or twice a year, study the major problems about prevention and control of atmospheric pollution to ensure the orderly promotion of cooperative agreement. Besides, it develops air quality monitoring and early warning and forecast cooperation in Chengdu-Chongqing

region by relying on national environmental monitoring and forecasting network. In addition, it also compiled and implemented joint contingency plan of heavy pollution in Chengdu-Chongqing region and improved the information reporting system of air pollution which may cause a cross-regional influence.

In fact, before Chengdu and Chongqing join to govern the air pollution together, plenty of departments such as Southwest Inspection Center of Environmental Protection Ministry, Chongqing Municipal Environmental Protection Bureau and Sichuan Provincial Environmental Protection Office have launched a special inspection and unannounced visit towards 18 cities or districts of Chengdu-Chongqing City Group in order to know it clearly and adopt proper countermeasures to the haze problems in Chengdu-Chongqing region.



**Figure 1 18 Cities(Districts) of Chengdu-Chongqing City group which accepted air pollution prevention and control in 2014**

Some cities in Chengdu-Chongqing area have established regional joint defense mechanism on this basis. For instance, Sichuan establishes working mechanism of preventing and controlling air pollution in Chengdu plain city group coordinately, southern Sichuan city group, northeastern Sichuan city group led by Chengdu, Zigong and Nanchong. In addition, Guang'an in Sichuan and Hechuan in Chongqing also have cooperated with each other.<sup>[10]</sup>

## 2.2 Problems in coordinate governance

Although Chengdu-Chongqing region has made efforts in the haze governance, gained some achievements in the construction of laws and regulations and the top design is also strengthened, the effect is still unsatisfactory. Collaboration is still limited to the institutional level and it needs more improvement in practice. From the perspective of ways of coordinate governance, haze governance mainly relies on intergovernmental governance and management of local government, which leads to the failure of local government's campaign-style governance, the problem of the fragmentation of governance and the plight of intergovernmental cooperation directly.<sup>[11]</sup> From the perspective of coordinate governance system, it lacks a systematic system. From the perspective of the governing body, it's led by government and public participation is at a relatively low level.

### (1) Ways of coordinate governance

First, the campaign-style governance failed. Campaign-style governance is a both common and special governance way in the management of our government. "Pressure system" constitutes an important structural background of campaign-style governance, while "target management liability system" constitutes practice form of local government governance and internal management. The targeted goal is urgent, the local government often adopt campaign-style governance to acquire exact

effect when it can't be completed through the conventional means.<sup>[12]</sup> Haze problem must be confronted and solved by government owing to its impact of haze on economics and society. Government is also under great pressure owing to campaign-style governance, which has a relatively great social influence. If the goal is not reached, it will also be under pressure from the higher authorities, society and people's livelihood, which is also the challenge to rational bureaucracy. Owing to the economic and geographical factors, the public paid attention to haze problems at a very late time and strengthened governance in recent years. From shouting slogans to issuing specific outline, the environmental protection is intensified constantly, but stubble burning still occurs every year in spite of forbiddance year after year and haze problems becomes deteriorated. At last, campaign-style governance failed.

Second, the fragmentation of governance has a poor effect. Although the Chengdu-Chongqing region has issued various types of implementation outlines to govern haze problems coordinately, fragmented governance is still prominent in haze governance. On the one hand, it's reflected in the formulation and implementation of policy. Although policy formulation of Chengdu and Chongqing is guided by the Development Plan of Chengdu-Chongqing City Group and they signed Agreement of Joint Prevention and Control on Air Pollution in Chengdu-Chongqing Region, districts, cities and counties of these two regions still worked independently. Consequently, more policy formulation and less implementation became the prominent problem of Chengdu-Chongqing haze governance. On the other hand, it's reflected in the development plan. Chengdu-Chongqing region belongs to western region economy, which is relatively backward. In order to take advantage of the policy of One Belt, One Road, the backward regions lay more emphasis on regional economy development. Since outdated polluted enterprises with big production usually concentrate in these areas, it results in a prominent contradiction between the economy and the environment.

Third, the dilemma of intergovernmental cooperation governance is prominent. Haze problem needs to be solved by the cooperation between Chengdu and Chongqing. Government, as a rational economic man, will give priority to the interests of its own region. On December 2016, Sichuan and Chongqing signed Agreement of Joint Prevention and Control on Air Pollution in Chengdu-Chongqing Area and tried to build a cooperative mechanism. It established a leading group which cooperated to promote the work, whose team leader was constituted by the corresponding environmental protection departments in these two regions. And it will hold atmospheric environmental quality notification and situation analysis once or twice a year, in which people study the major problems about prevention and control of atmospheric pollution. However, it doesn't involve details and a special coordination department is not set up. In conclusion, we couldn't achieve the expected effect and many difficulties will occur if the level of department is not qualified in the cross-regional coordination. Necessary intergovernmental cooperative organizations are the benign and efficient prerequisite of public resources management mechanism.<sup>[13]</sup>

(2) Construction of cooperative governance system is not systematic.

Currently, the action guide of coordinate governance in Chengdu and Chongqing mainly includes Control Law on Air Pollution, Development Plan of Chengdu-Chongqing City Group, Action Plan of Air Pollution Prevention and Control, Key Work Program of Deepening Pragmatic Cooperation between Chongqing Municipal People's Government and Sichuan Provincial People's Government in 2016 and Memorandum of Building Chengdu-Chongqing City Group by Strengthening the Cooperation Between These Two Regions. Except that the Action Plan of Air Pollution Prevention aims to environmental problems, the rest are part of overall planning of the two places. Lack of systematic system as guide reflects that haze governance of these two places hasn't been emphasized and deepened enough.

(3) Body of coordinate governance is single.

From the consensus guidance document of haze governance in these two regions and the actual operation of them respectively, the main body of haze coordinate governance is government itself, the third party organization, the experts and scholars while the public participation is low. In the technical level, environmental problems have a relatively strong scientific nature and we need professional teams, experts and scholars to provide scientific support for the government. In the implementation of

supervision, the role of the public can not be ignored. For example, what is haze problems? What is the cause of it and how to govern the haze effectively for the government? What can ordinary citizens do to contribute to haze governance? All of these questions need scientific explanations, arguments, and popularization of science. An effective haze governance couldn't be reached by the only participation of government itself.

### **3 Analysis on factors of limiting coordinate governance of haze in Chengdu-Chongqing Region**

#### **3.1 Lack of authoritative leading organization**

Although the two sides signed a series of policy-related guidance documents, they did not set up a special guidance group. The two sides mentioned in Agreement of Joint Prevention and Control on Air Pollution in Chengdu-Chongqing Area will build cooperative mechanism and set up leading group to promote work, and supervisors of two environmental protection departments are responsible for supervision and consultation meetings once or twice a year so that they couldn't make specific and effective command and supervision towards the implementation of haze coordinate governance in these two regions.

In order to promote the development of the neighboring areas and deepen the cooperation and coordination between the two sides, some areas set up leading group in which the major leader of municipal government is the team leader and the major supervisors in these two governments and relevant municipal departments are teammates. Its office is located in City Development and Reform Commission and it's responsible for integration, supervision, assessment and other specific work. Besides, it sets up special working group, which is led by the relevant departments in the city to support the work of these two regions coordinately. However, the authority and effectiveness of the mechanism still need improvement.

#### **3.2 Rigidity of plan lacks security**

Although the coordinate governance regions will work together to develop outlines such as development strategies and outlines of regional coordinate governance, there are still many problems to be solved in the practice of coordinate governance, including whether these plans can be link to their own Thirteenth Five-Year Plan respectively and whether they can be written into their own development plans and annual plans respectively to enhance legal effect and the implementation effectiveness through legal procedures. For example, cross-regional development planning is not integrated and matched with the local development planning, and sometimes they are even contradictory and affects the coordination of policy seriously. In addition, how could we do to make cross-regional development plan become a rigid plan for regional development? Even though the leader group is changed, it won't be changed by the will of the leader. All of these problems need to be resolved from the legislative point of view.

#### **3.3 Lack of interest compensation mechanism**

The self-interest nature of government caused Tragedy of the Commons. The haze coordinate governance involves with different administrative regions, which are enclosed to each other and form a solid and mature management model of government by combining with the local economic management system. Because this model is also enclosed, it will be stuck in the plight of governance failure. The role of government as rational economic man will cause that local government adopts local protection and other means to promote economic development in this region. And the spillover effect of haze makes the coordinate governance imperative. In the cooperation, the rational choice of local government may cause the plight of collective action.<sup>[16]</sup>

Assuming that local governments A and B jointly have some kind of resources (water, or atmosphere, etc.) in the same area, there would occur two kinds of different occasions including cooperative game and non-cooperative game in haze governance. It's shown as Table 1.

From the table, we can see that the best result is that both A and B adopt cooperative attitude and issue relatively good governance countermeasures, which would make these two regions gain a good governance effect and reduce the degree of pollution. The worst result is that both A and B adopt disoperative attitude and don't decrease the pollution emission in haze governance, which would

increase the scope of pollution. From the perspective of the local government itself, both A and B would choose disoperative attitude to acquire biggest interest, which will bring the worst result that the two sides suffer losses.

**Table 1 Game between governments**

	B (cooperative attitude)	B (disoperative attitude)
A (cooperative attitude)	(6,6)	(-5,7)
A (disoperative attitude)	(7, -5)	(-6, -6)

Inter-regional equality and mutual benefit, shared responsibility and benefit sharing are the basis of cross-administrative regional collaborative development. The irrationality and injustice of the distribution of benefits will affect the trust and cooperation mechanisms of two sides, and consequently, long-term cooperation will be difficult to sustain.

### 3.4 Difficulty to promote collaboration between various departments

We paid too much emphasis on the exchange and communication between the main leaders rather than connection and contact between governmental departments in cross-regional coordinate development. However, the implementation of project and settlement of problem need the coordination and efforts between two governmental departments.

Efforts of Chengdu-Chongqing governments in top design of the synergistic governance on haze was conspicuous, but it wasn't implemented in the practice owing to the impracticable coordinate sector. Every local governments compiled the goal and plan of its own region by using the documents that major leaders signed as action guide. They didn't cooperate with each other and govern the problem secluding from outside, so coordinate governance became governance respectively.

Therefore, how to establish the platform of institutional interaction between the government departments to deepen mutual understanding and trust as well as cooperation is also an important factor influencing the regional coordinate development on the basis of regular consultation between the main leaders of the two sides.

### 3.5 Backward assessment methods

The existing political achievement assessment mainly assesses economic and social development of it's own administrative region so that some leaders only focus on the local economic development and short-term development benefit and ignore long-term cross-regional development and cooperation. Some leaders even only consider how to gain more interest in the cooperation to benefit their assessment of political achievement, which will reduce the effect of cross-regional coordinate development.

Haze is the product of the extensive economic development model. If economic development model isn't changed, haze problem couldn't be solved fundamentally. Since regional economic development plan is closely linked to the leadership team, coordinate governance can only be useless if they don't pay attention to environmental problems and only pursue economic interest. Methods of political achievement assessment should be reformed and environmental problems should be emphasized from the top design so that haze coordinate governance has to be included in regional development plan.

## 4 Suggestions on promoting the coordinate governance of haze in Chengdu-Chongqing Region

### 4.1 Establishment of a sound system and specialized department

Cross-regional coordinate governance involves different administrative regions and haze has its special complexity, the occasion of game mentioned earlier is likely to occur owing to the lack of unified and systematic guiding outline as well as the nature of rational economic man of different administrative regions. Development model of administrative region varies owing to the political, economic and historical factors. In addition, synergistic governance is hard to advance without unified and binding system. At the same time, cross-regional synergistic governance needs a specialized department, which could be a work group constituted by relevant departments. This group is responsible for the coordinate governance of haze to improve governance efficiency and impartiality.



#### **4.2 Innovation on the leadership system and responsibility mechanism of coordinate development**

Cross-regional coordinate development is relatively difficult owing that it involves interest of many sides. If the leadership mechanism is not strong enough, it is difficult to make substantial progress. For example, we should choose those regions with special meaning in the whole province as key provincial pilot zone of coordinate development. And the provincial governmental departments are responsible for the tracking and supervision of its political achievement. In the municipal level, special leaders may be appointed as main teammates of coordinate development management committee, who will report the work to municipal committee and municipal government regularly. They are responsible for coordinating major issues of coordinate development. Management committee carries out target responsibility system and fully implements various responsibilities.

#### **4.3 Establishment of the profit-balanced mechanism based on quasi market mechanism**

Cross-regional coordinate development aims to seek common development between regions, but the government will always be the interest-oriented. Once coordinate development made progress, what they focused on is the amount of profit of each side. And the impact of haze governance on the economy is absolute. Therefore, it is necessary to explore the profit-balanced mechanism based on quasi market mechanism to balance the interest of many parties, especially the major projects such as water resources sharing, watershed ecological compensation, atmospheric management and sewage treatment. In order to ensure equality and fairness, the involvement of the third party is a must. The third party is responsible for assessing and compiling the appropriate scheme. Since profit-balanced mechanism is both the difficult point and key point of coordinate development, its treatment result will influence whether the cross-regional coordinate development could continue directly. Once it's treated well, other problems could be resolved. Otherwise, long-term trust and cooperation couldn't be realized if we only solve the problem by relying on administrative means. This is because haze coordinate development is a long-term project.

#### **4.4 Exploration of diversified governance and mechanism of cross-regional integrated law enforcement**

There are many incoordinate phenomena in the current coordinate development. For example, leaders are cooperative while departments are incoordinate, governments are cooperative while the society is incoordinate. We should explore diversified governance and mechanism of cross-regional integrated law enforcement to change these incoordinate phenomena. The regional supervisors should host the post of department of cross-regional integrated law enforcement in turn, which is responsible for dealing with cross-regional environmental pollution in time to enhance the ability of coordinate law enforcement and comprehensive law enforcement. Organizations such as inter-regional trade associations, public welfare organizations, social groups and so on could build cross-regional joint committee on the basis of this model, which are charge of the supervisors in turn and carry out regular and institutionalized exchanges to enhance mutual understanding, communication and collaboration and create a solid social foundation for coordinate development consequently.

#### **4.5 Improvement of assessment methods of government achievement**

The rigid and single assessment method is the strengthening of the departmentalism of local leading cadres and local protectionism, both of which are unimpeded for the cross-regional coordinate development. It not only impedes the change from county economy to metropolitan area economy but also transformation and upgrading of the industry. For the assessment of local government, we should not only reflect the local development but also positive development of the adjacent areas. We should pay attention to the assessment indicators influencing the surrounding areas, especially those environmental assessment indicators. As haze and other environmental governance is a project with large cost and slow effect, the local government won't highly emphasize it if it's not included in the achievement assessment. The core region of coordinate development should pay more attention on the development of surrounding area and environmental coordinate governance, improve its proportion of the assessment.

## **5 Conclusions**

Environmental issues are not only a global hot issue, but also the main contradiction that restricts

the economic development of developing countries. Under the situation of China's economic transformation currently, it is far-reaching to solve the contradiction between environmental problems and economic development. In the context of economic globalization, the governance of environmental problems must be cooperative and coordinate rather than exist independently. Chengdu-Chongqing region is the center and economic hub of the southwest region. And in recent years, haze problem in Chengdu-Chongqing region is prominent and the effect of governance is poor, which exists problems such as the fragmentation of haze governance, incoordinate governance of various local government and incoordinate inner horizontal governance of government. By analyzing the reason of haze problems and its corresponding regional characteristics, this paper explores the construction of coordinate governance mechanism on cross-regional environmental problems based on synergy theory.

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## The Role of Public Cultural Service Guarantee Law in the Construction of the Legal System of the Chinese Government's Public Services

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**Abstract** [Purpose/Significance] Theoretical investigation of the “Public Cultural Service Guarantee Law” will help localize Chinese public cultural service theory and promote the effective implementation of the Law and the legalization of other public services.[Method/Process] By using literature analysis methods, this article focuses on the interpretation of the “public cultural services” and “public cultural facilities,” and their implications in the context of the Public Cultural Service Guarantee Law.[Results/Conclusion] The Public Cultural Service Guarantee Law in the narrow sense defines “public cultural services.” The services are defined as government-led public cultural services, funded by public finance and supported by legislation to protect public cultural services. The services are distinguishable from for-profit cultural services provided by enterprises, businesses, non-profit organizations, and volunteers. The Public Cultural Service Guarantee Law aims to protect the moral rights of individual citizens. However, this moral rights and government public cultural services are synchronized to generate a complex set of operational logic, which brings the implementation of the law new challenges.

**Key words** Public Cultural Service Guarantee Law, Government-led, Isomorphism of supply and demand subjects, Moral rights

The People's Republic of China Public Cultural Service Guarantee Law (the “Public Cultural Service Guarantee Law”) has become effective since March 1, 2017. It represents a milestone in the Chinese government's innovation in providing public service, signifies that the public service of China is being established and incorporated into the public law domain and becomes the government's administrative obligations and legal duties, and indicates the end of the long-existing separation, like “two skins,”<sup>[1]</sup> between government's public service and public administrative system. The enactment of the Law has shown the government's confidence in perfecting the country's legal framework and building a service-oriented government.

The Public Cultural Service Guarantee Law is the first general law in China's public service domain to guarantee the people's basic cultural rights and interests. It delineates the core value of the concepts of “public cultural service” and “public cultural facility,” establishes the center position of different levels of the government in providing public cultural service, and makes detailed and operable the regulations and standards on public cultural service formulated by the government, through the provisions in that Law that guarantee, coordinate, execute, and complement the existing regulations and standards. In terms of evaluation of government's performance in providing public cultural service, the Law requires the public's participation in the evaluation scheme, which affords a new vista in the development of China's public cultural service.

### 1 Background of the Public Cultural Service Guarantee Law

#### 1.2 Advancement of cultural legislation

The Public Cultural Service Guarantee Law is the first law that has been enacted since the government has engaged in the construction and advancement of cultural legislation. The earliest cultural legislation can be traced back to the publication of “The Outline of Cultural Legislation from the Ministry of Culture” on March 15, 1999. Then, the concept of “public cultural service” was brought up in the reports of the 16th national congress of the communist party of China in 2002. The

reports defined the country's cultural construction as consisting of "cultural undertakings" and "cultural industry,"<sup>[2]</sup> which laid the theoretical foundation of building the legal framework of government's public cultural service. In early 2006, the state council of China accelerated the progress of designing the cultural legislations and enacted the "Opinions on Deepening the Reform of the Cultural System." The Opinions suggested the needs of perfecting culture-related regulations and policies, strengthening the cultural legislations, and enhancing the existing cultural policies into legal regulations through due process of law. In the same year of September, "The Outline of Planning Cultural Development in the State's 11th Five-Year Plan" was published, which again emphasized the importance of cultural legislation and planned the development of public cultural service in distinct paragraphs. The Outline raised the proposals of actively advancing the transformation of governmental functions, separating government and enterprises, government and institutes, government and capital, and management and execution branches, changing the governmental function of developing culture by setting up events into administering public social life and providing public cultural service. In October 18, 2011, "the Decisions from the Central Committee of the Communist Party of China Regarding Major Problems in Deepening the Reform of Cultural System and Enhancing the Cultural Development and Prosperity of Socialist Society" pointed out the compelling needs of accelerating the construction of cultural legislation, formulation and perfection of public cultural service system, revitalization of cultural enterprises, and management of cultural markets. Moreover, the Fourth Plenary Session of the Thirteenth Central Committee also emphasized the necessity of guaranteeing the rights and interests of the citizens, establishing the legal framework to protect people's basic cultural rights and interests, realizing the legalization of guaranteeing people's right and interests. The Committee set out a detailed plan of perfecting the legal system related to the development of the nation's cultural system and required the legislation of the Public Cultural Service Guarantee Law to promote the standardization of basic public cultural service.

Due the drive of the communist party of China and its central governmental power, the legislation of the public cultural service was one of the centers of focus during meetings of the National People's Congress. "During the 11th National People's Congress and subsequent congresses, there were multiple legislative proposals on accelerating the legislation regarding public culture. For instance, in the Third Session, there were 30 representatives of the people brought up a proposal of enacting the Public Cultural Service Guarantee Law. Moreover, when the Full Meeting of the 14th Session of the Standing Committee of the 12th National People's Congress was reviewing the 'Report on the Current Status of Constructing Public Cultural Service System from the State Council,' some committee members had agreed upon the acceleration of cultural legislation. In sum, there has been a consensus of strengthening the public cultural legislation."<sup>[3]</sup> In 2015, the National People's Congress adopted the legislation of the Public Cultural Service Guarantee Law into the agenda.

### **1.2 Legal system construction of public service**

The legal system construction of public service is to legalize government's offering of public service, by law, setting out the obligations and duties of the government in providing the public service, as well as the obligations and duties of the users of such service. Such legalization standardizes the process of government's providing public service, which helps guarantee and optimize the public service provided by the government. This is one of the necessary request from modern society ruled by law, which demands the legitimacy, justifiability, impartiality and focus on public interests from the government.

The theory on the legal construction of public service has its origin in France, the motherland of administrative law. Léon Duguit, the renowned legal scholar of France in public law domain, first suggested governmental public service be included in public law system, that the view of sovereign rights be substituted with the idea of public service, and the idea of public service be the foundation of modern administrative law. This idea was viewed as one of the greatest conceptions in the area of administrative law<sup>[4]</sup> by one of our country's most distinguished legal scholars. For more than a century, the social development has also indicated that Duguit's concept of public service has become the theoretical foundation of the construction of modern government legal system. "Public service in developed countries has become one of the basic contents of administrative law. The adjustment of

traditional administrative relations must also regulate the subject of public services, the scope of public services, the manner of public service services, and the facilities and other relationships related to public services.”<sup>[5]</sup>

China, as a new comer striving for modernization, is different from the development of the construction of public service legal system in western countries. Mao Ze-dong’s “serving the people” motto has always been the guiding ideology of the Chinese Communist Party in power, but how to serve the people and in particular, the idea of “serving the people” as the government administrative responsibility has not been legalized. By the beginning of this century, the Chinese Communist Party and its central government began to carry out the top-level design of the legalization of government public services. In 2003, “the Decisions on A Number of Issues from Chinese Communist Party Central Committee about the Improvement of the Socialist Market Economic System” for the first time, clearly requires, “improve the government social management and public service functions for the comprehensive construction of a well-off society to provide a strong institutional security.”<sup>[6]</sup> In 2004, the former Premier Wen Jia-bao of China in “Government Work Report” further stressed, “all levels of government need to fully perform their functions, continue to strengthen economic mediation and market supervision at the same time, pay more attention to the implementation of the government’s social management and public service functions.”<sup>[7]</sup> “Public service” was then formally entered the scope of national public policy. In 2007, the 17th Chinese Communist Party National People’s Congress put forward the policy of building a service-oriented government, “public service” rose to the strategic height of national construction and development, and thus initiated the China’s construction of service-oriented government of modern social governance. Over the past decade, the construction of a service-oriented government has made clear the direction of the change of administrative functions of various local governments of China, expanded the public service function of the local governments, enhanced the ability of the local governments’ supplying public service, and promoted the development of public service of the local governments. Accompanying the expansion of public services, the need to use laws and regulations to consolidate and develop public services emerges. It is also needed to utilize the legal system to further regulate the government’s public service responsibilities and behavior. Moreover, public basic rights also need to be maintained by the legal system to maintain and the obligations of the public need to be delineated by the law. The rule of law and legal means to promote China’s public service have become the practical demand for China’s national governance system and the call for modernization of governance.

Public cultural service as an important part of the construction of service-oriented government was ushered in an era of unprecedented development opportunities. The Chinese Communist Party and its central government have launched a series of top-level design, setting out a comprehensive deployment for the construction of modern public cultural service system to protect the people’s basic cultural rights and interests. “Local cultural investment is welcomed enthusiastically, large public cultural facilities, such as museums, theaters, sports venues, and even a variety of cultural complex and other urban cultural landmarks have risen rapidly in the city center and new areas in the city.”<sup>[8]</sup> To a large extent, it changed the past Chinese government public cultural services characterized by scarce supply and monotonous contents, offered the public opportunities to enjoy the public cultural services, and enriched the public cultural and spiritual life. However, to truly meet the public demand in terms of the diversity of public cultural services, to protect the basic cultural rights and interests of the public, so that public cultural services will give full play to the educational function, it must be sustainably maintained and developed through the work of the legal system. Since “public cultural services embodies the ‘soft power,’ which lacks immediate effect, it is difficult to reflect the governmental performance. Therefore, considering the lack of driving force behind the legal construction of public services, we need to resort to law to regulate public cultural services.”<sup>[9]</sup>

## **2 Basic rules of the Public Cultural Service Guarantee Law**

### **2.1 Government-led public cultural services**

Culture is a very complex concept. As of the concept the public cultural services, the Chinese academia did not form a more consistent understanding. For example, some scholars agree that public

cultural services are equivalent to public goods.<sup>[10]</sup> Some argue that public cultural services include, in addition to providing public cultural goods and services, their associated systems and systems,<sup>[11]</sup> while some hold that it means cultural institutions and services.<sup>[12]</sup> However, according to the “Ci Hai,” the definition of “service” states, “service is to work for the collective or for others; or in form not in kind to exchange for a living by providing labor to meet the special needs of others.”<sup>[13]</sup> That is, the “service” must have a “main user of the service.” On the other hand, the “providing subject” of the public cultural service is diversified. As long as it is a public service for the public, it can be said it is a public cultural service, including commercial cultural services, volunteer cultural services, etc. It is a kind of general public cultural services. In the narrow sense of public cultural services, the “providing subject” is the government. Based on the principles of the government’s legitimacy, impartiality, and public welfare, the government uses public finance and resources to carry out public cultural services. This is a fundamental difference between government public cultural services and public cultural services provided by businesses, businesses, nonprofit organizations, volunteers and so on. In other words, only as a governmental administrative functions, public cultural services belong to the national public law system. This is also the logical starting point of the legislation of the Public Cultural Service Guarantee Law, which is to clarify the status and role of the government in public cultural services. “The term ‘public cultural services’ as used in this Law refers to the government-led and social forces supported provision of public cultural facilities, cultural products, cultural activities and other related services, in order to meet the basic cultural needs of citizens.”<sup>[14]</sup> The so-called “government-led public cultural services” include the idea that the government is the “providing subject” of public cultural service and shall assume the responsibilities of meeting basic cultural needs of citizens, protecting the basic cultural rights of citizens. In the Law, other non-governmental organizations, social forces, and citizens are to participate and enjoy public cultural services.

Public cultural services are an important part of public cultural rights, and “cultural rights belong to the category of social rights, like other social rights, the realization of cultural rights depends on the strengthening of government responsibility. Cultural law aims to achieve cultural rights and strengthen government’s responsibility. From this point of view, the cultural law has obvious characteristics of the law of responsibility.”<sup>[15]</sup> The Public Cultural Service Guarantee Law contains three features of the law of responsibility. (1) The government guarantees public cultural services by use of public finance. The Public Cultural Service Guarantee Law takes the finance, facilities and manpower as the basics that are required for safeguarding the provision of public cultural service. “The State Council and the local governments at various levels shall, according to the responsibilities and expenses of public cultural services, incorporate the budget for public cultural services and arrange appropriately the funds for public cultural services.” (2) The government guides the service with the socialist core values. Carrying forward the socialist core values is the legislative essence of the Public Cultural Service Guarantee Law, which is the fundamental task of consolidating the socialist cultural positions at all levels and promoting the great development and prosperity of the culture. (3) The government consolidates public cultural services by standardizing and equalizing the system for providing such services. “Standardization of public cultural services is an inevitable requirement for realizing the ideas of culture benefiting people and people living with culture, as well as for protecting the people’s basic cultural rights and interests.”<sup>[16]</sup> The Public Cultural Service Guarantee Law also requires that based on the “National Basic Public Cultural Service Guidance and Standards” and the local reality, the legislature is to formulate the standards for the implementation of public cultural services at local governments of provincial, autonomous regions and municipalities levels. With implementing such standards, the government provides public cultural services accordingly so as to achieve universal equality and attain the purpose of the benefiting the public.

## **2.2 The scope of cultural facilities provided by the government**

“Public cultural facilities” in the Public Cultural Service Guarantee Law is another critically important concept. As carrying out public cultural services, the government must have the appropriate facilities and equipment as support. In other words, facilities and equipment are the government’s necessary means and carrier for providing public cultural services. The public finance must also focus on the investment that are required for those cultural infrastructures. The construction and development

of the national cultural infrastructure will directly affect the quality of the cultural life of the people. The cultural life of the people cannot be separated from the diverse and varied cultural infrastructure. If there is no law to clarify the provision of those public cultural facilities and indicate what infrastructure and basic equipment shall be provided by the government, then the effectiveness of public cultural services in the actual operation will be greatly reduced, directly damaging the basic cultural rights of citizens. “The central issue of public facilities is the right of the public and the use right of the related subjects. In turn, these rights will become the basic obligation of the provider of public facilities.”<sup>[17]</sup>

The indispensable basic function of public cultural facilities has been fully protected in the Public Cultural Service Guarantee Law. The Law sets out “the construction and management of public cultural facilities” in an independent chapter. Public cultural facilities thus include buildings, venues and equipment, which are used to provide public cultural services. Major examples are libraries, museums, cultural centers (stations), art galleries, science and technology museum, (Street) and village (community) basic cultural service center, farmhouse (staff) bookstore, public reading column (screen), television broadcast transmission facilities, public digital cultural service points and other public cultural facilities. On the one hand, it clarified the basic object of the government who invests in the construction, operation and management of public cultural facilities, helping the government public budget be used wisely, reducing the duplication of construction, and improving the utilization of facilities and equipment. On the other hand, it facilitates the use of public culture facilities, as well as the public’s participation in the evaluation and supervision of public cultural facilities and equipment, the related investment and management with respect to the cultural facilities.

The Public Cultural Service Guarantee Law standardizes the legal concepts of “public cultural service” and “public cultural facilities.” The connotation of the concepts is clear, standardized and unified, which provides a strong system that guarantees the sustainable development of the Chinese government’s public cultural service. The development of China’s public cultural services has shifted from the “soft rule of law” to the “hard law,” an enacted law to actually protect cultural rights of citizens.

### **3 The guiding role of the Public Cultural Service Guarantee Law**

#### **3.1 Establishing a variety of roles for public participation**

The Public Cultural Service Guarantee Law is based on the rule of law, which adheres to the Chinese Constitution to protect the basic cultural rights and interests of its people. Article 47 of the Constitution of the People’s Republic of China stipulates that citizens of the People’s Republic of China have the freedom to carry out scientific research, literary and artistic creation and other cultural activities. The State encourages and assists the creative work of its citizens who are engaged in education, science, technology, literature, art and other cultural undertakings. In this regard, the General Provision 13 of the Law provides a clear guarantee that the State encourages and supports the participation of citizens, legal persons and other organizations in public cultural services. In addition, the Provision 24, 25, 37, 42, 43, 49 and other Provisions all relate to the public participation in public cultural services and empower the public to participate in public cultural services through different roles.

According to the relevant provisions of the Public Cultural Service Guarantee Law, the roles for public participation in public cultural services is mainly categorized in three kinds: (1) the public is the object and beneficiary of public cultural services and enjoys a variety of basic cultural rights according to the Law; (2) the public is the public cultural service volunteers, communicators, evaluators, have the obligation to serve the public cultural construction, and should take the initiative to participate in public cultural activities, feedback supply, evaluation of these services; (3) the public is the public cultural service provider, through a variety of manners, providing healthy and diverse forms of public cultural services.

Establishing different roles for the public in the public cultural services through legislation is an institutional innovation of China’s public cultural services that is based upon public needs. On the one hand, it makes clearly visible and operational the rights of the public to enjoy public cultural services,

evaluate public cultural services, and provide public cultural services. The Law is deemed capable to effectively guide the public to participate in public cultural services in accordance with the law so that their own cultural interests are better protected. On the other hand, it allows the government, especially the local government, according to the different roles of the public and different needs, to carry out a variety of public cultural services, manage public cultural market, and contribute to, precision and refinement of the government public cultural services.

### **3.2 Mechanism for public participation in the evaluation of performance**

The Provision 56 of the Public Cultural Service Guarantee Law states, "... to establish a feedback system that would reflect public cultural needs and a public cultural service assessment and evaluation system that ensures public participation, and assessment results to be used as a basis for determining subsidies or incentives for the government." Evaluating the service process and the service results simultaneously is in full compliance with the internal logic of public cultural services. The provision of public cultural services and the enjoyment of public cultural services are part of a simultaneous process. The process includes both the positive action of the service provider and the active participation and responsive evaluation from the service recipients. The service process and the services result are not detached. Therefore, in order to evaluate the public cultural services, logically, it is necessary to have the fait accompli of the provision of services and the completion of providing the services, and then requires people who experienced and participated in the services to participate. On the basis of the established facts, the evaluators can make a subjective judgment on the results of the service. In the process, whether the value is reflected and the policy is properly implemented, does not solely depend on discretion and initiative of the administrative staffs, but also increasingly on the public's supervision, control and active and effective participation with respect to the administrative behavior.

The practice of public cultural services also shows that only the public can improve the public cultural services by active participation so that the government will have continuous and abundant information to assess the need of the public. Only if the public respond actively to the public cultural services, the government can improve the services and ensure the quality of such services. As with all service industries, the evaluation of public cultural services without the participation of its "clients" is often of little value, and may even be fraudulent. Therefore, establishing the public participation in public participation in the evaluation of public cultural services in the comprehensive assessment system and including the public into the existing assessment system will change the evaluation mechanism of the government public cultural services, so that the public can be truly all-round, deeply involved in the construction of public cultural services, thus improving the legitimacy of government public cultural services.

## **4 Challenges facing the Public Cultural Service Guarantee Law**

### **4.1 Constraints of "isomorphism of supply and demand subjects" on public cultural services**

The "isomorphism of supply and demand subjects" of public cultural services means that there exists an inseparability between the main body of service provider and the public receiving the services. That is, the government and the public must jointly realize and complete the public culture service. The problem of this kind of "isomorphism of supply and demand subjects" lies in two aspects. On one hand, the government as the main body of service provider must adhere to the basic principles of public welfare and social fairness and be constrained by budgets, thus the government is not capable of meeting the needs from the non-public sector. This reveals the substantive connotation of the government-led public cultural services, which shows the nature of subjectivity and dominance embedded in the governmental provision of public services. On the other hand, as the service recipients, the citizens can act according to their own subjective wishes and hobbies, choosing to participate, or not to, or even refuse the government's public cultural services. This unveils the subjective status of public cultural services and the motivation involved in the choices of public cultural services, which is bestowed in the public who are the recipient of the public cultural services. Therefore, although the government has been promoting public cultural services, it may not be able to obtain the effect as designed and speculated, and may even be counterproductive. For example, the widespread enthusiasm of the policy makers in building "rural bookstore" generated very few



stakeholders and the utilization rate of such “bookstore” is very low. This policy as the public cultural services at issue possesses the same logic of “isomorphism of supply and demand subjects” that restricts the effective implementation of government’s public cultural services and weakens the government’s culture administrative function. Moreover, there generates a paradox: on one hand, the pressure of the assessment forced the local governments, especially the grass-roots governments, to use public resources to carry out public cultural services; on the other hand, the public is not interested in these public cultural services, not even in those free cultural products and cultural activities. There may be even criticism, complaining that the government is wasting public resources. However, if the government does not take actions, it will also generate public dissatisfaction. So how can the government and the public form a more consistent logic of behavior to achieve the realization of the cultural rights of citizens? This is not only the problems faced by the Chinese government, but also the common problems in the administration of various governments, which demand more academic attention as well as further in-depth research.

#### **4.2 Negative moral rights and the state’s positive cultural obligations**

Citizens’ cultural rights are a type of negative right. It, on one hand, requires the State’s protection of such negative rights (the State does not interfere with the cultural activities of citizens, taking the position of restraint and tolerance). On the other hand, “in contemporary legal practice and cultural policy context, in order to ensure and promote the realization of public cultural rights, the state was given a positive cultural obligations.” This positive cultural obligation of the state belongs to the category of social rights, “its unique essence is to promote and provide, and the core of the State’s actions at which the right is directed is to promote and provide.” The Public Cultural Service Guarantee Law, indicating a positive cultural obligation, requires the Chinese governments at all levels to promote and provide public cultural services. However, it is worth noting that, “citizens all enjoy a wide range of cultural rights, but these rights have a common feature of meeting the individual needs of the citizens. They are a kind of a moral right to satisfy mental needs.” However, this moral right is also a negative right, and the biggest difference between such moral right and other social rights lies in its strong subjectivity, arbitrariness, and diversity. The moral right is closely related to personal interests, gender, age, occupation, family environment, educational background and many other factors. In other words, the State’s positive cultural obligations are faced with negative, subjective, arbitrary, diverse and self-interested public that are capable of self-judgment and self-selection. “To promote and provide” is very complex and difficult in practice.

At present, China’s public cultural services, on one hand, are actively promoted by the government by expanding public cultural facilities and improving the quality of public cultural equipment. On the other hand, the public cultural services are encountering inactiveness the public and the utilization rate of the public cultural facilities and equipment is not satisfying. If the public is not interested in the public cultural services provided by the government and not willing to utilize and participate, with such situation unchanged, then, how the fait accompli of public cultural services could be established ever? How can public participation and evaluation of public cultural services advance? How the guidance implied by the public culture services and the educational function come into play? Negative moral rights and the state’s positive cultural obligations create the absence of the public, which may make the Public Cultural Service Guarantee Law useless and sit still in an embarrassing conundrum

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## Legal Boundaries and Regulations of Network Information Management

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**Abstract** Information formed and transmitted on the Internet has become indispensable in people's politics, economy and social life. Great creativity has been generated from the Internet, as well as the chaotic network information (Hereinafter referred to as NetInfo). This essay holds the idea that this chaos has something to do with factors including value of NetInfo, "adverse selection" phenomenon in NetInfo, etc. In light of the dangers aroused by Internet mess, certain legal boundaries should be set up and followed in NetInfo management to maintain a healthy and orderly network environment.

**Key words** Network information, Management, Legal boundaries

### 1 Introduction

Against the background of infinite possibilities provided by the Internet, currently, freedom of speech on the Internet enjoys a wider space. NetInfo formed in this virtual world can provide many benefits including supervising state organs and their staff to discharge their duties and exercise their powers rationally in a transparent environment to cut down corruption, playing a positive role in accelerating democratization to realize the purposes of governing by the mandate of people and working for the benefits of people. Wisely using NetInfo can also contribute the national governance modernization in both ability and system. Besides convenience, the Internet has also caused a series of problems. For instance, according to the 39th "Statistical Report of Internet Network Development in China" from China Internet Network Information Center (CNNIC), in December 2016, the number of netizens in China reached 731 million, and the popularity rate of the Internet reached 53.2%, 2.9% higher than 2015. However, according to the same report, in this year, due to garbage and fraud information caused by personal information leaking, Chinese netizens had lost totally 91.5 billion yuan, 133 yuan per capita. 9% of netizens had lost more than 1000 yuan because of all kinds of damages caused by NetInfo.<sup>[1]</sup> However, Internet fraud is just a small part of the exposed problems. According to the author, generally, problems of NetInfo can be toughly summed up as follows:

#### 1.1 Unreasonable verbal violence results from much too extensive transmission of the NetInfo

This phenomenon performs itself incisively and vividly especially in "human flesh search". As an old saying goes, "To error is human; to forgive divine"<sup>[2]</sup>. The strength of moral lies in enlightenment and self-improvement; however, human flesh search engine exposes someone's information in front of too many other people to make the person being deeply hated. Moderate moral condemnation is necessary, but that should be limited within a certain range of space and time, otherwise the living space of the person who is under search would be severely cut down and this condemnation may evolve into extreme moral kidnap. In old days when information was transferred in some traditional ways, in some extreme cases, even if someone were suffered from moral condemnation, with much less information contactee around, the person being condemned can just move away. Through reflection, the person can correct their errors and start a new life in another place. However, information can be transferred in a high speed on the Internet today, "the people being condemned" nearly have no such opportunity to escape, instead they can only face the invisible public speech pressure, namely unreasonable verbal violence.

#### 1.2 Highly development of NetInfo hard hit affiliation and structure of the property right

On the one hand, no doubt that the emergence of the Internet has brought people much more accesses to knowledge, but in the same time, serious infringements of intellectual property rights appears. A large part of NetInfo comes from copyright and sharing, typically some training lessons videos. Compared with transmitting in traditional channels, information on the Internet is much easier

to be copied and spread extensively, especially without supervision. When information is sold as goods and can be got freely, surely knowledge economy will be severely struck. On the other hand, normal netizens would wrongly regard the information they scrolling through as knowledge they have gained. The substantial harm is that it seems that the Internet has provided netizens a shortcut to be encyclopedic; however the truth is that this intellectual achievement illusion in infinite information does accelerate communication collapse between scholars and the general public.

### **1.3 The NetInfo is deluged with vulgar information**

NetInfo has variable qualities includes even a lot of vulgar information. According to data from “Research of Youth Network Damage Problems”, “48.28% of the adolescents had read pornography websites and 43.39% of them had received electronic information with seduction, instigation, threat, pornography ,violence,etc. 14.49% of them had ever been personally damaged or lost money due to blindly believing in NetInfo. The study also shows that the two main factors causing damages to teenagers are pornography and violence.”<sup>[3]</sup> Vulgar information not only damaged the good customs in society, but also negatively impact some people lacking self-disciplines, especially teenagers. Addiction to these vulgar information will affect their physical and mental health.

### **1.4 Intensified cyber crimes**

According to the work report in 2017 from the Supreme People’s Procuratorate, totally 62 important cases including “Xu Yu-yu case” (the network liars tricked the girl out of her tuition after her enrollment and the girl finally died) were under the supervision of them this year. There were 19345 cyber liars gotten approval to be arrested. Multinational telecommunication and network frauds were being cracked down severely that 116 crimes were prosecuted to be arrested in Beijing. Data in this report shows that there are many criminals using the network to commit a crime since the network is filled with much information helpful for criminals. Anonymity of the information and openness of the Internet not only facilitate the criminals but also increase the difficulty of police investigation. To effectively crack down on cyber crime, we must set up certain legal boundaries to regulate NetInfo management.

## **2 Roots of the NetInfo chaos**

Reasons of the NetInfo cesspool mainly including following factors : people’s original appearance in “natural status”, economy value of the NetInfo and the “adverse selection” phenomenon appearing in NetInfo transmission.

### **2.1 People’s original appearance in “natural status”**

Natural jurisprudence, with “natural status” as its logical starting point and prerequisite condition, enjoying an important position in western countries, had provided the constitutional thought theoretical foundation. Natural jurisprudence also transcended jurisprudence and had profound influence in the field of political philosophy<sup>[4]</sup>. As the pioneer of western political philosophy, Hobbes hold the idea that “natural status means a war status which between everyone”, and “everyone regards each other as an enemy”<sup>[5]</sup>. In contrast to Hobbes, Locke thought “natural status” is a “complete free status”, which meant “status of peace, goodwill, mutual assistance and security”<sup>[6]</sup>. Different from the above two, Rousseau regarded “natural status” as “quiet carefree primitive status all day long”, which can be explained as a self preservation that wouldn’t infringe others’ self preservation.<sup>[7]</sup>

However, here in this thesis, “natural status” is not the initial status of human talked by classical natural jurists, but means the original appearance with nearly no limitation. Since the anonymity of information in network environment, people can put all kinds of constraints in the real society aside and publish their thoughts freely in an environment where nearly no limitation exists especially in the early stage. With political democratization and richness of information, different social groups have different value systems. In the real world, due to the constraints of law and morality, pluralistic values and consciousness can hide deeply and can’t perform obviously. However, with the help of the anonymity of information on the Internet, some real characteristics of human can be expressed completely on the Internet. “Whether prostitution is illegal or not”, “should different nationalities be

united”, “should the elderly be respected”, these questions can always get positive answers from the masses in real world; however, a lot of doubts appear in the anonymous Internet world. We can find that questions which always get negative answers can get more support in the Internet world. That virtual Internet world can show more human natural characters. Discussion of some other questions can express this phenomenon more obviously and show the realest and darkest side of human. That’s why the virtual Internet makes it possible for human to show their natural status. Therefore, a lot of inappropriate information results in NetInfo chaos.

## 2.2 Values of the NetInfo

The author thinks that NetInfo enjoys triple values including political value, cultural value and economic value. NetInfo chaos is closely linked to the economic value contained in the information itself.

Generally, political value of NetInfo is mainly contained in politics, religions, etc. Information can often express one’s political pursuit and transmit one’s political consciousness. For instance, the Falungong heresy tends to use web to propagandize their theories and to brainwash and re-educate their followers, thus achieve their political aims. Information competition in political field is also fierce. Because of their own limited strength, some non-mainstream and illegal groups often get to take the advantages of convenience and secrecy of the Internet and race to stuff the Internet with their information.

NetInfo enjoys cultural value, thus the Internet has become the arena for different groups to express their value systems. Pro. Zhou Xiao-zheng hold the idea that the traditional discourse power which was hold in elites had been broken by NetInfo represented by Weibo, with which the grassroots can also be heard. In this NetInfo age, we can hear more and more from the grassroots. This also gradually changed our media ecology and generated a grassroots culture.<sup>[8]</sup> Internet formed grass-roots culture on the one hand, on the other hand, it is also influenced by the grassroots culture. For some grass-root citizens who lacks speculation, network information may mislead them, so that they will become acerbic and blind. Typically netizens as participate in the moral judgment with no bottom line in the “human flesh search”. Besides, the situation will become more complex because everyone is eager to defend himself.

Economic value means interests the publishers and transmitters get from using the information. Firstly, “information asymmetry in market” can be a prospective to explore. In the information economics, the market information is divided into three status including “complete information”, “incomplete information” and “asymmetric information”<sup>[9]</sup>. In real life, because of the person’s own limitations and the objective conditions, market with complete information can’t exist, “incomplete information” status is in fact the truth. In economic activities, different environment, varies personal experience, different ways and abilities to get information and other factors result in information asymmetry. This difference split the market parties into “information dominants” and “information underdogs”.<sup>[10]</sup> Against this background, “information dominants” will seek business profits, even improper economic profits using this information asymmetry. Secondly, “trend towards the profits” in the market economy can be used to explain this. The character of market economy to pursue interests and the “economic man hypothesis” can greatly impact economy participants to venture and maximize their own interests, sacrificing others’ and the society’s interests. The economic value of a NetInfo, to some extent means that who makes good use of the NetInfo and thus gains more network flow will enjoys a huge potential commercial value. No wonder network anchors have no bottom line to attract more fans and that employing Internet water army is so popular in China.

## 2.3 “Adverse selection” phenomenon in network information

So-called “adverse selection” means that the inferior eliminate the superior. It’s opposite to the theory of evolution, namely “survival of the fittest”. “Adverse selection” in network appears as that real information becomes vague and false information expands. Finally the real information is eliminated by the false information.

It’s difficult to discerning truth from all kinds of information in the Internet cesspool. Besides

“official medias”, “self-medias” operated by anyone can become a publisher and transfer information. Compared with the rigid information provided by official medias, information from self-medias is varies in form and much more colorful, thus attracts netizens’ attention and being transmitted. In face of the huge amounts of information increasing rapidly, it’s hard for netizens to distinguish real knowledge from the noisy stream. What’s worse, some information on the Internet may even not true. About 2016, false information about food safety was widely spread. Typically examples including plastic seaweed, plastic rice noodle and watermelon with undefined liquid. This kind of news is not only spreading widely but also believed by many people. Although on June, 2017, these pieces of news were refuted by the SFDA, the bad influence can’t be eliminated at once. In many situations, inferior information can fit the individual’s perceptual cognition better by satisfying the readers or inciting the person’s emotions. Some vulgar information represented by pornography can satisfy people’s desires at short time. That’s why this kind of information can much more easily for general public to accept. In the era of fragmentation reading, compared with comprehensible information, some more accurate information such as academic articles with lots of academic jargon, long space, complex authoring language and gaps between professions, is seldom used by the masses, except intellectuals in these fields. In this context, no wonder the “adverse elimination” phenomenon appears and results in information chaos of too much false and vulgar information.

### **3 Legal regulations on NetInfo management**

The emerging of NetInfo is helpful for economic and democracy construction, however, indulgent spreading of NetInfo will also brings a series of problems concerning private and public interests. Currently, regulations from China’s government are mainly concentrated in politics, while the intervene of private sector is somewhat insufficient. Besides that, too much regulations would also bring harm to the modernization of governance ability and governance system in China. Therefore it is necessary to manage NetInfo according to certain principles and regulations.

#### **3.1 Facilitate information to return essence**

As far as the author concerned, natural characteristics of information should including truth, beneficiary and appropriateness according to the occasion. Chaos of NetInfo results from breaking the three features. Thus government should regards the nature of information as a consideration in NetInfo management. Firstly, True information is opposite to false information. Some criminals use false information online to organize telecommunication frauds. Some other criminals even take advantage of false information to propaganda their ideology and religion thoughts, trying to endanger state security and public interests to achieve their vicious purposes. That’s why the reality of NetInfo should be the first factor to consider in the NetInfo management. Secondly, attention should be paid to the phenomenon that beneficial information is covered by useless information. Generally, useless information won’t make any direct impacts or any harms, so it won’t be enrolled in the treatment range. However, quantity of useless information will cover the useful information thus troubles netizens and reduce their ability to obtain beneficial information. Based on the above consideration, it is necessary to pay enough attention to distinguish whether the information beneficial or not and make sure that the useful information has it’s space. Finally, whether the information is appropriate to the occasion or not should be another important consideration. When a piece of message is both real and beneficial, it does not means that this kind of information won’t result in information chaos, thus we need to take into consideration that whether the network information is appropriate to the situation or not. When a state is in emergency, the government will take decisive measures to stabilize the social order. If too much inappropriate comments appear online, even though these comments are true and beneficial, as long as they would intensify the social tense or generate multiple high pressure for government to monitor the situation, these information needs to be dealt with. When it comes to management of NetInfo, the author insists that the first is to facilitate information to return nature and eliminate all the false, useless and inappropriate information.

### 3.2 Principles for government to follow in the NetInfo regulation

An indispensable prerequisite for NetInfo regulation is information disclosure. Without information transparency, government information regulation is usually unsuccessful. Typically the rumors about food safety, if information publicity of the government is enough that the government can respond to rumors in time, this large scale transmission would not happen to cheat so many people. Besides, good information disclosure can also eliminate citizens' misunderstanding and prevent them from wrongly believing in someone vicious.

Government regulation of the NetInfo should be parted as private and public sectors. "Debate about public problems should be free, healthy and complete open. Violent, spicy, sharp criticism about government and public officials can exist."<sup>[11]</sup> Jefferson once said, "if you ask me choose one from government or newspaper, I would not hesitate to choose the latter."<sup>[12]</sup> That's why when government governing, the right of the citizens to criticize government should be adequately assured and a tolerant regulated environment should be created.<sup>[13]</sup> Never use rude ways such as directly deleting posts to deal with comments concerning public affairs in an excuse of maintaining political stability. Otherwise, these procedures will hinder the democracy construction of China. As an old saying goes, it's dangerous to block off a flooded river, because once the dam is broken, lots of people will be harmed; the same logic can be applied in not allowing citizens to make comments on public affairs. When it comes to the private sector, government should focus on controlling the transmission range of the comments to leave a private space for everyone's survival. Tragedies like "human flesh search" should never happen again. In government's NetInfo regulation, big V (verified Weibo users who have more than 500,000 followers), authority websites, forums gathered a large number of netizens should be the main targets to control. Make sure that comments involving private areas won't pass necessary boundary to cause irretrievable harm.

### 3.3 Application of the principle of exemption for bona fide

In the judgment of case in which New York times sued Sullivan case, American Lord Chancellor Brennan stated that: "In the free debate, wrong statement is inevitable. These mistakes especially need to be forgiven when they appear in comments involving public power. When Huang Yanpei, a famous democracy educator in China, visited Yanan city, once stationed center of Communist Party of China, put forward the periodic law of regime, namely "a regime can perish as fast as it's emerging". He pointed out that when a regime is at its start-up, it concentrates to do everything well, however, when environment turns better day by day, with loafing spirit and insufficient talented officials, all kinds of problems will appear and result in perishing. Chairman Mao replied, a new road had been found to help us get rid of this circulation, that's democracy."<sup>[14]</sup> Facing strong supervision formed by NetInfo, government officials should try to be tolerant of mistakes in comments and confident in work. In the article "Legal Boundary of Web Opinion Supervision" written by Hu Ling, the author pointed out that as long as there is no evidence to prove that the publisher and transmitters are deliberately spread false information, even if the information is not true, they should be given the priority of privilege from public power punishment.<sup>[15]</sup> Only implementing the principle of bona fide exemption, can the constitutional right of free speech be better practiced and can the country's political civilization be promoted. Never over restrict the NetInfo involving comments on public power in the excuse of upholding a healthy and orderly Internet environment. ([http://baike.sogou.com/lemma/ShowInnerLink.htm?lemmaId=40984&ss\\_c=ssc.citiao.link](http://baike.sogou.com/lemma/ShowInnerLink.htm?lemmaId=40984&ss_c=ssc.citiao.link). [http://baike.sogou.com/lemma/ShowInnerLink.htm?lemmaId=65544676&ss\\_c=ssc.citiao.link](http://baike.sogou.com/lemma/ShowInnerLink.htm?lemmaId=65544676&ss_c=ssc.citiao.link))

### 3.4 Relief rules in NetInfo management

Lawful government construction requires to implement the principle of limited government. Prevent absolute corruption results from absolute power and make sure the power of NetInfo governing is exercised within the cage of regulations. Specifically, that means to ensure "Sunlight Administration", namely transparently governing the NetInfo, consciously accepting public supervision, abiding by legal boundary and providing ways for citizens to safeguard their legal rights.

According to Buchanan public choice theory, government officials, the same to every citizen, are

economic men. Thus they are naturally tend to make mistakes and they are possible to take advantage of information monopoly and law familiarity to exchange interests and setting foot in rent-seeking. “Once there is injury, there is remedy” is a gold principle in modern lawful country. State should attach importance to prevent problems such as abuse of power and power omission that may appear in NetInfo governing. Remedy system should be clarified thus citizens can be clear about how to get help. In order to deal with various problems in the governmental power operation, various report, complaints and administrative reconsideration system have been built at the governmental level, administrative litigation system have been built at court level. In addition, petition, as an important remedy system is also normal in all kinds of state organs at all levels. Though petition hasn’t played important role because factors including citizen’s low right consciousness and certain shortage of administrative litigation. What’s more, government in China tends to govern too many fields to some extent can also be one reason. In addition, the author insists that because of the immediacy of information, when a private think certain information has severely threaten his rights and interests, he should be given the right to ask administrations or court to take emergency measures to control information transmission. Asking for this protection should not require too much evidence. Surely the emergency measures are temporary. After certain measures had been taken to control transmission, the parties need to provide enough evidence to the administrative authority or court. If citizens have disagreements with the administrative organs’ dealing, he or she can get right remedy by administrative reconsideration, administrative litigation or other legal ways.

#### 4 Conclusions

In the Internet age, easiness for citizens to publish, transmit and get information, enriched information which citizens can get and created unlimited possibility for human to reconstruct the world and human themselves. However, in the course of facilitating economy, democracy and law construction, because of the natural characteristics of Internet, a series of problems such as deluge of false information, constantly emerging violent speeches and infringements of intellectual property rights and so on have appeared.

Values of information, “adverse selection” phenomenon in information, original appearance of human in “natural status” of human are main reasons of NetInfo chaos. In order to maintain an orderly and healthy network environment, we need to establish a set of rules in the scope of law.

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## Research on the Construction and Operation Dilemma of China's Smart Community-based Eldercare Service System

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**Abstract** Due to the increasing aging of China and all kinds of issues in the institutions for the aged, a new concept relying on Internet Plus and other technologies has emerged — smart community-based eldercare. It can effectively promote the optimal allocation of resources and the establishment and improvement of a system in which multiple network bodies participate. This paper discusses the content and platform structure of the smart community-based eldercare service system, analyzes the relevant dilemmas in the operation process of this system, puts forward improvement measures, and provides clues for the good development and innovation of smart eldercare service industry.

**Key words** Smart community-based eldercare, Service system, Internet Plus, Operational difficulties

### 1 Introduction

Family is the first essential cell of human. In the traditional values of Chinese society, influenced by filial piety philosophy, children are obliged to take care of their parents, so “family-based eldercare” is almost the only social old-age care mode. However, with the rapid development of China's socialist market economy and the increase of the aging population, the traditional “family-based eldercare” mode began to be partially replaced, while “institutional eldercare”, “community-based eldercare” and other models come into being. According to the data from National Bureau of Statistics website, as of the end of 2015, China's total population reached 1374.62 million, with the group of 65 years old and above of 14.38 million, accounting for 10.5% of the total population<sup>[1]</sup>. With large aging population and significant aging trend, China has already entered into the “aging society”, and the government is facing a serious eldercare problem. However, the practice shows that these modes have inherent defects and cannot adapt to China's national conditions, which makes them unable to meet the needs of the elderly in China, so the development is subject to constraints. The problem of eldercare is not only related to the raising and use of funds, but also to the coordination of the public resources required by the provision of old-age care services. Therefore, in addition to the need for financial support, eldercare also needs resource intervention and orchestration services. At the same time, with the development of intelligent information network technology, a new eldercare mode rises in response to the proper time and conditions—smart community-based eldercare.

### 2 Smart community-based eldercare-related concepts and technologies

#### 2.1 Concepts of smart eldercare and smart community-based eldercare system

Smart eldercare is based on the smart home for eldercare. It now has developed into a sensor network system and information platform for home-bound elders and community institution for the aged, and become a new eldercare mode providing the aged with fully intelligent services. The service system is a complete system to ensure the normal provision of services. Therefore, the smart community-based eldercare service system can be defined as a diversified service network and operation mechanism. It uses Internet of Things, Cloud Computing, Internet Plus and other technologies to input the family information about the elderly in the community and the data of caregiving institutions into the big data platform for the smart community-based eldercare, and combines the enterprises and organizations in all phases of elder care. It aims to meet the demands of the aged in the community in life, medical care, entertainment, social, healthcare, rehabilitation and other aspects, and improve their life quality. To sum up, the service system is to improve the efficiency of the allocation of eldercare resources by using intelligent approaches to enrich the life of the elderly.

#### 2.2 Technologies related to smart community-based eldercare system

(1) Internet of Things

Internet of Things (IoT) uses various sensing technologies to connect any object with the Internet for information exchange and communication, in order to achieve information, remote management control and Intellectualization<sup>[2]</sup>. In short, IoT connects all things. At present, in the field of smart eldercare, it mainly applies to all kinds of intelligent terminals, which can be used to monitor the health status of the elderly, assist them in their life, and contact with their children or nurses in real time.

#### (2) Internet Plus

“Internet Plus” is “Internet plus all traditional industries”. It uses information and communication technology and network platform, to deeply integrate the Internet with the development of traditional industries, to create a new form of economic and social development<sup>[3]</sup>. In the field of smart community-based eldercare service, Internet Plus is mainly based on network technology, and employs the computer, server, information management center, mobile terminals and other IoT devices to conduct information exchange, processing, storage and big data mining, to improve development of smart city ecology and provide the elderly with health management, medical care and other personalized services.

### **3 Construction strategies and platform structure of smart community-based eldercare service system**

#### **3.1 Construction strategy**

##### (1) Demand-centered principle

The services provided under traditional eldercare mode may be confined to life care, medical care, etc., with the main service modes of point-to-point or package to package. The eldercare market can not fully meet the needs of those who demand. Therefore, the smart community-based eldercare system aims to precisely target the need of the old-age, to reduce the accidents in their life. The demand-centered principle is the primary principle for constructing the smart community-based eldercare service system, which can enhance the service accuracy, reduce market blindness and the waste of old-age care service resources.

##### (2) Government-led development of system guarantees

The construction of smart community-based eldercare service system involves many issues, which not only needs public resources coordination and financial support, but also requires the government to set the overall development roadmap and introduce relevant supportive regulations. Moreover, in the development of industry standards and operational standards of communication network, sensing equipment and information management, the government needs to play a leading role, so as to guide the development of this service system and promote the integration and rational allocation of eldercare resources.

##### (3) Adopting market-oriented approach to encourage the participation of social forces

The construction of smart community-based eldercare service system can not rely solely on the government, and should follow the operational principles and mechanisms of the market. According to the needs of the elderly, the fittest service providers are to be survival in the same market environment. In order to win the competition the favor of the demanders, relative enterprises will compete between each other, so the consumers can get more favorable prices and quality products. At the same time, it will break the boundaries of the old-age care service industry, promote the access system of the smart community-based eldercare service market, and introduce PPP model to support social capital intervention, so as to make they invest in all kinds of smart community-based eldercare services, in order to build a more efficient smart community-based eldercare service system.

#### **3.2 Platform structure**

The provision of smart community-based eldercare services is based on the construction of a full-featured platform for these services, because the information generation, exchange and sharing are all happened at here. According to the construction experience of smart community, the smart community-based eldercare service platform mainly includes the Cloud Terminal System for Smart Community-based Eldercare, the Community Elderly Information Management Subsystem, the Resource Management and Dispatching Subsystem, the Medical Subsystem for Smart Eldercare and the Feedback Subsystem<sup>[4]</sup>. The Cloud Terminal System for Smart Community-based Eldercare

governs all the subsystems, and conduct information collection, processing, matching and deep mining. The Community Elderly Information Management Subsystem collects the basic physiological information, family information, medical records and other data of the elderly in the community so as to have an accurate understanding of relative information. The Resource Management and Dispatching Subsystem is responsible for collecting information on various resources in the community, including community service sites, community health service stations, domestic service centers, eldercare services and other resources. At the same time, it conducts timely processing and statistical analysis of the information. When the elderly in the community needs help, it can timely provide accurate matching information for them, to help to select appropriate service personnel to offer on-site service. The Medical Subsystem for Smart Eldercare can transfer the elderly health indicators from the wearable devices to the platform. The doctors can make diagnosis for the elderly by using the uploaded data, and can timely reminder them online for medical treatment or provide onsite services when finding abnormal data. The Feedback Subsystem helps to improve the quality of service and improve the enthusiasm of the service personnel. Specifically, consumers can directly score the service items and personnel after the completion of the service, and the system will directly transfer data to the platform. Then the data analysis staff will summarize and analyze these data; and feedback the problems timely to the service providers and personnel, helping them to make timely adjustments and improvements. With the construction of smart community, the smart community-based eldercare service system platform continues to develop and update, and constantly improves all functions.

#### **4 Operation dilemma of smart community-based eldercare service system**

The construction of smart community-based eldercare service system conforms to the development requirements of the information age, and can solve the shortcomings of traditional modes, such as the low return on investment and management difficulties. However, this industry is still in the exploratory stage, and faces many difficulties in the actual construction and operation process.

##### **4.1 Incomplete smart eldercare system**

As the smart eldercare mode is in the pilot and exploratory stage, there are few supportive policies related to the smart eldercare service standards, and the introduced policies lack of systematic guidance and instructions. So the standard system for smart eldercare has not formed yet, and cannot guide the smart eldercare practices. Due to the lack of unified standards, in the operation process of smart eldercare service system, all participants have different criteria from industry to providers, leading to disunity in service types and irregularity in service quality. This will cause the demanders for smart eldercare service—the elderly and their families—to feel uneasy. With the rapid influx of social capital into the smart eldercare market, incomplete system, absence of supervision and other factors will greatly limit the healthy operation and development of this market in China. As an example, in 2015, the Chengdu Municipal Government issued a “Chengdu Municipal Government’s Views on Accelerating the Innovative Development of Eldercare Industry”, and proposed to introduce 14 eldercare industry standards in the next three years. But there is no clear and specific supportive policies related to the operation of the smart eldercare service system. The “Internet plus eldercare” modes implemented in surrounding areas are almost based on the standards and guidelines established in the exploratory stage. These modes are specific to their own conditions, and do not have universal applicability. These have restricted the rapid development of the smart community-based eldercare industry.

##### **4.2 Low informatization and intelligence level of community**

The smart community-based eldercare service system mainly takes the community as the service scope, and its infrastructure depends on the construction of information technology facilities in the community. Therefore, the informatization and intelligence level of community directly determines the development of the smart community-based eldercare service system. In general, the cities in economically developed areas are of high intelligence level, so does the communities in these cities, and vice versa. Therefore, as the basic unit of a smart city, the smart communities are different in the degree of informatization, and the compatibility between them are really poor, which are not conducive to the development of the smart community-based eldercare service system. For example, as early as

2012, Jinjiang District of Chengdu city has deployed the “96619”, “Elderly Pass” and other intelligent eldercare service platforms to provide comprehensive services for the elderly. At the same time, smart community service stations are built in the communities, connecting the traditional eldercare modes with the intelligent ones, to construct “fenceless” nursing homes<sup>[5]</sup>. However, due to funding and other problems, some communities have not enough money and energy to develop the smart community-based eldercare system, resulting in low level of community intelligence and deficient intelligent eldercare services.

#### **4.3 Silver Digital Divide**

“Silver Digital Divide” refers to the digital divide existing in the elderly population, since they are unfamiliar with information technology for the reason of old age<sup>[6]</sup>. The elderly are alienated from the network, resulting in the lack of information and unfamiliar and untrusted with the network. While the operation of smart community-based eldercare services greatly relies on the rapid development of information network technology and related devices, so “Silver Digital Divide” undoubtedly becomes a stumbling block in the implementation process of smart eldercare. The main reason for “Silver Digital Divide” is the decline in the physical quality, cognitive ability, learning ability and other aspects of the elderly. Most of the elderly usually use traditional approaches to search necessary information rather than the Internet, while the young people just do the opposite. Because intelligent devices are complicated to operate and difficult to use, many elderly people ultimately give up these devices, which seriously affect their recognition and use of the devices and products related to smart eldercare services.

#### **4.4 Disconnection between supply and demand of smart eldercare services**

In the operation process, a major resistance for the smart community-based eldercare service system is imbalance between the supply and demand of relative services provided by the smart community-based eldercare market. With the increase in the ability to pay for the eldercare services, the elderly group puts forward higher requirements for the types and quality of smart eldercare services. According to a survey of smart service platforms for the elderly, in the aspect of services types from the smart community-based eldercare service system, daily care services are very rich. In reality, in addition to maintenance and housekeeping services, the demand for the other services is weak. The established smart eldercare service platforms attach great importance to the supply of health care services, but the reality is the elderly take treatment as the principal method to handle health problems, and their prevention awareness is relatively thin with insufficient demand. At the same time, influenced by technical restrictions, emergency response services cannot keep up demand<sup>[7]</sup>. Thus, there is a disconnection between the supply and demand of smart eldercare services; some services are oversupplied, while others are short of demand.

### **5 Countermeasures and suggestions**

#### **5.1 Actively promoting the construction of smart eldercare system and standardizing the top-level design**

Smart community-based eldercare service is a kind of “hybrid product”, which requires the participation of social forces and the government to play a guiding role in the construction and development process. The government and relevant departments should actively promote the construction of smart eldercare system, introduce the access standards for enterprises in the smart eldercare service industry, and establish a full set of operating standards and corporate supervision and evaluation standards. Specifically, the construction of smart community-based eldercare service system should focus on the unity of standards for smart community-based eldercare service industry, to provide the same and actionable standards in the whole process this service system. Relevant departments should also study and issue loose fiscal and tax incentives to support private capital investment to promote the development of smart eldercare service market. Top-level design is a systemic problem. Standardizing the top-level design of the smart community-based eldercare service system is to develop the operation rules and process standards for this service system from top-down and overall view. For the enterprises providing smart eldercare services, the government should strengthen the qualification review to ensure that enterprises provide legitimate and reasonable

eldercare services. At the same, it should break the “information silos” to enhance the servitization of public resources and the sharing of government resources, so that data resources can play the inherent sharing, circulation and other functions. For example, the information managed by many functional departments will be involved eldercare, such as the police stations, human resources and social security bureaus. Therefore, the sharing of data resources across departments can greatly benefit the construction of the smart community-based eldercare service system.

### **5.2 Strengthening the informatization and intelligence of smart communities**

The basic hardware facilities for community informatization constitute the material foundation of smart community-based eldercare service system, and backbone for the development of this system. In china, areas are different in the level of economic development and information infrastructure construction, which result in the development difference of various smart communities. Therefore, in order to ensure the smooth operation of the smart community-based eldercare service system, governments at all levels should pay attention to the intelligence and informatization construction of grassroots communities. Specific measures include the followings: First, the government should scientifically plan the supporting facilities required by the smart community-based eldercare service system, reasonably arrange intelligent devices related to smart eldercare services, and make sure all facilities can be recycled to improve their usage within a specified range. Second, vigorously promote the construction of community communication network facilities, to properly connect the city’s intelligent construction projects<sup>[8]</sup>, and strengthen the construction of community WLAN, WIFI, 4G and other wireless networks. Third, fully upgrade the intelligent service system in smart communities, such as the online payment of water, electricity and gas fees. At the same time, the government should build intelligent management system in communities, to sensor, monitor and remotely control the entrance and exit of vehicle, lighting, water, electricity, gas and others. For the elderly and other weak groups in the community, the government should provide positioning and intelligent care services. All these measures aim to provide a safe and convenient living environment for the elderly and other residents in the community.

### **5.3 Organizing IT knowledge education for the elderly to narrow Silver Digital Divide**

The fundamental way to eliminate “Silver Digital Divide” is to carry out basic IT knowledge educational activities for the elderly, to promote the development of smart eldercare industry. The information technology education activities for the elderly should been taken as a stage of carrying out the smart community-based eldercare services. The government can take the lead in organizing a training session about network basics for the elderly, to help them master basic network knowledge and steps of using the Internet, and get used to using the web to search for information. In the development of information and communications products required by smart eldercare, related high-tech enterprises should consider the learning and cognitive characteristics of the aged, and focus on the simplicity of technologies and operational convenience of products, so as to make easy-to-use products for the elderly. In general, the elderly pay more attention to the operation convenience of products, such as the use of larger fonts, rather than the functions. In addition, some website platforms can push information that interests the elderly, to encourage them to use the Internet and smart eldercare products.

### **5.4 Integrating smart eldercare big data to cope with unbalance between supply and demand**

Smart eldercare big data refers to the massive data collected by the data platform. These scattered data is stored in a systematic database through professions methods and technologies. After analyzed, the big data can provide precise service items for consumers, and help enterprises to conduct precision marketing<sup>[8]</sup>. However, in practices, a failure to understand the values in data and mining costs results in unbalance between supply and demand of smart eldercare services. The reason is the collected data is not analyzed and mined in combination with the actual life of the elderly. Therefore, this unbalance should be resolved by building a big data eco-chain of smart eldercare covering data collection, storage, analysis and application. This approach can help accurately identify the total supply and demand of smart eldercare services, prevent the related services from centering on a certain category and neglecting other requirements, guide the development the smart community-based eldercare service industry, facilitate the integration and rational allocation of eldercare resources, and promote an effective interconnection between supply and demand information, to enable the service providing

organizations and enterprises to adjust business scope in a timely manner.

## 6 Conclusions

Smart community-based eldercare is a new concept that has emerged with the increasing aging of China and all kinds of issues in the institutions for the aged. It can relieve the adverse impact of aging society of China. In addition, the construction of the smart community-based eldercare service system is a meaningful exploration of combing the “Internet Plus” and public service fields. However, this mode is still in its initial stage, and faces some problems in construction and operation, which impedes its healthy and rapid development. In the construction of the smart community-based eldercare service system, the government should play a leading role and formulate a uniform plan, enterprises should actively participate in co-innovation, and multiple social subjects should join in collaboration. Measures, including improving the smart community-based eldercare service system, strengthening the informatization and intelligence of smart communities, and integrating big data on smart eldercare, should be taken to form a healthy service system, that can provide real-time, convenient, interconnected and networked smart eldercare services, so as to provide clues for the good development and innovation of the smart eldercare service industry.

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## Research on the Dilemmas and Countermeasures of the Government Protecting Personal Information under the Internet Environment \*

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**Abstract** While the rapid development of Internet brings the convenience to mankind, it poses a huge challenge to the safety of personal information. The government plays an irreplaceable role in protecting personal information. Based on the analysis of the concept of personal information and the current situation of personal information infringed under the Internet environment in China, there are some unfavorable factors which make governments face great difficulties in protecting personal information, including the lack of legal protection of personal information, backward information technology, lack of self-discipline among the industry members, insufficient supervision, users' lack of personal information protection consciousness and so on. Therefore, the government can reform in several ways such as perfecting the relevant laws and regulations, accelerating the development of technology and innovation, establishing the self-discipline organizations and enacting self-discipline norms, strengthening the law-enforcing supervision and actively promoting the personal information security education. Finally, The government will realize the purpose of establishing an effective and standardized safety protection mechanism for personal information.

**Key words** Personal information, Network security, Information protection, Internet

### 1 Introduction

With the rapid development of Big Data, Cloud Computing and Mobile Internet, personal information has been massively digitized and commercialized nowadays, and the economic value of personal information has become increasingly prominent. Criminal activities that someone steals or defrauds others' private property by means of the Internet platform to access to extensive personal information have occurred now and then. In June 2017, blackmail software invaded tens of thousands of network systems in 64 countries, requiring victims to pay a certain amount of money to unlock files, but the software controller's real intention was to destroy the target system. Although *Cyber Security Law of the People's Republic of China* was formally enforced on June 1st, 2017, it still failed to save thousands of computers in China. This shows it is not enough to only rely on legislation to protect personal information. Facing the increasingly rampant criminal activities under the Internet, the government must enhance the protection and take appropriate measures in order to get adequate protection of personal information.

### 2 Overview of personal information

#### 2.1 Several points of view on personal information

What is personal information? There is a slight difference between different scholars. Qi Ai-min deems personal information (information relating to individuals) is the sum of all the information that can be identified, including a person's physical, psychological, intellectual, individual, social, economic, cultural, family information and so on (Qi Ai-min, 2008<sup>[1]</sup>). Wang Li-ming believes that personal information which is a recognizable symbol system that reflects individual characteristics is associated with a particular individual, including all aspects of personal identity, work, family, health, property and other information. From this definition, it is more about personality and privacy (Wang Li-ming, 2013<sup>[2]</sup>). It is clear that the former definition is broader and emphasizes any information that is relevant to individuals should be embraced in the personal information category.

China's first national standard of personal information protection—*Personal Information*

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*Protection Guidelines on Information Security Technology Public and Commercial Services Information System* defines personal information as a computer data that can be processed by the information system, associated with a particular natural person, and able to identify the specific natural person individually or by combining with other information. Personal information is divided into personal sensitive information, which refers to the personal information that has adverse effects on identifying individual information subject once it is revealed, and personal general information. On June 1, 2017 *Cyber Security Law of the People's Republic of China* was formally enforced. It defines personal information as the information that can be recorded in an electronic way or otherwise and used to identify individual natural persons individually or in conjunction with other information, including but not limited to the name of a natural person, date of birth, ID number, personal biometric information, address, telephone number, etc. It covers all information related to the person.

Personal information is often confused with personal data. Article 2 of *The European Data Protection Directive* defines personal data as “any information relating to natural persons that has been identified or recognized”, actually in line with the definition of the scope of personal information in *Cyber Security Law of the People's Republic of China*. Personal data is formed by data processing of personal information, so personal data is the material carrier of personal information. In essence, there is no substantial difference between the two concepts.

## **2.2 Characteristics of personal information**

Although there is no unified understanding of personal information at present, from the concept of personal information given by the academic and practical circles, personal information shows the following characteristics: (1) Identifiability: Personal information relates to individuals, and it can correspond to specific individuals and reflect individual characteristics; (2) Diversity: The content of personal information is diverse that includes not only the pure personal information, such as name, gender, telephone number, ID number, address, work, property and so on, but also the personal privacy information, such as physiology, psychology, economy, politics, family, etc; (3) Personal nature: The subject of personal information is a specific natural person. Personal information is dependent on a specific individual and is closely related to the individual. The means of obtaining personal information do not affect the attribute of personal information, no matter how the means are legal or illegal.

Under the Internet environment, personal information appears in digital and electronic form and is spread by means of internet carrier. With the emergence and development of Big Data and Cloud Computing, the collection and utilization of personal information are more convenient and efficient. The economic and social values of personal information are outstanding. How to prevent the improper use of personal information in the Internet environment and from obtaining unjust interest is the key concern of personal information protection.

## **3 Analysis of the dilemmas and causes of personal information protection by the Chinese government under the Internet environment**

With the wide use of Big Data and Cloud Computing, and the rapid progress of mobile communications, Micro-blog, WeChat and other self propagation platforms, the difficulties of network security protection are increased. The in-depth development of online payment, virtual currency and Internet finance can lead to more online frauds, hacking, and Trojans (Ge Yue-ying, 2014<sup>[3]</sup>). According to the states quo of personal information protection in China, the government is confronted with the following predicaments in protecting personal information.

### **3.1 Deficiency of a unified and systematic personal information protection law**

At this stage, there is no special legislation for personal information protection in China, but the related provisions are scattered among all kinds of laws and regulations. From the constitutional perspective, *the Constitution of the People's Republic of China* indirectly embodies the protection of personal information in some articles. For example, although there is no specific concept of personal information in Constitution, the citizen's personal residence, freedom of communication and the protection of communication secrets are stipulated by article 39 and article 40. *Chinese Criminal Law (Amendment nine)* integrates “Crime of selling, illegally providing personal information of citizens”

and “Crime of illegally obtaining personal information of citizens” into “Crime of infringing personal information of citizens”, and one of article No. 253 of the Criminal law has been amended to enlarge the scope of criminal subject and aggravate the statutory punishment. On May 9, 2017, the Supreme People’s court and the Supreme People’s Procuratorate jointly issued *the Interpretation of the Supreme People’s Court and the Supreme People’s Procuratorate on Several Issues concerning the application of law in handling criminal cases of infringing personal information of citizens*, which provides more specific standards for conviction and sentence of citizens’ personal information crimes and further strengthens the protection of personal information. Nevertheless, problems such as plot identification and subject scope remain unsolved. Although the Article 111st of *General Principles of Civil Law (2017)* has introduced the concept of personal information, there is no definite meaning and scope of personal information. And the provisions for the protection and relief measures of personal information are relatively general. *Cyber Security Law of the People’s Republic of China*, implemented on June 1, provides specific guidelines for the management of network security and the protection of personal information. However, most of provisions are principled and lack of supporting laws and regulations. From the perspective of the administrative law, *Ordinance of the Government of the People’s Republic of China on the Publicity of Information* stipulates that the administrative organ shall not arbitrarily disclose the government information concerning personal privacy, but it still not render further definition on personal privacy.

There are many laws and regulations are expressly provided for personal information protection, including *the Tort Liability Law of the People’s Republic of China*, *the Resident Identity Cards Law of the People’s Republic of China*, *Measures for the Implementation of the Interim Provisions on the administration of the international network of computer information networks in People’s Republic of China*, *Measures for the administration of Internet e-mail services* and so forth. However, these provisions are so fragmented that cannot provide enough relief measures and channels. Therefore, it is difficult for the victims to defend their rights.

In short, there are several laws and regulations concerning the protection of personal information in China, but the related provisions in the civil law, administrative law and criminal law are irrelevant to each other in content. The fragmented law makes the operational difficulty in judicial practice, which leads to the lack of public confidence in the protection of personal information under the Internet and efficient supervision.

### **3.2 The weak external defense capability of the government’s computer network which stores personal information**

With the disappearance of the traditional Internet boundary, the popularity of smart phones, tablet computers and other display terminals, and the stimulation of interest from the Internet black industry chain, the illegal theft of personal information data is increasingly serious. Because of viruses, Trojans, worms and other malicious software and programs constantly updated, hackers can directly steal information and data from users and databases of web servers. When plenty of personal information in the electronic form is stored by computers and other electric devices nowadays, the consequences will be disastrous once the network is invaded. For example, when Chinese immune planning system network was invaded maliciously, 200 thousand children’s information was stolen and sold publicly on the Internet. In 2016, more than 1800 cases of personal information were detected by public security organs, and more than 30 billion citizens’ personal information was seized. 16,758 websites have been tampered with in China. Among them, the number of government websites being tampered with was 467. It is a significant decrease of 48% from the 898 in 2015. In 2016, 82,072 sites have been implanted backdoor, including 2361 government websites which account for 2.9% of the domestic backdoor sites (National Internet Emergency Center, 2017<sup>[4]</sup>).

Chinese government organs’ computer network frequently encounters attacks, which is closely related to the lagging security management. For one thing, although Microsoft continues to promote more secure operating systems such as WINDOWS 7 and WINDOWS 10, Chinese government agency is widely using XP systems because of the problems such as procurement and matching software. The computer system version lags behind many loopholes, which easily lead to network security accident (Wang Xia, 2017<sup>[5]</sup>). For another, due to the general lack of awareness of the network security and the

enormous workload and cost of upgrading the security system, the Government's database system for storing personal information could not be fixed in time. Simultaneously, the mutation and update of virus and the enhancement of the network hacker's intrusion technical means make the external attack ability to government websites strengthened. The government network security system which is not upgraded is even more vulnerable.

### **3.3 Lack of effective internal supervision and management mechanism**

In 2016, the Ministry of Public Security launched a special action against the crime of infringement on citizens' personal information. The public security organs have investigated 1886 cases of infringement of citizens' personal information and arrested 4261 criminal suspects, 391 industry insiders who work in bank, education, industry and commerce, telecommunication service, express, securities, e-commerce site, etc and 98 hackers included (Office of the Central Leading Group for Cyberspace Affairs, 2017<sup>[6]</sup>). The crime of disclosing personal information from government personnel has also occurred sometimes (Liu Ming-xiao, 2017<sup>[7]</sup>). Under the Internet environment, the information grows explosively and personal information has been digitized and industrialized massively. The information flow has increasingly broken through the geographical and industrial restrictions, and the economic value of personal information has become increasingly prominent. Because industry insiders and government personnel are driven by the interests, such incidents often occur as buying personal information through various ways and selling personal information in collusion with others. For the non-standard internal management and the lack of effective supervision and management mechanism, it is difficult to discover the behaviors of stealing and revealing customers' information by internal or governmental employees in time.

### **3.4 Deficiency of industry self-discipline norms and effective government supervision**

The lack of self-discipline norms in the industry makes it impossible for the industry body to supervise each other, and can't prevent personal information from being leaked caused by personal data sharing in advance. Under the current administrative network information management system, many administrative departments all have regulatory functions, which can easily lead to regulatory slack and omission. In order to reduce the supervision risk and workload, mutual prevarication among departments has occurred now and again. Furthermore, the ways of infringing personal information are complex and diverse under the Internet environment, and personal information protection is always difficult. Some cross-encroachment behaviors require multiple departments to manage together, adding to the complexity of management. *Public information security technology and commercial service information system of personal information protection guidelines (2013)*, has been implemented, but it is only a directive technical document without a binding constraint. Its application depends on the voluntary cooperation of the relevant industry entities (Shi Wei-min, 2013<sup>[8]</sup>). The administrative departments lack the standard of management and their administrative supervision power is limited, so the regulation is inefficient.

### **3.5 The governments and users lack of the awareness of personal information protection**

In real life, many users many users have no concept of their own personal information and do not clear about its scope and value, so they often disclose unconsciously personal information of themselves and others easily. For instance, when the users register on the Internet, they are required to fill in their name, age, occupation, telephone number, ID number and so on, and most users will fill it out faithfully. In the interactive process of We-Chat, Micro-blog, QQ and other social platforms, people unconsciously disclose their or others' name, occupation and other personal information through messages and comments. Such behavior may cause some potential security risks of personal information.

The government information openness makes the government function more transparent, and helps the public to understand the government's work, and realizes the public's right to know. Nevertheless, the government, which owns 80% of the total social information resources (Qiao Na and Li Peng, 2011<sup>[9]</sup>), has a lack of personal information protection awareness in the public information process, which results in improper disclosure of personal information. Once the personal information is leaked, it is hard to stop the spread of information under the Internet environment. The Users and the government inappropriately disclose personal information, which provides the criminals with the

opportunities to steal information.

#### **4 Countermeasures for the government's personal information protection under the Internet environment**

In order to solve the aforementioned problems, the government can start from the following aspects, targeted to increase the protection efforts to minimize the security of personal information.

##### **4.1 Enacting personal information protection law and improving the necessary measures for the application and enforcement of the law**

With the advance of information technology, the problems of personal information infringed have become more and more serious. The need for personal information protection legislation is becoming increasingly urgent. Chinese government should promulgate the personal information protection law as soon as possible and make a comprehensive provision on personal information protection.

At the present stage, under the circumstances of lacking special legislation for personal information protection, the State Council should speed up the formulation of administrative regulations aimed at protecting personal information and standardize the use of personal information on the Internet. These contents such as the meaning and scope of personal information, the governments' specific regulatory authorities and responsibilities, the users' personal information security standards, the victims' relief ways and channels, the offenders' specific punishment measures and so on should be clearly defined. Meanwhile, we should adhere to the two principles in the process of legislation. The first principle is protecting personal information and promoting rational information circulation. In the Internet era of rapid development of Big Data and Cloud Computing, the value of information is growingly outstanding. Reasonable flow of information can not only bring huge economic benefits for the society, but also provide great convenience for people's life. Therefore, we should also promote the rational circulation of information. The Second principle is called as balance principle. Government legislation should balance the interests of all parties, which makes the personal information benefit the society under the legitimate use of enterprises.

We should intensify the crackdown on new types of cyber crimes, implement the auxiliary measures for the application and enforcement of laws, increase the costs of fighting crimes, and reduce the motivation to steal personal information. Those who have disclosed and abused personal information shall be punished according to law. The government officials shall try their best to recover the losses of the victims.

##### **4.2 Strengthening the comprehensive management of the government and establishing a government-led social common governance model**

In addition to the governments' own collection, the Internet service industries will be able to reasonably access to the relevant users' personal information by their own services. It is unrealistic to depend solely on government regulation to protect personal information. The integration of key industries must rely on their own security capabilities and share their security measures of personal information data as well. Finally, it is effective to establish a perfect and reliable social model to prevent personal information from being stolen and misappropriated.

To achieve this goal, the government should strengthen the construction of key information infrastructure, speed up the establishment of the information technology system of China's independent research, improve the security of government computer network, train advanced information technology talents, and develop the core technology in the field of network information. At the same time, the government should also guide the Internet industry to establish a set of unified security management standards, reduce unnecessary collection and utilization of personal information, set up a punishment mechanism and increase the punishment within the industry. To promote the healthy development of the industry, we can take "warning" "publicity" "Stop" "blacklist" and other measures to carry out comprehensive punishment, so that the manufacturers who have such kind of problems could lose their user market and have no foothold in the entire industry (Shi Wei-ming, 2013<sup>[10]</sup>).

#### **4.3 Setting up unified industry standards and industry self-regulation standards, and establishing classified protection system**

Industry self-regulation organization is a kind of social organization that coordinates business activities between enterprises and shares information. Since there is no special legislation on personal information protection in China, it is necessary to establish a self-regulatory organization which supervises every enterprise. On the basis of formulating the self-discipline organization standards related to the personal information protection, the government should actively guide enterprises to set up self-discipline organizations, and raise their consciousness of personal information protection. According to the amount of personal information obtained, the government can classify different industries and advocates different protection measures for enterprises of different scales. Especially, the Internet enterprises who have great influence on society and have enormous personal information, must adopt the highest-level of security protection systems including the safe technology protection system and the risk-taking system.

#### **4.4 Actively promoting personal information security education and raising the people's network literacy and security awareness**

The improvement of personal information protection consciousness is the key to prevent the occurrence of all kinds of personal information infringement events. For enhancing the Internet users' risk awareness, it is essential to promote personal information security education. Therefore, the government can start from the following aspects.

Firstly, the governments should encourage middle schools and universities to add some personal information protection contents in the syllabus and invite professionals to carry out related lectures, so as to improve students' awareness of personal information protection in the Internet age. Secondly, governments should set up special some personal information protection service agencies who conduct regular publicity and education in the community to provide advisory services for the public, Thirdly, The Government regularly conducts personal information security education and train the internal staff who come from government agencies, enterprises and institutions, social organizations, etc. Lastly, the government should use social forces to establish personal information protection team, issue the relevant laws and regulations, newsletters and warm tips by Micro-blog, WeChat, online broadcast platform and other popular tools, and enhance the people's awareness of the rights and information protection by aid of making some risk accidents known to public.

### **5 Conclusions**

How to protect personal information effectively under the Internet environment is a problem that needs to be explored constantly in practice. At this stage, the government is confronted with many difficulties in the process of protecting the personal information security, such as the lack of relevant laws and personal information protection consciousness, the backwardness of the government agency computer network security technology, the insufficiency of supervision and industry self-discipline. This article claims that the laws and regulations of personal information protection should be perfected to enable personal information protection measures to be operational. The government should guide enterprises to establish industry associations, create a good atmosphere to protect personal information security, and build a harmonious network environment. Meanwhile, the government should also change the existing management model to realize the purpose of effectively protecting personal information.

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## A Study on the Psychological Mechanism of People's Trust in Government under Perceived Risk

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**Abstract** When arousing fear and anxiety to some public issues with potential threats, the audience will be under perceived risk, and hope that the authorities (government, experts) take some actions to protecting them. After the government conforming to people and proposing solutions, the audience will have more confidence in the government or even rely on it, thus the government credibility was enhanced. But if the government take actions reversely, or do nothing at this critical moment, it will have a destructive impact on government credibility. Here, we launched two studies. In study 1 we described threatening events in three different perspectives to manipulate the type of threats in experiments/control groups, found that significant concerns and expectation to government of subjects were inspired by threatening information. Study 2 confirmed that subjects in risk perception would trust the government more after seeing the government take measures in the way they want, thus the government credibility was enhanced step by step. The general discussion part include analyzes of the relationship between mass media, the government and the public, and some suggestions for the government in promoting new issues. Conclusion has been posted at the last second part. Finally, limitations of this study and the prospect of further research are put forward.

**Key words** Perceived risk, Government action, Government credibility, Mass media.

### 1 Introduction

Karl Hawford has found that fear and anxiety caused by fear appeal is the main characteristic of most mass media when he study communication process.<sup>[1]</sup> Le Bon(1894)has shown in his study of public psychology that the emotional characteristics of the group are exaggerated and simple, and that emotion will be strengthened in the heterogeneous groups due to the disappearance of the responsibility<sup>[2]</sup>. So when the fear of the audience arousing, this sentiment will spread in the group and rapidly developed. However, people don't always like feelings of in tension, dissonance, they want to reduce their anxiety. Consequently, they will resort to authority. At this point, the communication and coping strategies of government in the face of crisis events play a psychological orientation role to the masses. Wrong communication target and decision making mistakes may lead to a loss of people and even the risk of mass revolt, while the correct communication strategy and timely response to people's expectancy contribute to the public's confidence in the leadership, and it will greatly contribute to the government credibility once and for all.

In recent years, debates on genetically modified topics has been constant, behind these debates, people are looking forward to the government's reaction, and hope it would make a difference. Therefore, we chose the content of news that report transgenic technology as the experimental material to verify the corresponding logical chain assumptions of mass communication and the government's psychological impact on the audience in potential threat events.

### 2 Literature review and hypothesis

#### 2.1 Perceived risk

Before getting to know the meaning of risk perception, it is necessary to define the concept of risk, which indicates the uncertainty of the event. Uncertainty lead to people's feeling of the potential threat of an event, so they generate a perception of risk. This concept was originally derived from a research of Harvard University's Bauer (1960) in the study of consumer behavior. Perception of risk (Perceived-Risk), which is a concept of attitudes and intuitive judgments to risk, including the general assessment and response to risk<sup>[3]</sup>. According to Giddens' theory of risk society, he divides the risk into external risk and man-made risk<sup>[4]</sup>. External risk refers to the natural, traditional type of risk, man-made risk refers to the risk accompany with human activities along with social development. So

technical risk is the first dimension of the independent variable 1 of this study; human-made risk is the second dimension. In addition, we chose some neutral statements for the third dimension/control group.

## 2.2 Persuasive communication

Persuasion Communication refers to the mass media exert influence on the audience and lead to audience attitude change. In the reality social, people try to use mass media affect public's attitude exist in variety fields, including political, commercial, social, religious and so on. Among these, many media workers often use fear information to incite the anxiety of the audience, so that people change their behavior because of fear<sup>[5]</sup>. Moreover, even facing information about affairs in their unfamiliar fields that just imply threat, not really demonstrate specific risk, people will get anxious and in tension. However, people are too busy to investigate these new field message, so they tend to put their psychological control over to the authority (experts, media, government). In this part, the authorities played a vital role, and even control the trend of the public's psychological change.

## 2.3 Expectancy of government action

According to Shepherd's(2012) research of new energy problems<sup>[6]</sup> in the study of people's response to uncertainty events and Leon Festinger's (1957) Cognitive Dissonance theory, after the awareness of risk in the face of fear information, people will turn their inner fear and anxiety to exterior authorities so that they will feel more safety. In other words, in order to reduce Cognitive Dissonance and anxiety, public always resort to government or expert, that is expectations of government action<sup>[7]</sup>. So, we got a premise that perception of risk, will arouses public's expectations of government action that can release their tension. In our study, it's been put as a dependent variable, which influenced by the government's action.

## 2.4 Government credibility

Yang Jin-mu pointed out that the credibility of the government represents how much people trust the government and the confidence on it<sup>[8]</sup>. If timely measures taken in line with the hope of the public after they have arisen expectations to the government, people's anxiety will be calmed, so dose the government credibility will naturally get higher. Furthermore, according to Skinner's reinforcement theory, the government's positive response to public can achieve psychological reinforce effect, and vice ver sa. In view of this, we show different news headlines (the Chinese government's restriction / promotion of transgenic technology) to subjects to achieve the purpose of manipulating the independent variables 2—the government actions, and get dependent variable e-government credibility afterward by a self-report scale. According to the discussion above, we presume that risk-perceived people would score high in government credibility by seeing government prohibit transgenic technology than that is by whom seeing threats being promoted.

## 2.5 Hypothesis

(1) hypothesis 1: Risk-perceived people will have expectations of the government to control transgenic technology.

(2) hypothesis 2: Once perceiving risk, people see the government restricts on transgenic technology would score higher in the government credibility than that of people saw government promote it.

## 3 Study

### 3.1 Study 1

The purpose of research 1 is to confirm hypothesis 1: people who are exposed to risk perception will have expectations of the government and want the government to limit transgenic technology. Therefore, we used expert evaluation method to select content in news report as experimental materials in three different types (technical risk / human-made risk / neutral material) to serve as the three dimensions of the independent variable 1, and adopted inter-group design. The dependent variables are measured by two questions follow the material, which assess their concerns about the safety of transgenic technology or food and the expectations to government regulation.

#### 3.1.1 Method

The subjects of this experiment are undergraduate and graduate students, doctoral students in an



university in Southwest China, with a total number of 366 (female = 119, male = 247).

The first part of the questionnaire is instructions that hide true purpose of the experiment and promises to keep the detailed results confidential. The second part begins with the demographic data, and different materials followed by two questions. The first question used to test the variable 1: “Perceived Risk”, take a 4-point score (1 = no worries, 4 = Worried very much) form. Another question is the assessment indicator of variable 2: “expectancy of government action”, the lower the score is, the more people hope to government prohibit the use of genetically modified technologies or foods. In order to cover up the real purpose of the experiment, there are filling questions set, too.

### 3.1.2 Result and discussion

Firstly, we used one-way ANOVA to analyze the risk perception of subjects. It was found that there were significant differences in Perceived Risk score among groups ( $F(2,363) = 11.483, p < 0.001$ ). Furthermore, we found that the score of Perceived Risk in neutral group was significantly lower than that of the human-made risk group ( $d = 0.327, p < 0.001$ ) and the technical risk group ( $d = 0.456, p < 0.001$ ) by using method of LSD PostHoc Multiple Comparisons. It means that the selecting of experimental material has reached the goal of manipulating subjects to generate risk cognition. The independent variables are successfully operated. Table 1 and Table 2 show the descriptive statistics and the PostHoc multiple comparison results.

Combining the result of human-made risk and technical risk into one and named it in “risk group”, we found that subjects in risk and neutral group showed different degree of support to Chinese government’s prohibition of transgenic technology or food ( $F(1,362) = 5.860, p < 0.05$ ), ie, it has been seen significant difference in “expectancy of government action” between two groups. The following table 3 shows the descriptive statistics of the risk group and the neutral group’s “expectancy of government action” score, and the lower the score, the more hope to forbid.

**Table 1 Descriptive statistics of the results of Perceived Risk among groups**

	N	M	SD
Human-made risk	118	2.47	0.770
Technical risk group	126	2.60	0.760
Neutral/control group	122	2.15	0.779
Total	366	2.41	0.791

**Table 2 PostHoc multiple comparison of Perceived Risk in experimental and control groups**

	Human-made risk	technical risk group	Neutral/control group
Human-made risk	-	-0.129	0.327*
Technical risk group	0.129	-	0.456*
Neutral/control group	-0.327*	-0.456*	-

The results shows that in face of threatening information about genetically modified technologies or foods, people start to be fear and anxious, and hope to see the government take measures to manage or even take control of genetically modified foods. This confirmed the hypothesis of study 1—people who have generated risk perception will have expectations of the government, hoping that the government will control things that bring about threat. Then what will happen after successfully activate people’s anxiety and expectations? What measures dose the government take will help to gain people’s trust? We conduct study 2 to answer these questions.

**Table 3 Descriptive statistics of “expectancy of government action” in risk and control groups**

	N	M	SD
Risk group	242	3.45	1.014
Neutral/control group	122	3.70	0.850
Total	364	3.53	0.969

## 3.2 Study 2

In study 1, subjects in the human-made risk group and the technical risk group were fear and

anxious, we continue to work on this two parts of subjects in study 2. We showed different type of news headlines to subjects, which demonstrate either the Chinese government restricted genetically modified foods, or promoted them, so we get independent variable 2: government action. And then ask them to assess how they were satisfied with the actions of the government that mentioned in those headlines. So we can get score of dependent variable 3: satisfaction degree of the government action. Finally, let the subjects score on their trust to the government, that is, variable 4: government credibility. The purpose of this study is to confirm hypothesis 2—effect of the government’s action on the government credibility are as follow: government credibility when limiting transgenic > government credibility when promoting transgenic.

### 3.2.1 Method

A total of 244 subjects (165 males and 79 females) were participated in study 2, They are subjects in technical risk group and human-made risk group in study 1.

After showing each headline, there was a question that ask the subjects to assess their satisfaction degree with it. The questions are in a form of the Likert 6-point scale(1 = very dissatisfied, 6 = very satisfied), and that’s the dependent variable 3. The variable 4:government credibility was assessed by a specific scale,also in Likert 6-point scale form(1 = disagree, 6 = agree),the higher the score is, the higher the degree of government credibility. The scale of government credibility have a total of seven items, which own a good reliability, $\alpha = 0.846$ .

### 3.2.2 Result and discussion

#### Satisfaction degree of the government

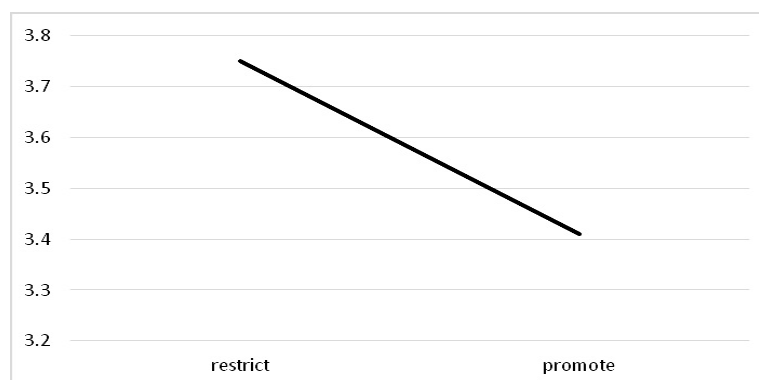
The results showed that there was a significant difference between the promote group and the restrict group ( $F(1,361) = 177.16, p < 0.001$ ). Satisfaction was significantly higher in restrict group than that is in the promote group. Table 4 shows the descriptive statistic of the satisfaction degree of the government in two groups.

**Table 4** Satisfaction degree of the government in restrict / promote group

	N	M	SD
promote group	120	3.01	0.874
Restrict group	110	4.23	0.884
Total	242	3.63	1.071

#### Government credibility

There was a significant difference between the promote group and the restrict group ( $F(1,239) = 10.231, p < 0.01$ ), and the degree of trust in the restrict group was significantly higher than that is in the promote group. That is to say, after generating concerns and expectations, the subjects had seen the government took measures consistent with their expectation would be satisfied and trust the government. However, if they saw the government act in the opposite way, they would be disappointed and have a low degree of trust. Figure 1 is a line chart that shows the comparison of the degree of government trust (government credibility) in different experimental groups.



**Figure 1** Comparison of the government credibility in different experimental groups

## 4 General discussion

### 4.1 The impact of mass media on public issues

Study 1 confirms that in the face of public issues in unfamiliar field, the subjects are likely to have varying degrees of risk perception after reading different materials. In real life, people get access to know public issues generally from the propaganda and reports of mass communication. Fei ai-hua (2010) have done a study shows that mass media is an important subject of public management and a mean of effective control of “society” as well as “nation”. It has functions of agenda setting, political communication and political control<sup>[9]</sup>. It can be seen that in the public management of the government, the role of the mass media should not be overlooked. The government should make full use of the social function of mass media to guide people to help the government itself. If the content of dissemination is extreme, vigorously advocated or extremely opposed, and create a large amount of threat information (such as the two risk manipulation in study 1), it is easy to bring up people’s risk perception, fear and anxiety, thus will guide people in direction of some expectations that may not the government wanted them to. It’s not conducive to the follow-up government work to carry out. Therefore, when emerging things appearing, concerns of unfamiliar areas rising, the government should joint mass media as well as maintain a prudent attitude.

### 4.2 Government action can play a role of guidance to the psychological mechanism of public

Study 2 confirms that after generating fear and anxiety, people see government take action in their expectation will be more satisfied with government and trust it more, or else they will be disappointed and have a low degree of trust. So after people’s risk perception has been activated, mass media have guided people’s thought, government will play a significant role by exerting a effect that called reinforce. As we have mentioned in literature review, positive reinforcement arise after specific behavior strengthen it, thus form a conditioned reflex. With the development of the event, the response to the stimulus is automatically extended to similar stimuli that have never been associated with this behavioral reaction, resulting in “stimulus generalization”<sup>[10]</sup>Therefore, back to our research, in the whole process of behavior shaping, this phase is a critical period of reinforcing. That is, the government comply with public expectation are exerting a timely and effective positive reinforce. But if the government action are against the people’s will at the crucial moment, people will be imposed negative penalties<sup>[11]</sup>. Reinforcement will promote the people’s trust to the government, the government’s credibility thus increase, and then the people will generalize their trust of this matter to the government’s other practical measures. So the future government management and control will be more effective. In a word, it plays a beneficial role once and for all. On the contrary, if the mass media has been successfully guided the public expectations, then the government took policies in a opposite way and have no strong argument to convincingly persuade people, such a negative punishment will have a devastating impact on government credibility. In conclusion, the government policy plans and actions that in concert with public communication do have a very useful help to public management.

## 5 Conclusions

Studies have shown that people under risk-perceiving will be fearful and hope government to control things that might bring threats, then they will score high on government credibility if government take measures to control the threats. Furthermore: (1) among groups, technical-risk group member generate the highest degree of fear and expectation, which suggest that people are still sensible in reckoning risk and keep a relatively objective mind. That means mass media play a crucial role in government affairs and should act cautiously in propagating new events. (2) By seeing the descriptive statistic of the satisfaction degree of the government and the line chart that shows the comparison of the degree of government trust (government credibility) in two groups, we can find it is obviously demonstrated that people’s impression on government can be easily guided into two levels just by two different specific acts. So now we know the amazing power of mass media in company with government action. The importance is, the acts should impose a effect of strengthen (ie, responded to public’s desire or release their tension by convincing statements), be taken at a crucial reinforce point (just upon risk being perceived), and devised with communication in advance, thus contribute to government satisfaction and credibility.

## 6 Research limitations and research prospects

### 6.1 Limitation

The subjects of this experiment are from project 985 university and are science and engineering students, they are in high level education background, and mostly male-based. But in the study of persuasion communication and public policy, educational background and gender and confounds that need to be taken into account, so the subjects selection has been limited.

### 6.2 Research prospects

In this study, there is no further analysis and discussions on people's information processing route and nationalism that involving national security. In addition, the ecological validity of the study has been influenced by the subjects selection. Further studies should be considered in different subjects to confirm the reliability of the conclusions.

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## Public Participation in Administrative Decision-making: The Discussion Based on System, Mechanism and Information

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**Abstract** Public participation in administrative decision-making is the requirement of the scientific administrative decision-making, democratic administrative decision-making and administrative decision-making under the rule of law. Three aspects are included in perfecting the approach of public participation in administrative decision-making: institution, mechanism and information security system. To perfect the institutional system is mainly to improve the public opinion reflecting system, publicity system of major social matters, and hearing system of major administrative decision-making. To improve the mechanism for public participation in administrative decision-making, including establishing public motion mechanism of administrative decision-making, perfecting the opinion feedback mechanism of administrative decision-making and representative mechanism of interest groups. Decision information collecting subsystem and public participation consultation subsystem are considered in establishing information security systems.

**Key words** Administrative decision-making, Public participation, System, Mechanism, Information

### 1 Introduction

With the development of social democracy, public participation in administrative decision-making, especially in administrative decision-making on major matters becomes an important way to influence the process of government. Both the theories and practices of public participation in administrative decision-making in western countries are relatively more advanced, especially that the hearing system has a wide range of applications. Due to various reasons such as the history in China, the enthusiasm of public participation in administrative decision-making is relatively low. Along with the construction of a service-oriented government and a law-based government, the public pay more attention to public policies and public life which involve in self-interest, and the enthusiasm of public participation in administrative decision-making then improves.

### 2 The theoretical basis and classification of public participation in administrative decision-making

#### 2.1 The theoretical basis of citizen participation in administrative decision-making

Management guru Herbert A. Simon, thinks “decision-making is the heart of management, and management is composed of a series of decisions, indeed management is decision-making.” From the functions of management, administrative decision-making is an essential part of the important process in administrative activities; from the science of administrative law, administrative decision-making is the administrative subjects’ behaviors of selecting options, and making decisions in accordance with relevant provisions of laws and policies; from the affiliation of administrative decision and decision, that administrative decision can be said to be a sub-concept of decision, which is the more specific decision behavior.<sup>[1]</sup> In short, administrative decision is the beginning of government administrative management activities, which makes options and decisions in order to reach the goal of administration.

Public participation in administrative decision-making, is mainly for the process of decision-making, and in essence is an activity that citizens influence “public policies” and “public life”.<sup>1</sup> The classic Marxist theory believes under certain conditions, the superstructure reacts on social economic base, and the administrative decisions on public affairs belong to the category of superstructure, having an effect on consolidating regime and developing social economy. *The 18<sup>th</sup> National Congress of the Communist Party of China (CPC)* stressed to improve the mechanisms and procedures of

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1 Yu Ke-ping, Jia Xi-jing. Citizen participation in China: Cases and Pattern[M]. Beijing: Social Sciences Academic Press(China), 2008

decision-makings, as to ensure decision-makings to be scientific, democratic and legalized. Putting forward as a necessary procedure of administrative decision-making, public participation in decision-making ensures decisions to be right, scientific and democratic in terms of procedure. Administrative decision-making is associated with social resource allocation, concerning the real interest of public, and being the important way to highlight the fairness and justice of administration. Therefore, public participation in administrative decision-making is in the way of “ought to” be.<sup>[2]</sup>

(1) Public participation in administrative decision-making is the requirement of scientific administrative decision. “Scientific” is the integrate of purpose and regularity, also is one of the important principles that decision-making should follow. As administrative decisions belong to the category of public policies, the involving areas are often associated with people’s life. From the point of view of scientific decision-making, the more comprehensive and accurate the information is, the more optimized the decision is. On the reference information collection of decision-making, public participation is a good way; on game playing in the interest of the related parties, public participation is convenient for public interest appeal; so on the basis of decision-making, such as information and claims, the formulation and selection of decision-making plans will be more scientific.

(2) Public participation in administrative decision-making is the requirement of democratic administrative decision. From the perspective of democracy promotion, public opinions is the legitimacy of government governance in a democratic society, and public participation is a basic approach to public opinions.<sup>[3]</sup> In the present China, promoting the democratization of administrative decision ensures the development of participatory administration which contains stakeholders as the public participators. As professor Wang Xi-xin from Peking University said, “the rise of public participation has become the more and more important social fact in the field of China’s public life, which becomes a symbol of the democratization of public life”.<sup>[4]</sup> In the process of administrative decision-making, “Closing the door” decision making or “The racquet head” decision making by the relevant decision makers of the government, is clearly contrary to the development of democracy. The citizen’s right to know government administrative affairs which is related to public is one of the very important citizen’s rights, and public participation in administrative decision-making is a key way to get the right to know. However, in the process of specific administrative decision-making, the government must respond to the information, advices and related public appeals that citizens provide to get “public opinions”, in order to prevent the head of government to make decisions in an autocratic manner and without regard for any authority.<sup>[5]</sup> In the process of administrative decision-making, the interaction between public and government is beneficial to democratic supervision, which strengthens democratization of administration decision-making.

(3) Public participation in administrative decision-making is the requirement of administrative decision-making under the rule of law. For administration under the rule of law, public participation in administrative decision-making is the guarantee of government legitimacy and administrative decision legitimacy. Analysing from the science of law, administrative decision-making, the original design of responsibilities is affiliated to the legislature, and is commissioned of the central government, by the legislature, namely, to formulate administrative regulations and rules, etc. Accordingly, the “substantial legitimacy” cannot just be represented or replaced by “decision-making according to law”. In many cases, administrative decision-making is the government’s internal activity, though with normative internal process, due to lacking of specific provisions of legislation, and especially lacking of public participating in the major administrative decision-making process, the “legitimacy” is questionable. Therefore, public participation in administrative decision-making, especially the public participation in major administrative decision-making related to their own interests makes the administrative decision-making with “substantial legitimacy”.<sup>[6]</sup>

## 2.2 The classification of public participation in administrative decision-making

(1) The theory of A Ladder of Citizen Participation. In 1969, American scholar Sherry Arnstein’s famous paper *A Ladder of Citizen Participation* had been published in *PLANNING* magazine of American Planning Association (APA), the types of public participation are classified into eight categories from low level to high level: manipulation, guidance, informing, consulting, exhortation, cooperation, authorization, public control. Arnstein’s classification of public participation in

administrative decision-making has an effect on the methods and techniques of public participation in administrative decision-making. Manipulation, and guidance of Arnstein's citizen participation in the control level, is completely false participation; informing and consulting is a kind of participation with surface characters; exhortation is a kind of deep participation with surface characters; only the latter three is in the deep level of public participation, is also a kind of full-course participation and administrative decision-making by public and government.

(2) The classification according to the practice and tradition. For Arnstein's classification, high ladder citizen participation is the participation with the decision power of public, which is not fully conform to the real national conditions of China. Especially for the specialized administrative decision-making, the general public who lack of relevant professional knowledges are hard to participate on their own initiative.<sup>[7]</sup> According to the practice and tradition, the way of public participation in administrative decision-making can be roughly divided into three categories which are written reviews, hearings and advisory committee. But with the development of information technology and news media, more and more kinds of public participation in administrative decision-making emerge, including official website message box, leadership mailbox, government microblog, government WeChat, etc.

### **3 Improving the approach of public participation in administrative decision-making: Institution, mechanism and information security system**

To explore the mechanism of public participation in administrative decision-making in China, that the institutional system of public participation in administrative decision-making, the related mechanism, and the information security system of public participation in administrative decision-making should be improved on the basis of scientific classification of public participation in administrative decision-making.

#### **3.1 Perfecting institutional system of public participation in administrative decision-making**

After the *Fourth Plenary Session of 18<sup>th</sup> CPC Central Committee*, various provinces and cities have successively formulated the rules of procedures on major administrative decision-making, in order to safeguard the right of public participation in major administrative decision-making. For example, Zhejiang Province, has formulated the *Regulations of Major Administrative Decision-making Procedure in Zhejiang Province*, which specifies "public participation" to major administrative decision-making.<sup>1</sup> But the provisions of the right of "public participation" can not represent the public participation in administrative decision-making system itself. And most regulations have no clear classifications or ways of "public participation".

In order to ensure the wide public participation in government administrative decision-making, on the basis of scientific classification of public participation in administrative decision-making, establishing and improving system of reporting social conditions and public opinions, social publicity system on major issues and hearing system, which conform to "promoting transparency of government affairs comprehensively" and constructing a "transparent government" of the "Decision" of *Fourth Plenary Session of 18<sup>th</sup> CPC Central Committee*.

##### **(1) Improving system of reporting social conditions and public opinions**

Social conditions and public opinions refers to the "urgent, difficult, and sorrowful" problems of basic necessities in people's daily life, which is mainly to provide reference to the leading cadres and related government departments, so to solve the practical problems of the people. System of reporting social conditions and public opinions, must comply with the principles of policy-oriented, true information, stressing the essentials, guaranteeing quality, Chinese People's Political Consultative Conference (CPPCC)'s characteristics and the principle of timeliness, etc. Different provinces and cities should "adjust measures to local conditions", and formulate rules according to the actual situation of the region. Setting up different channels to interact with public and to obtain real conditions of public opinion, including special social conditions and public opinions research center,

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1 From Chen Dung-sheng. To protect the public right to participate in major administrative decision-making[N]. Legal daily(The 007 Edition)

mailbox for public feelings, antechamber for people, hotline for public conditions, communication member of public feelings, public talkfest, etc. For example, a public opinion survey center was set up in Wuhan City, Hubei Province, to have special survey of public opinions. Governments at the county level are encouraged to carry out exploration practice of systems of reporting social conditions and public opinions. Governments at grass-roots levels have closer ties with people, so they have the early explorations to report social conditions and public opinions. For example, Jinxiang county of Shandong Province, attempted to obtain social conditions and public opinions from “hotline of county magistrate”, with the beneficial and successful practice, in 2003. New media, such as network, government microblog and WeChat, is an important approach to improve the system of reporting social conditions and public opinions. The system of reporting social conditions and public opinions should be the basic system of public participation in administrative decision-making democracy, to guarantee the agenda setting and start of administrative decision-making.

(2) Improving the social publicity system on major matters

The main purpose of the social publicity system on major matters, is to safeguard citizen’s constitutional right to know, also is a kind of systems of “administrate in a transparent way”. This system should make the announcement in advance, at present and afterwards, and to determine the methods and procedures of publicity, according to the contents of publicity. Whether through the news media, or public bar for government affairs in openness of the government departments, the announcing should be in accordance with the prescribed procedures strictly. To the reflections and opinions of public in the process of announcement, the relevant departments and administrative personnels are requested to respond. The social publicity system on major matters is to the benefit of public participation in administrative decision-making and influences the attitude of government on public affairs.

(3) Improving the hearing system of major administrative decision-making

As early as in 2008 , the *Decision of the State Council on Strengthening in the Government Administration According to Law of the Cities and Counties* clearly stipulated to perfect the administrative decision-making mechanism of cities and counties, which includes major administrative decision hearing system. The “*Decision*” of *Fourth Plenary Session of 18<sup>th</sup> CPC Central Committee* put forward public participation as the legal procedures of major administrative decision-making, among them, public “hearing” is an important way of public participation. At present, there are still some doubts of “hearing” from the people, mainly because the formalization of most “hearings” in many places, the consciousness of “prices will rise since every hearing” comes into people’s mind, or some people even have the suspicions that “pretenders” were in the hearings. In view of the situation, to improve the hearing system of major administrative decision-making, the priority is to strictly select the hearing representatives. To scientifically select expert representatives, interest representatives who are regulated or protected and the representatives of public interests who are easily affected by the hearing issues. As for the representatives who do not represent the real interest, to criticize them, and make a new selection. The form of expert representatives should be specifically determined according to the professional correlation and should not be selected by the regulation automatically. On the specific procedures of hearing, the principles of open, fair, objective shall be followed. Especially in the hearings of price decision-making, because of the wide range, procedures must be strictly regulated, such as to add cost supervisions and examination procedures to make hearings more reasonable and scientific, so the government could listen to the stakeholders’ opinions objectively. In addition, all supporting measures of hearings should be stipulated clearly in the system.

**3.2 Establishing and perfecting public participation in administrative decision-making mechanism**

(1) To establish public motion mechanism of administrative decision-making

The right to start administrative decision-making is mainly in the hands of the government, and the government guides it from the form. Analysing from demand theory, the administrative relative persons, rather than the administrative staff can feel the necessity of administrative decisions, including the formulation, amendment and abolishment. So, the administrative relative persons have the right to start, more conforms to the requirements and to safeguard the legitimate rights and interests, which is conducive to the development of social economy. In this regard, one of the leading cities is Guangzhou



City in China, as early as 2007, it released “*Regulations of Guangzhou City on the Development of Public Participation*”, article 10 to article 13 had specific provisions on the public rights of motion, the contents including the ways to realize public rights of the motion, and the approaches that the city’s government to support public motion, etc. Public rights of motion in administrative decision-making is a part of public participation in administrative decision-making system, so the main body of public rights of motion should be defined, the stakeholders and the persons with relevant professional knowledges should be covered. In practice, specific factors such as efficiency should be considered, the “participation” of the public cannot be blindly pursued.<sup>[8]</sup>

(2) To perfect the opinion feedback mechanism of public participation in administrative decision-making

In the process of administrative decision-making, dealing with the views of public participation in administrative decision-making is of significance. To perfect the opinion feedback mechanism of public participation in administrative decision-making, the principle of comprehensiveness, timeliness principle, the principle of accessibility and the principle of transparency should be followed. The so-called principle of comprehensiveness is the leading cadres of administrative organs should be magnanimous to all kinds of public opinion, and be calm when meet the sharp words. Timeliness principle, as the name suggests, is to handle in a timely manner, and respond immediately. The principle of accessibility means the communicating way of information exchange and feedback between administrative organs and public to be smoothly. The principle of transparency is whether public opinions to be adopted or not, the contents which belong to the scope of publicity should be announced according to the established procedures, to ensure the “transparent” process and result. Giving full play to the advantages of the Internet, with the help of the government’s official website, government affairs microblog, to collect public opinions is possible. Taking public opinions seriously, that related opinions should be registered, specially designated persons are responsible for classifying, sorting, verifying, screening, collecting and analysing of public opinions, to study, judge and make responses; to exclude the illegal, unreasonable opinions; for legal, reasonable but controversial opinions, to make arguments and explanations. To evaluate the work of the relevant administrative staff from the feedback, and put it into the performance evaluation, in order to guarantee the effective feedback maximumly.<sup>[9]</sup>

(3) To improve the representative mechanism of interest groups

The book *Governmental Processes Of Contemporary China* by Zhu Guang-lei, has divided interest groups into institutional interest groups, structural interest expression groups and functional opinion expression groups. These three kinds of interest groups represent their crowds. Especially structural interest expression groups, are mostly belong to the people’s groups or social organizations, which represents a certain aspect, and some part of the crowd, reflecting the specific interest and requirements of certain social interest groups.<sup>[10]</sup> Due to the large population in China, and different people have different interest demands, the high cost and low efficiency of administrative decision is likely to be occurred. So the interest groups must be perfected to present the people and appeal for interest. Public participation in administrative decision-making in the organized way, which is beneficial to reduce the cost of administrative decision-making, encourages the public to participate in administrative decision-making effectively.<sup>[11]</sup>

### **3.3 Establishing the information security system of public participation in administrative decision-making**

The information security system of public participation in administrative decision-making mainly includes the information collecting subsystem of administrative decision-making and the public participation consultation subsystem.

(1) The information collecting subsystem of administrative decision-making. A very important system of administrative decision-making is the information collecting subsystem. Modern society is a society of information, big data, and electron cloud become popular words in people’s hearts, and the Internet has greatly influenced people’s life and the communicating ways. The information collecting system of administrative decision-making, mainly is to use information technology to collect the opinions of public participation through various channels, including to link government website,

government mailbox, and new media platforms such as government affairs microblog, WeChat.

(2) The public participation consultation subsystem. The public participation consultation subsystem connects the information collecting system, is an important subsystem of the information security system of public participation in administrative decision-making. The public participation consultation subsystem has three link systems. The first is the citizen and government consultation system, the second is the citizens' information feedback system, the third is the citizens' participating evaluation and supervision system.<sup>1</sup> The citizen and government consultation system, is mainly a system that the public and the government interact opinions and decision information in the decision-making process, including input platform, transmission channels. For the consultation system, an important influencing factor is its feasibility. To consider the feasibility, is mainly to the touching and accepted level for different people. For example, for migrant workers or the group of general workers, telephone voice mail could be one of the consultation ways, while not only using text messages or emails. Citizens information feedback system, is mainly on the basis of citizens' consultation with the government, using information feedback platform, the government makes the responds and instructions to the adoptions of public opinions in a timely manner. Especially for the opinions not accepted, the reasons why not be accepted shall be provided. Citizens participation in evaluation and supervision system, is mainly for the evaluation afterwards. The purpose of evaluation is to make the citizens' evaluation "normalization", preventing the evaluation to be "random events". Whether it is a major decision or general decision event, the "evaluation" afterwards should be made, the experiences and the insufficiency of public participation in administrative decision-making should be summarized, in order to ensure that decisions towards the more scientific direction continuously.<sup>[12]</sup> The "supervision" link must be set up in public participation in administrative decision-making. Only to establish a supervision system and to use policy to encourage the supervision, that the abuse and other use of decision-making power of the government administrative organs could be prevented, to really do a good job in administrative decision-making, and to achieve the goal to take responsibility for a decision with the people and for the people.

#### 4 Conclusions

With the growing awareness of citizens' participation in administrative decision-making in China, the top priority is to ensure public participation in administrative decision-making. Only public participation in administrative decision-making can truly safeguard the scientific, democratic and legal administrative decision-making in China. To ensure public participation in administrative decision-making, the system of public participation in administrative decision-making should be perfected, which includes improving the system of reporting social conditions and public opinions, social publicity system on major matters and hearing system of major administrative decision-making. To improve the mechanism for public participation in administrative decision-making, includes establishing public motion mechanism of administrative decision-making, perfecting the feedback mechanism of public participation in administrative decision-making, and improving the representative mechanism of interest groups. To establish information security system of public participation in administrative decision-making includes information collecting subsystem of decision-making and the public participation consultation subsystem and so on.

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## Research on the Imbalance of Basic Public Services Supply of New Urbanization Local Government in China

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**Abstract** Urbanization is the necessary way for the modernization development, and the new urbanization construction should pay attention to the coordination and sustainability of the basic public services supply in urban and rural areas. Along with the rapid process of urbanization in China, urban and rural basic public services demands are constantly growing. In addition, because of government independent management is the main way to supply the traditional basic public services, it causes supply results imbalanced, which then restricts the new urbanization process. Thus, the new urbanization demands to improve government supply capacity of the basic public services, and narrow gap between supply and demands of the basic public services. Taking the new urbanization as the background, this paper analyzed the existing problems from basic public services supply in urbanization process and made reasons analysis. By promoting the new urbanization construction process, and improving the ability of the basic public services supply by local government, it aims to ensure the urban and rural residents to share the fruits of economic development.

**Key words** New urbanization, Local government, Basic public services, Imbalance of supply

### 1 Problem presentation

In March 2014, “the new urbanization plan (2014-2020)” established a new human-core urbanization, which orderly advances the new urbanization process, allows the broad masses of people to share the fruits of economic development, meets the needs of public survival, and maintains social stability. Due to various social and economic factors, the basic public services features determine the status of the local government as the main supplier of basic public services, which makes the local government play an important role in the basic public services supply and have a significant influence. In the process of the continued deepening of new urbanization, the imbalance contradiction between the basic public services supply of urban and rural areas is gradually emerging, and the coverage of basic public services cannot meet the needs of the overwhelming majority of the people. Local governments are faced with a serious challenge of improving the basic public services ability for the growing demands from the broad masses of people. During the promoting and deepening of the new urbanization process, the basic public services are becoming more and more important to the people. On the one hand, it causes some contradictions out like the imbalanced supply on basic public services between urban and rural areas; on the other hand, the basic public services imbalanced supply hinders the process of new urbanization.<sup>[1]</sup> So the local government provides effective and sustainable basic public services for the people become one of the important indicators to measure service capabilities of the local government. According to the human-core requirements of new urbanization, the imbalanced supply and demands of basic public services led that the growing demands for the people cannot be met. Based on the analysis of the problems and causes of the basic public services supply, this paper putted forward some suggestions on how to improve the public service capability of the local government, and finally promotes the effectiveness of the basic public services supply of the local government so that the basic public services supply can meet the growing demands of the people, to promote the development of new urbanization.

### 2 Literature review

#### 2.1 Review of basic public services supply

The basic public services are services provided by the government in the public domain, and it is provided directly and in reality, which is closely related to the vital interests of the people. It provides social basic services for the survival, life and realization of comprehensive development. The basic

public services supply will eventually gradually achieve equalization of supply <sup>[2]</sup>.

Through the literature reading, it is found that the research on basic public services supply is mainly focused on the following three aspects: First, the basic public services gap between regions is large. Jiang Ying(2011<sup>[3]</sup>), Ding Fu-hui (2011<sup>[4]</sup>) and others pointed that due to differences in economic level and basic conditions of different regions, the basic public services gap between regions is large. Such as, due to the impact of various factors like economy, geography, the basic public services development level of the eastern regions is higher than the middle and western regions. Second, the total supply of basic public services is insufficient and the supply structure is imbalanced. Hu Jun-min and Ai Hong-chu (2009 <sup>[5]</sup>) pointed out that the governments' lack of investment in basic public services leads to contradiction between supply and demands. The governments lack of awareness, pay insufficient attention, and demands for the people is growing, and overall there is shortage supply of basic public services. Huang Ying (2012 <sup>[6]</sup>) made an analysis by enumerating the basic old-age insurance services examples. As to the basic endowment, there is not only a large gap in financial funds but the gap between urban and rural endowment level. The difference between supply and demands shows that the basic public services total supply is insufficient and the structure of supply and demands is imbalanced. Zhang En-ying and Li Shuang (2014<sup>[7]</sup>) analyzed that affairs and financial power is unclear, and financial power shifts, and affairs power moves down, which had become a clear trend of local intergovernmental financial relations. Local governments and officials cannot accurately grasp the basic public services supply demands, so the irrational status of content and structure in the basic public services appears. Third, the basic public services gap between urban and rural areas is large. According to the status that basic public services supply system of the urban and rural integration has not yet established, city and countryside is division dual society structure system, Tang Tie-han (2011<sup>[8]</sup>), Fang Dong-lin (2011<sup>[9]</sup>) and others pointed out that the main role of the government in the basic public services had been not yet fully played, and the supply of basic public services still cannot keep up with the demands of the people, so the gap between urban and rural basic public services supply is large.

With the acceleration of the new urbanization process and the rise of the economic level, the scope of basic public services supply will gradually be expanded, and the demands of the people will increase, and the capacity of the government will be required. Judging from the current development trend, the basic public service equalization should focus on reducing the urban and rural basic public service supply and demands gap, balancing the supply and demands structure, and making different social groups in the urban and rural enjoy different levels of basic public service.

## 2.2 Literature reviews

Through the literature combing, the current research mainly focuses on the problem analysis, countermeasures and suggestions derived from that in the basic public service supply, the local government cannot be clearly aware of its position, the role playing is not sufficient. These studies provide a reference for the local government to enhance basic public service supply capacity, but there are also shortcomings. Firstly, most of the researches on the basic public services supply are from the point of government, and few or even no research consider the demands of the people, making the study one-side. Secondly, based on the characteristics of basic public services and the dominant position of government in public service, the researches on the basic public services supply are concerned with the situation among regions more than among different groups. Thirdly, Most of the researches are from the objective and rational level to elaborate the problems and shortcomings in the basic public service supply process, and the reasons analysis and countermeasures are mainly focused on the issue of local government functions, financial input and other theoretical level, lacking of empirical research.

The new urbanization is a people-oriented urbanization, adhering to take the “new” demands, “new” concept as the guide, narrowing the basic public service supply level differences between the urban and rural, strengthening the local government basic public service supply capacity, achieving basic public service supply equalization in the urban and rural, improving the people’s living standards and quality, enhancing the people’s sense of access and happiness, promoting the sustainable development of the new urbanization with Chinese characteristics.

### **3 The problems and causes analysis of the basic public service supply of the new urbanization government**

#### **3.1 Analysis of problems**

##### **3.1.1 Imbalanced basic public service supply system**

Due to local financial, material and human resources constraints, the local government puts more limited resources into areas directly related to economic construction, like the public basic education, health care and social security investment not in public culture and sports services, social public affairs and the employment of people with disabilities. So there is a clear structural imbalance on the basic public service supply system, ignoring the comprehensive development of society. As the people, especially the farmers can not directly and clearly express their own demands for basic public services, for the purpose of intuitive local performance and economic benefits, the local government will provide some basic public services to meet their own demands. The imbalanced supply of basic public services cannot meet the diversified demands of the people.

##### **3.1.2 The total amount of basic public service supply is insufficient and the distribution is not equal**

In local government, due to the level of economic development constraints, coupled with the relevant personnel on the basic public service do not have a clear positioning, so the basic public service supply total amount is insufficient, and the distribution is not equal.

In recent years, although the local government has increased investment, especially financial expenditure to protect the basic public services supply, but overall, the proportion of public services in the financial expenditure is still low, coupled with the unlimited human desire, the growing demands from the people, So that the supply of local government cannot meet the basic demands of the people. Besides the total shortage, there is uneven distribution on basic public services between urban and rural areas, between regions. For example, in the basic public education, rural high-quality schools are less, being lack of high-quality teachers, making the quality of rural education is lower than the city, urban and rural education level being different.

##### **3.1.3 Basic public services equalization investment is inadequate**

To improve the government's public service capacity, financial resources is the key. Although the vast majority of local governments have a strong desire to improve public service capacity, but the lack of financial resources led to insufficient investment severely restricting the improvement of public service capacity. Due to the lack of financial resources in local government, and low attention on basic public service, there is still a large gap between the urban and rural public service level and prominent contradiction between supply and demand, especially in education, health, culture, social security and other aspects<sup>[10]</sup>. That has seriously restricted the improvement of public service supply capacity of local government with new urbanization, and contradictions between the supply imbalance and the growing demand of the people has become increasingly prominent.

##### **3.1.4 Basic public service supply decision-making mechanism is not perfect**

The general direction of the new urbanization construction has been formed, but the matching decision mechanism has not yet been formed. Therefore, the current public decision-making is still according to the subjective intent for government departments to implement, which not only cannot improve the level of basic public services, but will also cause a lot of resources wasting, unreasonable supply and so on. In the process of supply decision-making, there is often a lack of practical basic public service implementation evaluation standards or indicators that directly affect the effect of public participation in basic public service supply decisions. At the same time, the basic public service supply decision-making transparency is not high, and democracy is not strong, so the local government cannot accurately grasp the public demand for basic public services, and cannot make the right supply decisions.

##### **3.1.5 The lack of appeal channels on public basic public service demand**

The supply of basic public services is affected by the local government as the main supplier model, the people in the basic public service system in the construction lack of dominant position, and the role is difficult to fully play. As the most popular grassroots self-government organizations, at the

same times of the display of its superiority, the administrative color is also more and more intense, and gradually become a puppet of the higher authorities, forming the top-down one-way administrative path, so the people appeal demands with difficulties, hurting the public participation in public affairs. Coupled with the majority of people's cultural participation awareness is weak, the public participation in public affairs is low, and the people cannot express its real needs. With the rapid progress of the new urbanization process, social and public problems emerge in an endless stream, to a certain extent, leading to the public basic public service appeal channels difficult to smooth or even missing.

### **3.2 Analysis of causes**

#### **3.2.1 Government public service awareness being weak, the function change being not complete**

Although the local government in the public service concept and management functions have changed, making the supply of basic public services to a certain degree of development, but for a long time, "official standard", "rule of man" and other awareness in the hearts of some local government officials is deepen. The government services concept of "people oriented" is weak, and the government cannot start from the actual needs of the people. Local governments consider planning and control in the management, taking the people as a management object. Some officials have not yet changed from the management government model, ignoring the service functions to the people. So the function is not completely changed. This service performance and management model, which only focuses on local performance and neglects the development of basic public utilities, affects the effectiveness of basic public service supply.

#### **3.2.2 Single basic public service supply subject**

Because the basic public service has the public and welfare nature, by the restricting of economic development level, resource conditions, government policies and other conditions, other suppliers cannot and are also difficult to enter the basic public service areas, but the local government has become its most important supply main body. Although the new public management theory advocates that modern social governance should be a harmonious and organic overall governance structure composed of multiple subjects, it is necessary to put other social public organizations other than government into social governance and get rid of the "only"<sup>[11]</sup>. But the reality is that the government is still the main provider of public services, and other social subjects for various reasons cannot enter the field of public service supply, resulting in the basic public service supply single, the degree of organization being not high.

#### **3.2.3 Restrictions on the dual structure of basic public services supply**

Urban and rural basic public service supply is the implementation of urban and rural dual supply. The main body of urban public supply is the government, with a large part of the funds from the financial support. In contrast, rural financial support is relatively small, only relying on the farmers themselves to solve by sharing or the labor force charge against; however, the basic urban public service supply system is relatively perfect. The basic public service supply of urban and rural integration system has not yet been established, and the leading role of local government in the basic public service supply is not sufficient, having not the ability to improve the supply of basic public services. In addition, basic public service supply base is weak, and there is significant difference on basic public service supply levels between urban and rural.

#### **3.2.4 Basic public services lacking of competition mechanism**

The welfare and public nature of the basic public service determine that the government is the main provider of basic public services. In the basic public service supply mechanism lacking effective competition, in the process of providing basic public services, the government only pay attention to the number but neglect the economic efficiency of decision-making, and that will cause the government's inertia, resulting in uneven or unreasonable capital distribution phenomenon in the basic public services investment, resulting in the waste of basic public service resources, reducing the utilization of social funds.

#### **3.2.5 Lack of appropriate effective performance appraisal incentive mechanism**

On the one hand, in the performance evaluation of local government, the evaluation basis is

always economic growth as the task and indicators. In order to reach the requirements of local government performance appraisal, economic growth is often regarded as the main evaluation standard, which causes the local government to ignore the increase of public service supply and the increase of supply quantity. Therefore, the basic public service provided deviates from the real demand of the people. Lacking of motivation, performance evaluation incentive is difficult to achieve. On the other hand, basic public service refinement indicators are lacking. In the measurement of basic public services, the intervention of indicators, such as public satisfaction, fairness, and consumption is neglected, and the performance evaluation of the government is not open to the public, which makes the evaluation results lose certain accuracy at some extent.

#### **4 Improving the equalization countermeasure of basic public service supply by new urbanization government**

##### **4.1 Strengthening the awareness of government service, speeding up the transformation of public service functions**

New urbanization construction has come into a new stage, and we must continue to strengthen the service-oriented government awareness. The government should focus on the development of weak links in basic public service supply, and strengthen the construction of people's livelihood projects. Establish public service performance concept, to change the statue of one-sided pursuit of local performance and economic efficiency but ignoring the public demand for public services. The local government's ability determines the efficiency and level of public services in the region<sup>[12]</sup>. Speed up the transformation of government functions, improve public service capacity, meet the needs of the people, and promote the function change of the governed government to the service government. In the process of new urbanization, we strengthen the people-oriented public service consciousness and service function, and gradually make the basic public service supply become the pillar and soft power of the new urbanization construction, and promote the middle power function of the local government in the equalization of urban and rural basic public service supply effect.

##### **4.2 Developing local economy, consolidating the service base**

Sufficient financial resources is material basis to protect the basic public service supply, is prerequisite for the local government to fulfill the public service capacity<sup>[13]</sup>. Vigorously develop the local economy, and enhance the overall development level of the local, in order to increase revenue, including a reasonable distribution of financial rights and increasing financial transfer payments and management efforts, giving full play to the role of finance, so the basic public service equalization level is improved. Local governments should also rely on their own strength to solve the financial difficulties, opening up multiple financial channels, cultivating new financial resources. In addition, the local government should be based on the actual situation of the region to develop relevant fiscal expenditure tilt policy to ensure equalization of urban and rural basic public services, the establishment of new urbanization requirements, urban and rural unified basic public service standard system.

##### **4.3 Establishing demand-oriented multi-supply decision-making mechanism**

Due to considering the local performance, the basic public service supply has long-term implemented the top-down decision-making mechanism, with a mandatory administrative color, which will directly lead to the public's actual demands are not met. Reforming the current top-down government dictatorial basic public service supply decision-making mechanism, implementation of the public right to participate in decision-making, and guiding people to participate supply decision-making on the basis of expressing their demands, establishing a public demand-oriented basic public service supply decision-making mechanism<sup>[14]</sup>. At the same time, local governments should change their current dominance in the basic public services supply, encouraging other subjects or social organizations to participate in the provision of public services, establishing a basic public service supply mechanism with the guidance of people's demand, the main government supply and the vice multi-subjects.

##### **4.4 Establishing basic public service equalization oriented performance evaluation mechanism**

It refers to establishment of the local government public service performance evaluation mechanism, increasing the importance of the local government public service capacity in the work performance evaluation; put the public satisfaction with the basic public service into the performance



evaluation, the real response to the public demands and local government public service capability. This performance evaluation mechanism is no longer simply focused on the local government's economic development capacity, but the government's public service capability, and the establishment of the public service evaluation index system suitable for the actual situation<sup>[15]</sup>, ultimately to meet the people demands at the greatest extent. It is should to be done that the performance appraisal data collection is specialization and standardization to ensure the assessment results accurate and transparent, to ensure people's right to know and right to speak, forming effective performance appraisal incentives.

#### **4.5 Strengthening the democratic construction of expression channels from the public demand**

To enhance the people's initiative consciousness to express appeal and to strengthen participation activity of the public in public affairs, the key is to encourage people to use the election, voting and other forms to express their wishes and demands, with the real implementation of the basic rights of the people and the basic public service for the public demands channels being unblocked. What the governments should do is to raise publicity and education on the public awareness of self-need expression, to raise needs awareness of the people, to intensively reflect and express the real demands of the people, to combine the basic public services provided by the governments and the demands of the people together to achieve the rational allocation and use of resources.

## **5 Conclusions**

With the acceleration of the new urbanization process, the basic public services supply in the local government is not enough and the demand of the public is increasing. Therefore, the gap between the public demand and the government supply makes the supply quantity insufficient and the structure imbalanced, which in turn affects the urbanization process. Therefore, in the new situation of new urbanization requirements, increasing the effective supply of basic public services, breaking the urban and rural dual institutional constraints, increasing investment, especially financial support, and improving the basic public service supply imbalance are the key to protect the effectiveness and sustainability of basic public service supply and to promote the development of new urbanization, and they are also the important means to gradually narrow the gap between urban and rural areas and maintain social harmony.

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## The Improvement of “Dual-qualified Teacher” Evaluation System in Chinese Application-oriented Colleges Based on Social Fairness \*

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**Abstract** The evaluation system of college teachers is urgently needed for deepening the reform of personnel system in colleges, stimulating the vitality and creativity of college teachers, promoting the professional development of college teachers, and enhancing the competitiveness of colleges. With the increasing trend of the integration of local colleges and regional economic production and research, the shortcomings of the “dual-qualified teacher” evaluation system in local application-oriented colleges become more apparent as follows: the evaluation subject is single; the evaluation content is lopsided; the evaluation criteria are homogeneous. Thus, this system can not stimulate the practical ability from teachers. According to the *Guiding Opinions on Deepening the Reform of the Evaluation System of Teachers in Colleges* issued by the Ministry of Education, this paper analyzes the major problems such as functional distortion, formalistic system and simplified management of the existing teacher evaluation system in local application-oriented colleges from the perspective of social fairness. A teacher evaluation system that has multi-dimensional subjects, flexible and diverse standards, and balanced content should be established to stimulate and promote those who play the role of dual-qualified teacher, improving the quality of application-oriented personnel training, and enhance the ability of application-oriented teachers. To deepen the reform measures from the content and method of examination and evaluation will have an important effect on maintaining the fair environment in colleges, improving the teacher evaluation system, strengthening the team building of college teachers, deepening the personnel system reform in colleges, and cultivating a professional team with high quality.

**Key words** Social fairness, Application-oriented colleges, Dual-qualified teacher, Evaluation system

### 1 Introduction

By evaluating the role of college teachers in the production, communication and application of knowledge, the evaluation system of college teachers has become the main means for effective human resource management in colleges<sup>[1]</sup>. The application-oriented colleges that have risen in recent years are aimed to achieve “collaborative development” of the government, enterprises and schools inside and outside the campus<sup>[2]</sup>. As the core of the transformation and development, a certain number of “dual-qualified teachers” are needed. However, the special “dual-qualified teacher” evaluation system still has problems like obscure evaluation indicators and lagging feedback. In August 2016, the Ministry of Education promulgated the *Guiding Opinions on Deepening the Reform of the Evaluation System of Teachers in Colleges*, putting forward the basic requirements of “putting morality first and teaching second, keeping the foundation status of research, and staying development-orientated”. The document clearly points out that “market evaluation should be highlighted for talents in applied research and technology development”<sup>[3]</sup>, and it also encourages the colleges in different places to innovate and explore a scientific and reasonable examination and evaluation system. Therefore, perfecting the “dual-qualified teacher” evaluation system is the key to the building of a “dual-qualified teacher” team in application-oriented colleges and improving the quality of the training of application-oriented talents.

College teachers have both basic material needs and non-material needs in politics, spirit and self-realization in life and at work. In order to ensure the fairness of the “dual-qualified teacher” evaluation system, it is urgent to clarify three core prerequisites: “who to evaluate, how to evaluate and

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what to evaluate.” These three prerequisites correspond to the subject, standard and content of evaluation, respectively. From the perspective of social fairness, this paper studies the teachers who act as “dual-qualified teacher”, explores the reform of the original teacher evaluation system, and attempts to help the “dual-qualified teachers” recognize their own deficiencies, mobilize work enthusiasm, clarify the career development direction, and improve themselves based on a fair evaluation. To this end, the author carried out a questionnaire survey among the teachers in six application-oriented colleges in Sichuan Province to explore the problems of the existing “dual-qualified teacher” evaluation system and put forward the suggestions on its improvement.

## **2 Analysis of the survey sample for the “dual-qualified teacher” evaluation system in application-oriented colleges**

During the questionnaire survey, 500 questionnaires were distributed to the teachers of application-oriented colleges and 388 questionnaires were collected. The recovery rate was 77.6%. The survey result showed that 47.2% of the teachers were dissatisfied with the existing teacher evaluation system and that only 6.3% were completely satisfied. 60.8% of the teachers felt pressure from the existing teacher evaluation system, and only 4.4% considered it reasonable. The “dual-qualified teacher” evaluation system mainly has the following three features.

### **2.1 Management is prioritized over development in the evaluation subject**

According to the survey, 56.8% of the teachers believed that the existing teacher evaluation system is a kind of administrative system with management character; 25.4% believed that the existing teacher evaluation system is a teacher professional development system; only 18% believed that it is both. In terms of the evaluation subject, 82.6% of the teachers thought that the subjects of the teacher evaluation system are the administrative agencies of Teaching Affairs Office, Personnel Office and Research office, while only 10% teachers thought that the subject of existing teacher evaluation system involves third parties such as enterprises and industries. In terms of evaluation background, only 7.5% of the teachers believed that the design of the teacher evaluation system has solicited the opinions of teachers on a large scale. Only 12.5% believed that the existing evaluation system is reasonable. For self-evaluation, 61.9% believed that self-evaluation is important. In terms of “dual-qualified teacher” evaluation, 68% believed that it should be different from the general teacher evaluation principles. In terms of evaluation principle, 42.5% of the teachers supported targeted classification evaluations. In terms of evaluation feedback, 84.2% of the teachers hoped to be informed of the evaluations scores and grades in a timely manner. 78.9% wished to obtain a detailed evaluation report. In terms of evaluation function, 64.1% of the teachers thought that the teacher evaluation performed the function of appraisal and assessment, and only 17.8% thought that it performed the function of communication and feedback.

### **2.2 Efficiency is prioritized over effectiveness for the evaluation criteria**

The existing teacher evaluation system mainly evaluates the teaching, research and social services of teachers on a quantitative basis. In terms of the definition of evaluation, 57.3% of the teachers believed that teacher evaluation is a quantitative task, and 25.7% believed that it is a combination of qualitative and quantitative work. In terms of the diversity of the evaluation criteria, 66.3% expected to set up viable evaluation criteria for tacit knowledge or application ability. 34% said that the existing evaluation system is not conducive to the creativity and personality development of teachers. In terms of the evaluation result, 33.9% of the teachers believed that the grading of the teacher evaluation system is professional, while 52.2% of the teachers believed that the evaluation results are not necessarily professional. In terms of the evaluation performance, 78.6% of the teachers believed that this “one-size-fits-all” teacher evaluation system dampens the initiative of teachers to participate in teaching. In terms of the evaluation differences, 65.2% of the teachers considered that the evaluation results vary greatly with different cultivation objects and majors; 44.1% of the teachers considered that the “dual-qualified teacher” evaluation does not reflect any difference; 81.1% of the teachers suggested that evaluation by classification is necessary.

### **2.3 The evaluation is more quantitative than qualitative**

The survey found that 46.7% of the teachers felt that the teaching workload was the main content

in the current evaluation criteria, while only 16.9% felt that the evaluation covered many aspects including quantity of the curricula, teaching effect and teaching behavior. In terms of teaching evaluation, 44.7% considered that the current teaching evaluation was mainly based on the score given by an expert group who attended the classes of the evaluated teachers, and 29% considered that the evaluation experts were professional and were engaged in the appropriate fields of expertise. In terms of student teaching evaluation, 47.6% of the teachers thought that the teaching evaluation focused on the comments from students, while 31.1% of the teachers thought that the comments from students were not consistent with their teaching. In terms of scientific research evaluation, 50.3% of the teachers believed that the evaluation system attaches importance to the number of papers and the quality of journals. 8.4% of the teachers believed that the evaluation attaches importance to the practical application and conversion of scientific research results. 45.6% claimed that the results of scientific research evaluation were not consistent with their research status. In terms of the correlation between research results and teaching, 44.3% of the teachers believed that the research results are associated with their own teaching practice. 55.4% believed that they devoted the most time and energy in research; only 22.4% believed that they invested most in teaching.

### **3 Problems of the “dual-qualified teacher” evaluation system in application-oriented colleges**

College teachers integrated the natural attributes and social attributes, for maintaining or consolidating a well-off life and for pursuing self-realization<sup>[4]</sup>. College teacher evaluation is a complex system involving multi-stakeholders. It is not only related to the personnel management system of colleges and the daily teaching work of teachers, but also related to the harmony of interpersonal relationships in schools and the professional development of teachers. The survey found that some criteria of the teacher evaluation systems in China are not reasonable, such as incomplete evaluation subjects, homogeneous evaluation criteria, and incomplete evaluation content.

#### **3.1 Incomplete evaluation subjects**

College teachers play the dual role of both subject and object, and the core of the evaluation is the professional development and the free development of teachers<sup>[5]</sup>. The existing evaluation system of college teachers in China is obviously administrative, which focuses on the management and monitoring of teachers from the internal organization and management of colleges. It attaches too much importance to the appraisal and selection functions while ignoring the feedback and communication effects. The subjects who evaluate teachers are mainly the leaders from the relevant functional departments, and the academic supervisors. They do not necessarily have the relevant qualities required for professional evaluation, and nor do they necessarily have access to the information needed for an objective evaluation. However, they absolutely control the evaluation. This supervisory evaluation system has obliterated the demand of the teachers for independent development, thus ignoring the interaction, feedback and communication among the evaluation subjects. It is not conducive to the independent development of “dual-qualified teacher”. Even in the era of diversification, the subjects of evaluation are limited to colleges, without the participation of independent review agencies and other third parties. Enterprises, industries and other relevant local organizations do not have the chance to participate in teacher evaluation. With the establishment of school-enterprise cooperation and the deep integration of production and research, the sources of local college teachers will be more diversified. This single-dimensional evaluation method that is confined to colleges has hindered the mutual engagement of talent between enterprises and the mutual recognition of titles. It is not conducive to the optimized development of teachers’ structure in local colleges.

#### **3.2 Homogeneous evaluation criteria**

The *National Mid- and Long-term Education Reform and Development Plan (2010-2020)* proposes to “establish a college classification system and implement classified management”<sup>[6]</sup>. Research-, teaching-, and application-oriented colleges assume different main functions and colleges of the same type develop differently. Even in the same profession, the teacher evaluation should vary with different types of teachers. The purpose of teacher evaluation is not only to assess teachers, but also to

train teachers and to provide a variety of development options for different teachers. Due to the homogeneity tendency of the national college evaluation, the criteria of teacher evaluation are similar in China. The modeled evaluation criteria that consider the teaching periods, the level of journal, and the ranking of the project are not scientific and feasible in determining the tacit knowledge and application ability of teachers. They stifle the creativity and personality development of “dual-qualified teacher”. The applied research projects of application-oriented colleges require long-term cooperation between teachers and between schools and enterprises. The “one-size-fits-all” evaluation method drives the teachers to “avoid disadvantages” by working for results that come easily. In this way, the teachers and the colleges will develop in the same way, which will not be conducive to the diversified development of “dual-qualified teacher” and the diversification reform of higher education.

### 3.3 Incomplete evaluation content

The content of the teacher evaluation is to judge the reality or potential value of the teachers' work<sup>[7]</sup>. The functions of evaluation which is divided into the “teacher competency evaluation” that focuses on the process and the “teacher performance evaluation” that focuses on the results<sup>[8]</sup>. Teaching, research and social services are the three basic functions of colleges and carrying out academic activities around these three missions is the content of college teacher evaluation. Confined to the thinking pattern that pursues advanced knowledge, colleges tend to treat scientific research as the main content of teacher evaluation and ignore the application of technology and public services. The “dual-qualified teacher” evaluation tends to focus only on the evaluation of teaching performance and scientific research ability, which weakening the evaluation of social service ability and practical innovation capability. It is true that the current “dual-qualified teacher” promotion system and the academic reward standard do not seriously weigh the achievements of “dual-qualified teacher” in teaching, research and social service. This evaluation that prioritizes research over teaching pushes many teachers take shortcuts to get promotion, which leads to the short-term utilitarian tendency towards research. On the other hand, they are struggling to cope with the teaching evaluation and thus have no time to allow for their own academic research interest. This one-sided evaluation content induces teachers to change towards utilitarianism and is not conducive to the comprehensive and sustainable development of “dual-qualified teacher.”

## 4 Suggestions on perfecting the “dual-qualified teacher” evaluation system in application-oriented colleges

Marxism believes that fairness is not eternal or born, but changes with historical conditions. People's idea about fairness is their reaction to the social life and social relations. Marx also pointed out that “The so-called absolute fairness should not and can not be achieved”<sup>[9]</sup>. Most local colleges in China evaluate teachers based on academic standards, which conflicts with the value orientation of application-oriented colleges to regard technological innovation and serving industry as actual contributions. Therefore, local colleges must seriously study the “dual-qualified teacher” evaluation strategy and make timely adjustment to their teacher evaluation method in order to exploit the guiding role of teacher evaluation in professional development. The evaluation should be able to promote reform and development on the basis of respecting teacher individuals and evaluating teachers fairly and ensuring successful transformation of local colleges.

### 4.1 Build an interactive and multi-dimensional “dual-qualified teacher” evaluation subject system

(1) Change the concept and pay attention to teachers' independent evaluation

The “dual-qualified teacher” of local application-oriented colleges is under great pressure physically and mentally. Only by fully mobilizing the teachers' awareness of independent evaluation and empowering them to evaluate themselves so that they are liberated from the passive management, monitoring and screening, will it be possible to put them wholeheartedly into work. For example, “dual-qualified teacher” should be given the right to participate in independent evaluation during qualification recognition, promotion and distribution of benefits in order to truly exploit the potential of teachers and promote the independent development of teachers.

(2) Create conditions and actively promote the interaction between the evaluation subjects

The work of “dual-qualified teacher” is extensive, and the interaction between subjects can strengthen functions of the feedback and communication, weaken the limitations of their own vision,

promote teachers' self-reflection and collective development, and become a useful supplement to teachers' independent evaluation. For example, the interactive evaluation between teachers and supervisors, between teachers and students in daily teaching activities can "benefit both teachers and students". In interdisciplinary academic activities, interactive evaluation with authority experts and peers can promote harmonious development of teachers as a group. In team research and joint technology research, interactive evaluation between teachers, technical experts and practitioners can cultivate the team spirit of "dual-qualified teacher".

(3) Improve the system and distribute the power of the evaluation subjects rationally

The introduction, management, mobility and cooperation of "dual-qualified teacher" need to break down the personnel management system of local college teachers based on academic qualification. The school-enterprise cooperation system can be improved to encourage enterprises and industries to actively participate in the "dual-qualified teacher" evaluation, ensure that "dual-qualified teacher" can receive training in enterprises, and guarantee that the academic results from product research and development and other academic activities outside the campus are acknowledged in the evaluation. At the same time, an interconnected school-enterprise personnel management system should be established and the evaluation power of local college management should be weakened while the evaluation power of enterprises, industries and third parties should be strengthened. The rights and interests of high-level mobile talents between schools and enterprises should be protected and the optimal development of the overall structure of local college teachers should be promoted.

#### **4.2 Build a flexible "dual-qualified teacher" evaluation standard system**

(1) The combination of consistency and diversity in teacher evaluation criteria

Nothing can be accomplished without norms or standards. Local colleges must have a set of scientific and operational criteria as an important basis for personnel management and teacher development. Due to the complex human nature assumption and the unique professional characteristics of "dual-qualified teacher", it's necessary to build diverse teacher evaluation criteria to meet the professional development needs of different types of teachers. For "dual-qualified teacher", the result of application-oriented personnel training should be emphasized. More incentives should be provided by rewarding their ability to make technological transformation and to carry out product development and technical research.

(2) The combination of quantitative indicators and tacit achievements in evaluation criteria

Quantitative evaluation can simplify the complexity of a phenomenon into numbers and infer the result of the object through analysis and comparison of the numbers. Quantitative indicators can clarify the actual performance of teachers' work. However, due to the specificity of "dual-qualified teacher", excessive quantification in evaluation will not only fail to scientifically evaluate teachers, but also may break the integrity of their work. The teacher evaluation of application-oriented colleges should keep closely track of the knowledge dissemination, application, social service and other tacit achievements of the teachers. For example, the academic evaluation criteria should not only include scientific research results, but also consider the teachers' effect on the personality of the students, the career guidance, the collaborative innovation and social service capabilities, etc. This kind of evaluation criteria will guide teachers to observe academic ethics and achieve their life value through dedicated teaching and social services.

(3) The combination of management and development in teacher evaluation criteria

The formulation and implementation of teacher evaluation criteria is aimed to promote the development of teachers in colleges and improve the quality of higher education. "Dual-qualified teacher" are confronted with the transformation of colleges, the reform of personnel training model, and the change of their roles. The evaluation criteria should not only focus on the past and present performance of teachers, but, more importantly, pay attention to teachers' development. The evaluation should be not only result-oriented, but also process-oriented<sup>[10]</sup>. The effective evaluation criteria of "dual-qualified teacher" should reflect the corresponding material incentive and system guarantee and also pay more attention to the spiritual world of "dual-qualified teacher" and the evaluation of the development potential of teachers in local colleges.

### 4.3 Build balanced “dual-qualified teacher” evaluation content system

#### (1) Expand the scope of teaching ability evaluation

In teaching ability evaluation, the contents are not only containing the traditional teaching workload and teaching performance, but also including the teaching innovation and the effect of applied talents training of “dual-qualified teacher”. For example, teachers’ participation in teaching reform, curriculum innovation, discipline construction, and training of application-oriented talents should be included in the content of teaching ability evaluation.

#### (2) Scientific evaluation of teachers’ scientific research ability

In the evaluation of scientific research ability, the research performance of teachers should not be judged simply by the number of papers they publish; it is the development, effectiveness and practicality of the research results delivered by the “dual-qualified teacher” that count. For example, in the evaluation, attention should be paid to the relevance of the research projects they conduct to the subjects they teach, to the development of academic disciplines, and to the development of industry research. Teachers should be encouraged to associate their research areas with regional industries closely in order to promote the effective transformation of scientific research.

#### (3) Broaden the content of teacher service evaluation

In the evaluation of service ability, with the expansion in social service content of local colleges, the “dual-qualified teacher” evaluation can not be limited to teaching services, but should also pay more attention to the public service ability and academic creativity. For example, in the service ability evaluation of local college teachers, more attention should be given to the participation of teachers in relevant academic activities, product R&D and regional technical research. “Dual-qualified teacher” should be guided to walk out of school to make their contribution to the development of local economic.

## 5 Conclusions

Fairness of higher education is an important part of social fairness. The fairness of college teacher evaluation involves multi-stakeholders. It not only relates to the personnel management system of colleges and the daily teaching work of teachers, but also influences the harmony of college interpersonal relationships and the professional development of teachers. The guiding role of teacher evaluation in professional development needs timely adjustment of the teacher evaluation methods.

First of all, an interactive multi-dimensional “dual-qualified teacher” evaluation subject system should be constructed. The suggestions are: paying attention to the independent evaluation of teachers themselves and liberating teachers from being screened out into academic and social services completely; promoting the interactive evaluation between subjects and strengthening the feedback and communication of teacher evaluation; allocating the power of evaluation subjects reasonably and promoting the optimal development of the overall structure of local college teachers.

Secondly, a flexible and diverse “dual-qualified teacher” evaluation criteria system should be built. The combination of consistency and diversity in teacher evaluation criteria, the combination of quantitative indicators and tacit achievements in evaluation criteria, and the combination of management and development in teacher evaluation criteria should be adhered to.

Finally, a balanced “dual-qualified teacher” evaluation content system should be built. The scope of teaching ability evaluation should be broadened; the research ability of dual-qualified teacher should be evaluated scientifically; the content of social service ability evaluation should be broadened. The fair evaluation of “dual-qualified teacher” should focus on not only past and present performance of teachers, but also teachers’ sustainably development. The practical contributions of teachers should be highlighted, and more importantly, the academic achievements and practical contribution of teachers should be weighed scientifically from perspective of overall development of teachers to effectively improve the ability of local college teachers to promote the integration of production and research. The evaluation should be able to promote reform and development on the basis of respecting teacher individuals and evaluating teachers fairly, which ensure successful transformation of local colleges.



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## An Analysis of Grid Construction Model of Smart Pension Service in China

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**Abstract** With the rise of smart pension service in China, this pension service system which utilizes information means including Internet, Internet of things and social networking services is widely applied into family pension, institutional pension, community endowment brings hope for the solution of increasingly serious aging and the huge pension pressure, however, many problems are still existed. Aiming at solving problems in smart pension service, the local governments have preliminarily explored the grid models of smart pension service in China including the “1 + 43 + N” model in Chao Yang District, Beijing and grid pension model in Heshui County, Gansu in which results are achieved to some extent, but standardization and systematization are still insufficient and need to be further enhanced. The paper makes improvement in smart pension service grid models mentioned above and establishes the “N334” Chinese smart pension service grid model featuring “four modernizations and one system” of “net aggregation, dispersal, synergism and sharing” through analyzing literatures and grid theory.

**Key words** Smart pension service, Grid management, “N334”, Four modernizations and one system, Model

### 1 Proposal of problems

According to the latest data from National Bureau of Statistics, it was said that the aging population had reached 229 million in China at the end of 2016, which means the huge pension pressure will be the issue that the Chinese government has to consider carefully in the future for a long time. Although the traditional “home-based pension” model experiences decomposition with the constantly development of Chinese market economy in recent years, the new pension service model and concept exert great impact on the traditional one, bringing about many pension service models including “institutional pension” and “community endowment” as well as other models. These pension models alleviate China’s huge pension pressure to some extent, however the need for elderly health, happiness and smart pension is far from satisfied as a result of many problems existed in these two pension models and their maladjustment to special culture and national conditions of China<sup>[1]</sup>.

With the emergence of information network technologies like “Internet plus” and “smart cities”, rocketing progress is made in smart pension service model. Unlike the traditional pension service model, the smart pension service model is a completely new pension service model relying on the Internet, Internet of things and information network. This model attaches great importance to elderly health, happiness and demand for smart pension, collects various pension resources and coordinates actions of main parts (elderly, children, families and medical institutions) responsible for pension issue by utilizing advanced information technology so as to improve the ability and level of Chinese pension services.

Currently, the smart pension service in China still faces problems widely existed in dispersive sources of resources, jagged smart pension products, fragmented resource allocation, and low efficiency of model construction and operation in smart pension model<sup>[2]</sup>. Studies on grid model of smart pension service are conducted at home and abroad with the purpose of better carrying out the smart pension service.

#### 1.1 Literature review of grid management

The grid technology refers to an information technology which appears originally in the field of computer, however, the concept of grid management rises in recent years due to exploration in this grid technology from scholars and is widely utilized in public management. Foster defines the grid as the collaborative solution of resources sharing and problems in dynamic multi-organization<sup>[3]</sup>. Zheng

Shi-yuan, a Chinese scholar holds that the grid management refers to a management concept abstracted from the computer technology which integrates management resources collection, resource grid division and coordination allocation of resources of management objects as one in order to maximize the integration and efficiency of resource utilization<sup>[4]</sup>.

China is one of countries which widely applied grid management early in urban management practice in actual management process in addition to discussion about grid management in a theoretical level. The “grid management” model was initially proposed by Dong Cheng District, Beijing in 2004, which was followed by Zhoushan, Hangzhou, Shanghai and other places. As a result, its positive effect has been tested widely.

### **1.2 Literature review on grid management of smart pension service in China**

The smart pension service in China is a practical attempt for the government in effective and precise supply, while the western scholars have conducted exploration about application efficiency of grid management in public service. Salamun and other scholars believe that grid management is able to solve invalid organization and coordination problems among investors in public service; Wiener believes that grid management refers to one of important trends of service-based organization theory. Robert Agranoff and Michael McGuire argue that grid management is an important part of public governance theory<sup>[5]</sup>.

In practical field, the “1 + 43 + N” pension service model was established by Chaoyang District government, Beijing, China in September 2016 whose establishment and practice are based on status quo of elderly population in this district, actively apply the Internet technology and combine with the concept of grid management. Its construction concept is “ensuring fundamentals, promoting general preferences and leading high-end” in institutional pension, “small-scale, multi-functional and profession” in community endowment, and “grid, zero distance and post station” in home based pension, forming the “1 + 43 + N” pension service model. The pension service model made by government of Beijing Chaoyang District effectively enhances the level of pension service in this district by virtue of relevant concepts of grid management, becoming the prototype of smart pension service grid model<sup>[6]</sup>.

A series of explorations are also made in grid management of pension service by Heshui County, Gansu, China. They propose the slogan of “family pensions serving as basis, institutional pension as support and community service as dependence” according to real situations locally, then divide local area into four grid service responsibility areas including social volunteer service, community agency service, spiritual pension service and elder right service, and provide comprehensive management service to the elderly in this area by relying on grid-based urban areas, effectively enhancing standard of pension service<sup>[7]</sup>.

In a word, there is still a long way to go for Chinese academic community to conduct theoretical exploration in grid model of smart pension service. An observation to actual process will show that the local government has begun preliminary exploration in grid model construction of smart pension service; although its model is a regional one with effect to be tested, it has become an inevitable trend to establish a perfect Chinese smart pension service grid model.

## **2 Research design of grid construction model of smart pension service in China**

This paper establishes “N334” Chinese smart pension service grid model by adopting grid model construction concept of net aggregation, Vig, configuration and synergism on the basis of literature review and grid management theory as well as improvement in pension service grid models in two regions above. Among them, the net aggregation refers to aggregating many resources and carrying out integrated processing to build a highly integrated system; Vig refers to dividing aggregated resources into different layers according to different standards; collaboration refers to uniformly allocating resource in different Vig units; synergism refers to making clear about relationships between layers and Vigs to realize a high degree of synchronization and integration. The grid thinking strengthens the scientific, refined and systematic construction of the model construction, and forms the concept of “grid”, a completely new concept in Chinese smart pension service grid model construction.

## 2.1 Grid construction model of smart pension service in China

The “N334” model with “four modernizations” as the core is established by viewing Chinese smart pension service as the research object and applying grid method, which breaks through limitations of traditional smart pension service grid model and enhances effectiveness of grid model construction.

“N”— “net aggregation”. It includes resources of government, market, NGO, the elderly and children by focusing on resource integration, and integrates resources of this N multi- grid construction model of Chinese smart pension service into a resource system featuring “Five in One” so as to solve the problem of decentralized resource sources;

“3”— “Vig”. The Vig includes three layers of the target layer, the demand layer and the product layer and forms a fine resource content construction system to solve the problem of repeated resource content;

“3”— “Configuration”. It refers to forming three models combining family pension, community endowment and institutional pension by virtue of platform optimization configuration to solve the problem of fragmented resource allocation;

“4”— “Coordination”. It refers to systematically promoting grid model construction of Chinese smart pension service through guidance in one aspect and multi-aspect linkage, and coordinating four stages of “planning, implementation, evaluation and adjustment” so as to solve the problem of low efficient model construction and operation.

The “N334” model starts from resource of “network aggregation” smart pension service, and absorbs all resources invested in the field in order to ensure that the resources can be utilized much and widely; then it divides unified resources into different circles according to a certain standard, which means a reasonable classification to prevent repeated resources utilization and waste; after resource classification, it carries out organic combination between resources and three traditional pension model including family pension, institutional pension and community endowment while providing online and offline resource allocation; finally, it, with the purpose of preferably making the “N334” model come true and run, establishes coordination mechanism of four stages from the planning, implementation, evaluation to adjustment.

## 2.2 Classification and aggregation and integrated processing of N multi-smart pension service resources by net aggregation model construction method

Firstly, one has to regulate net aggregation with the opinion of system theory before assembling smart pension service resources: it must provide a systematic basis of grid physics, create a systematic smart pension service network platform, and realize analysis, calculation, adjustment and deployment of data and resource as a whole.

### (1) Creation of cloud platform of smart pension service resource aggregation

It is necessary to build Chinese smart pension service resource platform featuring “Five in One” by centering on resources in five aspects including government, enterprise (market), NGO, the elderly and children, and fully utilizing information and means such as Internet of Things, Internet and big data so as to realize effective aggregation of smart pension service resources. Based on this platform, various elements are able to be clustered and integrated into the cloud platform through Yunju mechanism, and then integrate resources and their relevant elements by using the unified organization platform, technology platform and information infrastructure platform.

### (2) Establishment of aggregation mechanism of smart pension service resources

Smart pension service resources in China include: Chinese government smart pension service resources aggregation; enterprise (market) smart pension service resources aggregation; NGO smart pension service resources aggregation; elderly and children smart pension service resources aggregation. The network mechanism of Chinese smart pension service collects and aggregates all elements and resources of Chinese smart pension service on the basis of grid technology so as to carry out resources regulation macroscopically as a whole.

First and foremost, it is necessary to transform resources and elements of Chinese smart pension service into calculating data which can operate in a computer environment. Moreover, the information technology and means can be adopted to change these resources and elements into corresponding

codes which run through the entire process from plans of data to discovery and access and, from submission of data to transmission, and become binding into a manifestation mode of data finally.

Then the final data obtained will be aggregated into the net aggregation platform, and these calculation data not only contain specific material resources of smart pension service, such as manpower, material and financial resources provided by different subjects, but also their information resources, ideas, organization system, the legal system and the implementation ways; besides, these elements are subordinate to grid mechanism system of Chinese smart pension service to ensure that a data aggregation platform same to “resource pool” will be formed.

### **2.3 The smart pension service products can be divided into three layers including the target layer, the demand layer and product category layer by using construction method of Vig model**

The “N334” model carries out Vig processing in smart pension service resources by viewing content as the core and starting from three layers including the target layer, the demand layer and the product category, which forms a resource system featuring “fine division, dynamic combination and autonomous relevance”.

(1) Clear about target positioning of Chinese smart pension service and expanding model construction effect

The smart pension service aims at “serving the elderly, the market and the society”. The elderly caring aims at serving the senior citizens and meeting the need of healthy, happy and smart pension of them. Correspondingly, the primary goal for “N334” Chinese smart pension service grid model is to solve problems concerning production, live, social communication and entertainment of the elderly.

The pension service refers to serving both the elderly and enterprises. Serving as a public service with clear division of demand level, the pension service is provided with simply minimum basic pension service safeguard from the government, which is not easy to meet demands of different elderly groups. Therefore, the “N334” Chinese smart pension service grid model is able to vitalize smart pension service market, make full use of market resources and offer jobs in smart pension service market through greatly attracting social capital and introducing advanced technology and adequate financial resources of enterprises, facilitating economic development.

Broadly, the aim for Chinese smart pension service should serve the society. Currently, it is children who are under great pressure in pension service in China, and on the one hand, the only child has no choice but bear the responsibility of supporting parents due to the traditional Chinese pension service culture and deeply rooted concept of bringing up sons to support parents in their old age; on the one hand, young children feel it is nearly impossible to support their four parents due to pressure from employment and their own development. A reasonable positioning of goals in Chinese smart pension service is good for reducing the pressure on children and liberating labor; meanwhile, the development of sunset industry will provide the society with more products and labor.

The “N334” Chinese smart pension service grid model divides various smart pension service resources aggregated into different layers in accordance with target positioning of “serving the elderly, the market and the society,” which is an effective measure to expand model construction results.

(2) Aiming at demands of the Chinese elderly to the smart pension service, and deepening model construction goals

The demand of Chinese elderly to smart pension service mainly includes material demand physically and cultural and recreational demand mentally. It is one of the main tasks for “N334” Chinese smart pension service grid model to satisfy material and cultural demand of the elderly based on targeting positioning of smart pension service in China. The smart pension service aims at providing online and offline pension service products, docking with the elderly directly and bringing them the feeling of using and consumption so as to improve their sense of gain and happiness in life. Therefore, the “N334” Chinese smart pension service grid model should not only solve the problem of resources allocation and utilization but also satisfy demand mentally of the elderly after material demand is met.

Therefore, the “N334” Chinese smart pension service grid model divides various smart pension service resources aggregated into different layers in accordance with “material demand” and “mental demand” so as to satisfy the elderly in many aspects and maximize resources utilization efficiency.

(3) Centering on two Chinese smart pension service “products” and ensuring the maximum resources efficiency

A series of smart pension service products appear in Chinese smart pension service market including hardware facilities and software facilities, and the former refers to facilities which can be used by the elderly such as smart bracelets and wearable facilities as well as others. These facilities are equipped with extremely humanized design so that their children and family members are able to know situations of their parents through the management software at any time. Besides, there are a series of software facilities, such as the elderly data information platform, mobile smart app, medical help line and others. Investment, production and supply of products in each part rest with a lot of manpower, material and financial resources, therefore, the division of resources grid should center on two Chinese smart pension service “products” in order to ensure maximum efficiency of resources.

#### **2.4 The smart pension service resources should be excellently allocated into three models including family pension, institutional pension and community endowment by the means of configured model construction methods**

We should excellently allocate smart pension service resources in three models including family pension, institutional pension and community endowment by the means of “realizing resources allocation and improving allocation efficiency through the platform” and realize highly shared systematic model construction by combining online and offline channels.

##### **(1) Building three Chinese smart pension service model operation platforms**

The smart pension service mostly adopts a model with family as basis, community as dependence and institution as supplement. Therefore the “N334” Chinese smart pension service grid model applies smart pension service into three traditional models by combining with three traditional pension service models, and gives full play to maximum utility of resources allocation by combining with existing different geographical areas of three pension service models.

Firstly, it is necessary to establish an operation platform that “family pension service + smart pension” model. It is said according to incomplete statistics that 90% of the elderly in China spend their later days by staying at home (home-based pension). The Chinese smart pension service grid model is able to allocate other smart pension resources and establishes smart pension home-based service platform integrating the positioning system, smart call system and remote health monitoring as well as other systems for the elderly on the basis that the home-based pension service is equipped with housing, living supplies and other existing infrastructure pension resources.

Secondly, it refers to establishing “community endowment service + smart pension” model operation platform. The allocation of Chinese smart pension service into the community endowment is able to provide the elderly with entertainment and communication services.

Finally, it is necessary to establish the “institutional pension service+ smart pension” model operation platform by viewing institutional pension as a supplement which is inspired by Western pension protection. It mainly includes old people’s home, gerocomium and pension welfare house. The “institutions pension + smart pension” operating platform refers to an internet management platform integrating personnel management, the elderly daily life management, elderly pension expenditure management, health care for the elderly, social and recreational activities management as one.

##### **(2) Combining supply ways of online and offline smart pension service**

The “N334” Chinese smart pension service grid model refers to a model which jointly allocates resources by applying basic physical equipment and network virtualization software, platform and systems. Therefore, great importance must be given to online and offline supply ways in the process of resources allocation, besides, we must make full use of advantages of Internet, Internet of things and information technology to provide the elderly with better practical offline public service.

#### **2.5 It is necessary to harmoniously promote four stages of planning, implementation, evaluation and adjustment of smart pension service grid construction by means of coordinated model construction method**

(1) Establishing smart pension service grid construction committee and improving the top design of management

In the entire cycle management process of “N334” Chinese smart pension service grid model,

there is a close relationship between planning, implementation, evaluation and adjustment of model construction and specific realization of adjustment process with the responsibility of the top management authority. Therefore, it is inevitable to establish an smart pension service grid construction committee in charge of improving the management of the top design, designing overall scheme of model construction, supporting environment in model construction and coordinating daily management.

(2) Dividing four stages of model construction and promoting coordinated construction as a whole

The Chinese smart pension service grid model refers to a cyclic construction process and we, holding the purpose of effectively protecting the effective model construction, have introduced the PDCA cycle management concept of “plan-do-check-action”, divided the model construction process into four stages including planning, implementation, evaluation and adjustment, carried out integrated construction into the whole process of model construction and effectively integrated operation, security and management activities of model construction as one in order to enhance the efficiency of model construction<sup>[8]</sup>.

### 3 Research conclusions

The Chinese smart pension service has been widely troubled by dispersive resources sources, jagged pension service products, fragmented resource allocation and low efficiency in smart pension model construction and operation for a long time. Moreover, the Chinese pension service resources fail to meet demands of healthy and happy pension for the elderly due to their ineffective aggregation; the crossed and repeated details of smart pension service stop the effective docking between supply and demand; it is not easy for smart pension service to form a systematic supply system as a result of poor resources allocation; the smart pension service model construction is equipped with “high consumption and low efficiency”, and progress should be made in synergism during the construction stage.

This paper studies literatures at home and abroad on grid management and smart pension service grid management by referring the “1 + 43 + N” smart pension service model in Chaoyang District, Beijing, China, and the grid-based pension service model in Heshui County, Gansu Province, and establishes “N334” Chinese smart pension service grid model featuring four modernizations and one system of “net aggregation, Vig, synergism and sharing” by relying on grid management theory. Comparatively, the “N334” Chinese smart pension service grid model makes detailed plans from the extensive aggregation of resources to the rational allocation of resources, then to the effective allocation of resources, and finally to the synergism and implementation of “N334” grid model, which is a positive exploration in maximizing benefits of smart pension service in China.

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# The Functions Lag of Local Government and the Plight of Online Booking Car Governance

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**Abstract** With the online booking car service develops rapidly in recent years, it appears to facilitate people to travel, ease traffic pressure but at the same time also brings a series of “problems”, such as, it “shocks” the current taxi industry, lacks the corresponding the legal system definition and protection, government governance and supervision and so on. However, the local government functions lag has exacerbated the chaotic phenomenon of online booking car. The local government functions lag reflected in the gap of government functions between “ideal status” and “actual status”. This paper introduces the government functions lag, expounds the relationship with the governance of online booking car service, discusses the deep reasons for local government functions lag limit the development of online booking car service, and then puts forward the countermeasures on the dilemma of online booking car governance, so that facilitate the local government functions changes and the online booking car service market develops healthily.

**Key words** Local government, Functions lag, Online booking car, The governance dilemma

## 1 Introduction

Adopted at the Third Plenary Session of the 18th Central Committee of the Communist Party of China(CPC), and be pointed out in the “Decision of the Central Committee of the CPC on Some Major Issues Concerning Comprehensively Deepening the Reform”<sup>[1]</sup>, The plenum pointed out: The overall goal of deepening the reform comprehensively is to improve and develop socialism with Chinese characteristics, and to promote the modernization of the national governance system and capacity. The government is the regulator of economic development, the provider of social public goods, the maintenance of the market order, is the “night watchman.” The construction of the national governance system and the improvement of the governance ability depend on the change of the functions and the ability of the government. Therefore, if the modernization of the state is to be realized, the government function must be changed reasonably and effectively.

So far, the research of transform government functions at home and abroad is many. In the aspect of the transformation of the modern government function, Xue Lan and Li Yu-huan put forward that “the transformation of the functions of the Chinese government should be consistent with the logic of the modernization of the state governance.” Tang Xing-jun and Qi Wei-ping put forward that “under the background of national governance modernization, To promote social fairness and justice, to achieve the public interest to maximize the good governance as a value orientation”; as for speeding up the transformation of government functions and the necessity of the way, Huang Xi, Wang Tian-wei, Xue Zhen-kun and other scholars in-depth discussion; Li Ruo-nan, Xiang Chao, Shi Ya-jun and other scholars also put forward a lot of worthy of referenced views about the problem which need to be solved urgently in the transformation of government functions. However, about the impact of the gap between “ideal status” and “actual status” in the government function on the online booking car, the academic community has not yet been explored. Therefore, we need to explore the topic of the study.

## 2 The connotation of the local government functions lag

### 2.1 The concept and expression of government functions lag

The concept of “government functions” is extended from “cultural fall”. American sociologist W.F. Ogburn used the concept of “culture lag” in the “social change” first which published in 1922, it's pointed out that the cultural lag is result from the inconsistency in the speed of change between material culture and non-material adaptation culture. He believes that when the material conditions change, the adaptation of culture should also be a corresponding change, but to adapt to cultural and material changes in culture is not synchronized, material culture changes are often faster, and adapt to



culture there are deep-rooted inertia, there is Lag, which is the theory of cultural lag(Li Hua-sang, Chen Beibei, Hou Wei-wei, 2011<sup>[2]</sup>). China is currently in the period of social transformation, the local government in the administrative behavior there are many problems, which makes the “cultural fall” in the local government function level performance the local government “function lag.” The so-called local government “functions lag”, refers to the local government functions should have reached the “ideal status” and the in fact have not reached (i.e “real state”). In other words, the local government functions can not meet the development needs of the country and society, which includes two aspects: First, the local government and the central government in the functional changes in the gap or differences; Second, there is a gap between the local government in the functional transformation and economic social development requirements(Xie Qiu-shan, 2015<sup>[3]</sup>).(Here to emphasize more refers to the latter in this article)

With the increasing social and public affairs and the frequent occurrence of public problems, the difficulty of government governance is increasing. In the face of various difficulties, the local government gradually exposes many problems in the performance of the government, resulting the phenomenon of government functions lag. This phenomenon is manifested in the following two aspects: First, the local government service concept has not yet fully implemented, most still use the management concept of management of society, resulting in local government failed to perform well, and thus can not meet the needs of society and people. Second, in the process of social transformation, the interests of the game is intricate. As the local government also has its own interests, therefore, when the local government part of the interests of damage, it will lead to local government boycott. In order to pursue their own special interests, the local government will often change from the public servants of society to the masters of society, when the phenomenon of “selective decision” and “selective implementation”, that is, the performance of local government in the implementation of its decision The responsibility of the decision is very likely for their own interests or special interests of the interests of the parties; In the performance of their duties, it is likely to be less to do (initiative, inactive, as long as no mistakes), arbitrary conduct (regardless of the tube, shouldn't tube of the tube) and not as (look without seeing, listening in without hearing, the less trouble the better).

## **2.2 The reasons for the lag of local government functions**

Social transformation is the process of rapid cultural change, the depth of interests adjustment, social reintegration process(Ma Xiao-hu, 2016<sup>[4]</sup>). In the process of social transformation, the state and society have undergone tremendous changes, which have forced the government function to make some corresponding adjustments. However, as there is a gap between the material culture and the spiritual culture in the process of social transformation, the “ideal status” and “actual status” of the local government function also have the same gap, that is, the function lag of the local government is unavoidably.

First of all, the local government's governance concept is too backward, the official standard thinking seriously. “ It is not difficult for people to accept new ideas, but let them forget the old ideas is real difficult(John, Maynard, Cairns, 2009<sup>[5]</sup>).” When the state and society with the social changes in the demand for local government functions change, the local government and officials failed to timely concept conversion The local government officials always uphold the old “rule” thinking about the citizens, the lack of “rule” to “management” to “service” change consciousness; and the central and local The change of concept is not synchronized, the different levels between the various levels of local government officials caused the existence of the phenomenon of lag, so that the exercise of government functions can not meet the needs of society, leading to the local government functions lag.

Secondly, the local government functions are unclear, lack of enthusiasm to perform the function. In the period of social transformation, some local governments uphold the bounded rationality of “economic man”, driven by the goal of maximizing the interests and “self-interest” as the center, there are “free riders” and “opportunism” Behavior, the lack of functional fulfillment of the enthusiasm, so in the process of performing government functions, the local government will inevitably produce behavioral deviation, easily fall into the “everyone is responsible” and “everyone is not responsible” state, for the government local protection Doctrine, generalized administrative intervention, “there is a policy, under the countermeasures” and so on to provide the environment. And with the development

of society, the increasing social and public affairs and the frequent occurrence of public problems. The complexity, spillover and indivisibility of these public affairs and public issues make the local governments exercise their own power in the process of governance and it's difficult to get a reasonable division of the standard and clearly defined, resulting in the government function is unclear, and further lead to action prevarication, leading to intensify the local government functions lag .

Finally, the local government system power and responsibility boundaries are vague, the mechanism is not perfect. Local government management level is top-down, different levels of government in the vertical relationship between the general responsibility of the division of the phenomenon is not clear enough, that is, "Isomorphic Responsibility." It is precisely because the government "Isomorphic Responsibility", the system of power and responsibility boundaries blurred, leading to the local government functions can not be a reasonable division, thus restricting the efficiently functioning of government functions. In addition, the mechanism of local government in China has yet to be improved. Government mechanism and government functions are closely related to the effective functioning of local government functions can not be separated from a good mechanism to adjust, once the government mechanism problems, the operation of government functions will be chaotic. Take performance evaluation for example, government officials are always trying to maximize the benefits of various interests, so if the performance appraisal mechanism can, to some extent, promote government officials to work effectively, but if the mechanism can not make the government officials take the initiative to perform their duties, then the local government functions lag will further expand, and in turn affect the effective operation of the mechanism.

### **3 The general situation about online booking car**

#### **3.1 The rise and development of online booking car**

At the Third Session of the 12th National People's Congress, Premier Li Ke-qiang put forward "Internet +" action plan for the first time in the government work report, and the service innovation of "Internet + Transportation" fully embodied the new format of "Internet +". At present, the Internet about the ride-hailing (Hereinafter referred to as "online booking car") is developing rapidly, which is a controversial emerging things, it mainly refers to the passengers with the Internet platform, the use of smart phones APP taxi software, a convenient way to travel between transport services. Didi Chuxing, Uber, Ucar, Easy to transport and so on, these all the new ways of online booking car. Didi currently become the fastest growing Internet company in China and even the world, it is sitting 300 million users, the driver more than 14 million, 14 million drivers are 10% of the total number of motor vehicles in China, covering up to 400 cities, including a taxi, special car, express, free ride, bus, generation driving, car rental and test drive and other service lines. The orders of Didi per day service more than 13 million, the order volume to drop the second largest after Taobao China's largest Internet trading platform<sup>[6]</sup>. In addition, Didi Chuxing merged with Uber for a better development, which opened the road to internationalization. At present, the market is still not saturated, there is a lot of space for development, so this area is still expanding.

#### **3.2 The reasons for the rapid occupation of the market**

The first one is that the development of online booking car market is closely related to the new urbanization. At present, under the new urbanization strategy of the country, the scope of the city is expanding and the urbanization is developing rapidly. At the same time, the urban public transport pressure is also increasing, and the restriction of the travel mode has brought great traffic to the city troubled. At this point the emergence of online booking car, to meet the needs of the market, with the people's car needs for transport services, effectively alleviate the city's public transport pressure, but also hit the black car market to some extent and reduce other illegal acts.

Besides, the development of online booking car to break the traditional taxi monopoly, won the hearts of the people. In the past the car rental market, the number of taxis is small and difficult to play, refused to load the phenomenon is very serious, and after the rise of online booking car, compared with the traditional taxi, it avoids refusal, detours, poor attitude and other issues, to provide users with a higher than the taxi service quality, not only in accordance with people's travel time to provide car services, but also in the peak flow to choose the right, time-saving road to solve the phenomenon of

congestion problems, for people to bring convenience, so get the majority of users support.

In addition, the online booking car market to the community to create employment opportunities, led the economic development. China's social employment pressure is always a chronic illness, a considerable number of people are faced with "employment difficult" phenomenon. The rapid development of online booking car platform has created jobs for the unemployed, both to solve the problem of employment and to increase the income, while also promoting the socio-economic development, so attract the majority of people involved, which makes the network The development trend of online booking car is only high not low.

Finally, the Internet is very developed, which makes the network sharing platform for the development of online booking car to provide a good opportunity. At present, China is in the era of Internet+, through the network sharing platform, the online booking car market rapid expansion, which makes vehicles and road resources can be used to reduce the waste of social resources. In the grid about the car platform, taxi resources are shared in real time, which makes the online booking car service can be the first time to meet the customer's car needs, and in the run-time selection of smooth sections to save the user's time, which to some extent Inhibit the purchase of some people's desire to reduce the number of private cars growth, making the vehicle and road resources to be effective use, thereby slowing the tension of road resources, to avoid waste of social resources.

#### **4 The impact of local government functions lag on the development of online booking car and the reasons**

Online booking car is a shared economy, sharing the economy is the inevitable trend of social development. In the past year, the development of online booking car prosper, travel market continues to expand, to the community has brought a great contribution. Local government should vigorously promote the development of online booking car, however, due to the impact of their functions lag, the local government can not make fast and effective control of the online booking car market, but increased the online booking car "chaos", disrupting the order of social and market, which to a certain extent, seriously restricted the network of the emerging car industry, the rise.

##### **4.1 The impact of local government functions lag on the development of online booking car**

In the process of the development of online booking car, the function of the local government can not keep up with the demand of social development, which has produced great functions. This has a great negative impact on the development of online booking car. After the rapid occupation of the car rental market, the traditional taxi industry has been a great impact, for the parties to consider, in order to protect the interests of the taxi system, the government issued a series of provisions to restrict the development of online booking car. Beijing, Shanghai, Guangzhou, Shenzhen and other regions have introduced local online booking car management approach, detailed provisions of the driver and vehicle conditions. Before, the online booking car have a large impact on the traditional taxi industry, the core of the management approach is regularizes the management of online booking car, Shanghai needs to possess Shanghai hukou and car, Beijing must be Beijing man and have a Beijing car, Shenzhen has a city residence or residence permit can apply for a driver<sup>[7]</sup>. Many compliance requirements seem to be in the regulatory network about the car market "chaos", but in reality is to raise the industry threshold, refused to take the new things, the protection of monopoly, and even the maintenance of local governments and taxis and other related interests of the interests of the group, which is bound compression network about the development of the market space, inhibit the rise of this emerging industry, but also to the needs of consumers can not be met.

##### **4.2 The functional lags of local government is responsible for influencing the development of online booking car service**

To begin with, the local government's governance concept is too backward, the official standard thinking seriously. The formation of ideas is a long process, so it is difficult to change in a short time. The rise of online booking car industry is rapid. When the demand for local government functions changes as the development of online booking car is related to the development of the local government, some local governments and officials still maintain their old ideas and adhere to the official standards and fail to carry out in time The concept of renewal and conversion. The concept of

the lag will inevitably have an impact on the decline of government functions, which makes the local government in the process of managing the online booking car about the market can not meet the needs of the community, not only widened its functions lag, but also severely restricted the online booking car industry expansion.

Furthermore, the local government less to do or not as, there is a clear absence, not in place. With the development of online booking car, the ride-hailing market itself also appears many problems, such as: rip-off, detours, fare increase car, the harassment of passengers, threats, and even network car drivers damage killed passengers vicious cases, a small number of local government by the utilitarian interference, and always uphold the “the less trouble the better” principle, always selective performance: their own positive to act as, on the contrary reluctant to act. For example, in the face of the online booking car of “chaos”, the local government only when there are some vicious events, will only slightly manage it, but failed to actively and timely development of relevant laws and regulations or based on existing laws Provisions to strict control, which exacerbated the online booking car market “chaos”, leading to good money drive bad currency, restricting the development of the network about the car. In addition, by the lag of the impact of some local governments in order to safeguard their own interests, failed to assume regulatory responsibilities, there is a clear absence and not in place. On the one hand, the online booking car development at the beginning did not strictly regulate, the assessment of access to personnel and vehicles numerous and messy, owners of vehicle and vehicle safety there is a big hidden danger, the operation of online booking car and the protection of consumer rights and interests There is no security; On the other hand, due to the rapid development of online booking car and the traditional taxi industry had a huge conflict, damage the interests of local governments, which makes the local government on the taxi industry all kinds of bad behavior ignored, , resulting in a lot of security risks. Local government management process, in the widening of the government functions lag at the same time also restricts the development of online booking car.

Finally, the local government administration arbitrary conduct as an over-intervention online booking car development. In the face of the online booking car to share the new economic situation, a few local governments seem overwhelmed, but unwilling to “show weakness”, and forget the Premier Li Ke-qiang repeatedly stressed: “For the government, law no authorization can not to do; for the market, law no prohibited can be done”, they abuse the people to give the right, frequently waving administrative intervention stick, on the network bus to intervene, which undoubtedly seriously restricted the development of online booking car. June 21, 2017, Premier Li Ke-qiang at the executive meeting of the State Council for WeChat and share the economy is to say, “If people follow the old way to control, there is no today’s WeChat”; “Do not still use the old way to manage the new format”; Sharing the economy is a new format, and how effective supervision it is in order to better promote the development of this industry? The relevant departments must first have an inclusive mentality, prudent supervision, do not come up to die, and more. This is undoubtedly a serious warning to the local government as a result of excessive intervention in the development of online booking car!

## **5 The path choice of the local government for eliminating the functions lag and promoting online booking car development**

Premier Li Ke-qiang said that the sharing of the economy (including the online booking car) is a new format, although not perfect, but the relevant departments to adhere to the “encourage innovation, inclusive prudence” principle, take their responsibility, take the initiative, innovation and supervision, For the market to create a fair competitive business environment.

Firstly, to abandon the official standards and the government-based stereotypes, and effectively establish the service market, to encourage innovation, inclusive prudent ideas and principles. With the development of the state and society, the government and its officials should continue to carry out the concept of renewal and conversion. The correct idea is the forerunner of government governance and an important basis for ensuring the effectiveness and sustainability of governance. Only the correct concept of governance in order to guide the online booking car market rapid and healthy development. Therefore, the face of the development of online booking car, governance philosophy should be followed by conversion updates. The local government should abandon the old stereotypes of the past

and the government-based stereotypes, the government's existence is to rule this idea into the government's existence is to serve, and effectively establish the service market, encourage innovation, inclusive prudent ideas and principles. On the online booking car new things, should be based on the attitude of the service market to encourage the support of its development, in improving the functions of the government at the same time vigorously promote online booking car market healthy and sustainable development.

Secondly, the local government should take the initiative to play a "meta-governance" role, and actively perform their duties, regulate the development of online booking car. The online booking car is a new thing, in the process of development involved in the interests of all parties, has been widespread concern, so in the process of governance should be learned a large number of experiences and lessons from other countries involved in the development of online booking car, combined with China's actual situation online booking car supervision mode to actively explore, improve the relevant laws and regulations, promote industry legislation, speed up departmental legislation, drafting the relevant draft legislation to its constraints and supervision, and further promote the development of online booking car. At the same time, in the face of the "chaos" of online booking car, the local government should take the initiative to carry out the functions of the government, to ensure that the government functions in place, to avoid the lack of functions, not in place, and as soon as possible to improve the administrative department of the regulatory system, Increase the supervision of online booking car, strengthen the audit, protect the safety of consumers, take a proactive approach to reduce the government functions lag into the effective control of the online booking car development, do well in guarantee work of online booking car development.

Thirdly, the local government should be reasonable as, to "sometimes delegated authority, quit the management which should not be done, manage well the matters that fall under its supervision" for the online booking car market to establish a good development environment. In the "Internet + transportation" service innovation background, the local government should be clear and the network between the online booking car market share their respective responsibilities, the implementation of "political+enterprise" regulatory model. "Government+enterprise" regulatory model is the government management platform, platform management car way to manage the online booking car. The government to develop the regulatory operation, the effectiveness of the assessment of the rules, the company is to implement the appropriate regulatory rules and bear the statutory responsibility (Yang Xing-xing, Chen You-yan, Wang Qin-yuan and Wang Gui-fang, 2016<sup>[8]</sup>). In the "government + enterprise" mode of supervision, the local government to develop regulatory guidelines for the daily operation of online booking car for the ongoing supervision and management, but at the same time the responsibility to the platform, give the online booking car platform free control space, enhance the sense of responsibility of the network platform, grant its authority to the vehicle and the relevant staff to conduct a rigorous review, and the platform to work together to protect the vitality of the market while promoting the development of online booking car. In addition, the online booking car platform to reduce the waste of social resources, the community idle vehicle resources integration, centralized scheduling, the use of O2O mode passengers and drivers connected to the platform, make the greatest efforts to improve abuses about the city travel supply capacity and service level is not high.

## 6 Conclusions

"Law without authorization can not do" and "Law without being prohibited can be done" is a criterion that the government and the market should follow respectively. In the era of "Internet + traffic", to the new format of the online car, the local government should not try to "kill" the online booking car, they need to uphold the modern service-oriented government concept, conform to the development trend of shared economy, innovate service and supervision, reduce the government functions lag to make "ideal status" and "actual status" consistent, and advances online booking car market have a healthy and sustainable development.

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## Research on the Dynamic Allocation Mechanism of Network Culture Construction in University

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**Abstract** At present, some achievements have been made in the construction of university network culture. But due to historical and realistic reasons, there are some problems existing in the construction of college network culture, for instance, the maladjustment between the backward planning and dynamic demand, the mismatching between the supply mode of content and the heterogeneous main content, and systematic network culture construction putting forward new requirements of the content disorder. Based on the analysis of the present situation of the construction of college network culture, through further research, exploration and practice, the conclusion that the dynamic allocation mechanism of network culture construction content in university need being established. It is embodied in the clustering filter of content and the mining of users' interest cluster, to attain dynamic configuration and to keep operation based on the collaborative linkage mechanism established in the process of dynamic configuration..

**Key words** Colleges and universities, Network culture construction, Dynamic allocation

### 1 Introduction

The construction of college network culture has important meaning and function for the promotion of development of higher education, and the realization of the fundamental task of morality education<sup>[1]</sup>. The university has paid more and more attention to the construction of network culture, and has improved the educational environment and the quality of talent training in the process of network culture construction. At present, various colleges and universities have established work mechanism of campus network culture construction, adhering to the construction of campus network culture led by the socialist core values to promote the theme and transfer positive energy. They focus on institutional innovation, increase network product strength, continue to strengthen the network of public opinion to carry out rich and colorful cultural network activities and to create a positive campus network culture atmosphere. At last, the construction of university network culture has achieved aspring results.

At present, the construction of network culture in colleges and universities is also facing some new situations. In the international community, the developed countries in the west take their advantages of information network to constantly strengthen ideological infiltration in the domestic universities; In domestic situation, our country is in the period of transition, and all kinds of social contradictions are reflected on the Internet. It has a great influence on some aspects of college students such as ideological value, moral concept, emotion and feeling; The current ideological and political education in colleges and universities is lack of foresight and of adaptability to the Internet era. The comprehensive effect of these factors puts forward new requirements for the study of the new path of network culture construction in colleges and universities, and puts forward new challenges to the construction of university network culture content.

### 2 Analysis of the shortcomings of network culture construction in colleges and universities

The construction of network culture in colleges and universities is to strengthen the education of college students through the network platform, guide them to keep their political position, adhere to the correct moral concept, and carry forward the positive values and aesthetic appeal. The realization of network culture construction in universities is influenced and restricted by many factors, such as construction content, construction subject and technology carrier. Among them, the content is the core of

the construction of university network culture, and the presentation of network technology, and is also the key driving force to improve the quality of students. Although the construction of campus network culture has made some achievements, there are also some problems including the maladjustment of the cultural needs of college students, dissatisfaction of university network culture construction needs, and mismatching of the complicated network environment.

### **2.1 The maladjustment between the backward planning and the dynamic demand of network culture construction in universities**

In recent years, the rapid development of campus network has played a positive role in many aspects including the ideological education, knowledge inheritance, opinion expression and entertainment life of teachers and students in the college and university. Colleges and universities are fully aware of the importance, necessity and urgency of strengthening the construction of campus network culture, and constantly improving and optimizing the construction and management of campus network culture<sup>[2]</sup>. However, compared with the traditional education management, the development period of campus network culture is relatively short after all, there are still some shortcomings, for instance, insufficient attention, lack of unified planning and other issues.

The existence of these problems has many historical and realistic reasons, mainly embodied in: on the one hand, curiosity for and the ability to accept new things of the students are strong. The construction and improvement of the campus network provides college students a totally different environment in their life, learning and communication from the past, so that they have more space to create independently and to choose freely to satisfy their curiosity; Under the function of the knowledge acquisition in practical environment and education of network platform resources, the students are growing up. Then, they will put forward new demands on the network culture construction, and this demand will continue to grow and change with their thirst for knowledge and curiosity. On the other hand, due to historical reasons in the process of construction of the university network culture, the adaptability of the new changes and new characteristics of the network are not enough, and the awareness of positive response and active exploration need to be strengthened. If the systematic and healthy network communication system cannot be established immediately, and the ability to actively judge network information is lacked, the goal to construct a healthy and orderly network platform will not be achieved<sup>[3]</sup>. This situation restricts the construction and development of network culture in colleges and universities, and is not adapted to the needs of students' growth.

### **2.2 The mismatching between the supply mode and the heterogeneous subjects of university network culture content**

The network itself is an open space, and information can be freely exchanged among users. And the receiver of network information is also the information disseminator. The construction subjects of network culture in colleges and universities covers a wide range including schools, teachers, students, parents, alumni, social organizations and individuals. Among many construction subjects, schools and students are the important subjects in the construction of university network culture. In the concrete embodiment of the main role, the school is the architect and manager of the network culture, and the students are not only the beneficiaries, but also the architects and promoters<sup>[4]</sup>. The different roles of different subjects decide that the acquisition requirements of information resource are different in the campus network culture platform, and the content and mode of information dissemination are also distinguishing.

The university's responsibility and mission determined its role as the main provider of the content of the campus network culture. Colleges and universities are also constantly summarizing the development law of the Internet, strengthening planning and optimizing technology in the construction process of campus network culture to promote position construction of network culture dissemination. However, the attraction of information exchange platform and dating communication platform is far better than the ideological education platform, for instance, the information volume and the speed of information dissemination of BBS of university and red website cannot keep the pace with the commercial website and special news website, and the use frequency of network platform and client with education theme lags behind the client with ordinary communication. In order to solve these problems, we must solve a list of contradictions, for example, the current supply mode of network culture content is



not suitable for diverse needs of subjects, technical means lags behind the commercial advanced platform, and the innovation of network product cannot meet the interaction demands of the subject.

### **2.3 Systematic network culture construction putting forward new requirements of the content disorder**

Campus network, as an important space for college students to learn and live, is not only an active place for innovative thinking, but also an important platform for ideological education and public opinion guidance.<sup>[5]</sup> The construction of college network culture is a part of the construction of university culture, and also an extension of the network space of the focal point that to implement the fundamental task of morality education. Therefore, colleges and universities must start from the basic goal of education, take the university network culture construction as an important part of the personnel training system, and give full play to the leading power and management power.

The construction of network culture in colleges and universities is also a system with its own rules of generation, development and change. When universities initiate the construction of campus network culture, they must carry out their work from a lots of aspects including the target value, the construction subjects, the construction content, construction object, means of implementation and safeguard measures, to establish a working mechanism in line with the reality of universities, and through effective measures to promote their operation. Only in this way can we guide the value orientation of network culture, carry forward the socialist core values, meet the spiritual and cultural needs of teachers and students, and achieve the effect of cultural education.

However, there are great disorders in the construction of university network culture. Various platforms including forums, WeChat, Micro-blog, blog, web site follow and imitate the trend of the Internet development, which are on the line in a short period of time, but few of them can continue to maintain and update; As for the construction subjects, departments, colleges, and even student organizations build their own homepage or network platform which have large quantity, and different publicity. Thus, ordinary students face the chaos of the information reception and have no choice; The dissemination of information including news, entertainment content, and activities promotion, has a wide range of information and uneven quality. Therefore, the school departments can not be reviewed one by one, and the effect of cultural education cannot be guaranteed. Taking consideration of the actual situation, it is necessary to locate the network culture from the overall situation of the university, and to initiate the construction with different functions and classifications.

## **3 Analysis of the dynamic distribution mechanism of university network culture construction**

As mentioned above, the nation and universities attach great importance to the construction of network culture, and the construction and management of network culture has shown a positive trend. Under the joint efforts of all parties, the university network culture content is constantly enriched, and the network public opinion ecology is unceasingly optimized. Moreover, the network positive energy is unceasingly strengthened, and the construction and management of the campus network culture obtain the good result. At the same time, we should also recognize that due to the different basic conditions, and unbalanced development as well as the complexity of the network, and the long-term arduous ideological struggle in the environment of network, the culture of campus network construction is still confronting many challenges.

To solve the existing problems including the maladjustment between the backward planning and dynamic demand, the mismatching between the supply mode of content and heterogeneous subject, and the systematic network culture construction putting forward new requirements of the content disorder in the network cultural construction in college, the further summarization, research and exploration are needed to initiate and the understanding of regularity problem in the culture of campus network construction needs to be deepened.

Based on the analysis of the present situation of the construction of the network culture in universities, the author thinks that we should take the goal of educating people as the starting point, and analyze the multi-cultural demand of college network culture subject, according to the "supply-demand" theory, to integrate the resources of campus network culture. Considering the interaction effect between

the “disseminator” and the “receiver” of information resources in the process of construction of the network culture in university, we need to adhere to the core of the content construction, and establish the dynamic allocation mechanism of cultural content construction of network in universities, to further enhance the effect of education of network culture in universities.

#### **4 Analysis of composition and operation of dynamic allocation mechanism of network culture construction content in university**

The dynamic configuration of content is the core to realize the construction of university network culture. The effective mechanism is divided into three parts: cluster selection of content, mining of users' interest cluster, and dynamic configuration. Among them, clustering selection is the premise, interest cluster mining is basis and the dynamic configuration is the goal. The key point is according to the different stages and the change of demand to make a dynamic adjustment of system structure and resource allocation, so as to attain the collaborative linkage in the process of dynamic configuration.

##### **4.1 Cluster selecting of university network culture construction**

The construction of college network culture performs in many aspects like activities, patterns, products and concept of culture whose purpose is to provide publicity, education, information products of culture and entertainment and network services. At present, the construction of campus network platforms including portal website, theme website, interactive community and “two micro and one-client” (micro-blog, WeChat and mobile client) is increasingly perfect, but due to the large quantity of platform and various information, the college network culture construction exists a great disorder.

Taking into account the multi-cultural status of network culture subject, when constructing the campus network culture, universities should make full use of data mining technology, and implement the clustering analysis and effective screening of the culture of campus network construction content based on the following aspects such as the object features, performance forms, and demand difference. In addition, through grouping and clustering to select the network culture and content with similar characteristics, and to analyze the common, so according to the “supply and demand” theory, we can better improve the education of college students to play the educational function of campus network culture.

At the level of university, they should, based on clustering selection, use existing resources of digital library and virtual laboratory, to establish the classification of network culture resources, and to promote and enhance a list of features of the campus network platform including pertinence, ideology, education, service and interaction. Relying on the different categories of resources, they need to strengthen the website construction of comprehensive portal website and the theme of education website, to promote the construction of ideological and political education blog like the counsellor blog and the blog of teachers of ideological and political education, and to improve the construction of the official micro-blog and WeChat campus public account so as to achieve full coverage of network culture education.

##### **4.2 Mining of the users' interest cluster of university network culture construction**

The deep integration of network environment enables young college students to share resources through mobile terminals such as networks and mobile phones, so as to achieve knowledge accumulation and individual development without restriction of space. As the main supplier of campus network culture, colleges and universities should promote the transplantation and transformation of traditional campus culture content in the network environment through advanced technical means and platforms. However, the existing ideological education platform in colleges and universities is far less attractive than the social interaction platforms and entertainment and commercial websites, and the network platform with education as its theme is far less popular than other exchanges and entertainment platforms. To solve these problems, we must recognize the current situation that existing network cultural content does not meet the needs of users in various aspects of, and the innovation of network culture product cannot attract the users' interest. Meanwhile, we should devote ourselves to mining user interest cluster, and seizing the opportunity to accelerate the development of education.

In the new situation, the construction of university network culture needs a kind of identification and definition mechanism, that is, identifying the relevant attributes of users, and defining their

differential features so as to provide the basis for dynamic configuration. With the rapid development of the Internet, the study, daily life and interpersonal communication of college students have expanded into cyberspace, and formed a unique campus network culture. Starting from the above aspects, we can attain mining of user interest cluster through the definition of students' differentiated characteristics including their own personality, thinking contradiction and psychological factors.

Taking user interest cluster as the main basis, in the network culture construction, colleges and universities should profoundly understand the needs of students on the network, and distinguish the difference of network demands in the different interest cluster to guide the students to actively participate in and create a network platform enjoying both cultural diversity and individuation.

#### **4.3 The dynamic distribution of the content of university network culture construction**

The network environment, as an important part of the campus environment, with a lot of features such as culture diversity, rich educational resources, flexibility of dissemination carrier and extensive participation, is a new field of higher education that cannot be ignored. College students as the beneficiaries and promoters of college network culture construction, under the effect of knowledge acquisition in the real environment and education of network platform resources, gradually change their own communication mode and development model, then increase and change their demands of the construction of network culture.

In order to meet the cultural needs of college students, and match the complex network environment, in the process of network culture construction, the university should under the premise of content clustering selection, depending on the mining interest cluster, combine with relevant content attributes to realize the dynamic allocation, and enhance the interaction effect of communicator and receiver of information resources.

From the current practical work of network culture construction in colleges and universities, the key point of realizing the dynamic allocation is to create a variety of network cultural activities brand. Through preliminary work of researching, data collection and analysis, relying on the classification resources pool based on content clustering, we can make an overall planning of the network of cultural resources in the whole school, and form an influential network activity within the school which has special topics and emphasis horizontally, and has network culture activities corresponding to each important time node vertically. Through vertical and horizontal combination, a three-dimensional network of cultural configuration system can be constructed, which can really vitalize and motivate the campus network culture, to ensure that network culture and education is fully effective.

#### **4.4 The cooperative linkage mechanism of the dynamic distribution of the content of university network culture construction**

The clustering screening, identification definition and dynamic configuration of college network culture construction content is a set of operating system. In the process of building cultural network platform, colleges and universities need make a unified planning and systematic construction, and establish a highly efficient and orderly management system to achieve collaborative linkage.

The school authorities based on the content of network culture construction grasp and confirm the development direction of campus network platform, through professional training of teachers with related theories to guide the construction of the network platform, and to organize a high level student operation team. The student operation team implements its daily network platform operation according to the higher professional guidance, while strengthening the audit of publication delivered from the higher level to the lower level, and paying attention to the timely feedback put forward by the inferior, and eventually to establish a three level system of "planning - management - operation" .

In terms of the integration of the network platform, the author deems that the platform construction should not be divided only by school and community unit, but also by the contents including ideological guidance (academic lectures and education of patriotism), and the provision of student services (affairs consulting and psychological guidance). In the school level, through the interaction of all platforms, we need integrate the same or similar columns existing in platforms. Furthermore, the platform making and push forms with a large amount of attention will be maintained. At the same time, we should pool our wisdom and learn from each other, integrating the excellent points of each platform to form a network culture education platform with more circulation and more distinctive content. It is better to build a

comprehensive navigation network platform which can be regarded as an intermediary for students to provide one-stop services and links to other platforms, and to facilitate users to quickly find the appropriate platform.

## 5 Conclusions

Network culture in colleges and universities is an indispensable part of campus culture, a collection of spiritual and cultural life of college teachers and students, and is also an important carrier for the realization of the basic tasks of colleges and universities. In order to play the effect of education of the construction of college network culture better, there are some problems needing solving including the maladjustment between the backward planning and dynamic demand, the mismatching between the supply mode of content and the heterogeneous main content, and systematic network culture construction putting forward new requirements of the content disorder. The dynamic allocation mechanism of network culture construction in colleges and universities, through clustering and screening the content, develops mining of users' interest cluster, and finally to realize the dynamic configuration of university network culture. This is an important approach relying on the goal of education to meet the multi-cultural requirements of the network culture subjects in universities.

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## Research on the Application of PPP Mode in China's Elderly Service Project

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**Abstract** With the accelerated pace of aging, relying solely on government finance has been unable to meet the diversified needs of the elderly. PPP mode, an innovative mode of building and operating the public infrastructure, is one of the effective ways to solve the elderly needs. However, there are still problems in China's PPP mode for elderly service project, such as the lack of targeted laws and regulations, no specific industry access, and the lack of land, tax or other relevant supporting policies, which restrict the development of the PPP mode elderly service project. Through analyzing and learning from the successful experience of domestic and foreign countries, this thesis suggests that the PPP mode elderly service project should be improved from the aspects of laws and regulations, supervision and management, preferential policies and talent training.

**Key words** PPP mode, Elderly service project, Government support, Talent training

### 1 Introduction

As a new type of public project financing mode, "PPP mode" was first proposed by the British Finance Minister in 1992, aiming at making up for the shortcomings of traditional public service mode, enhancing the level of infrastructure and addressing issues such as the lack of funds and inefficiency of public sectors. "PPP" mode is short for "Public-Private-Partnership". By taking the "win-win" or "multi-win" of participants as the concept of cooperation, government departments and private organizations on the basis of concession agreement form a partnership with each other to provide certain public goods or services by defining the rights and obligations of the two parties through contract<sup>[1]</sup>. PPP mode has the typical features of "partnership, benefit sharing, and risk sharing"<sup>[2]</sup>. It was first applied extensively in the UK in transportation, health, education, national defense and other fields. In the 1990s, China began to try the PPP mode to introduce non-government investment in public utilities such as urban water supply, gas supply, roads, bridges etc. Among them, the National Olympic Stadium put into use in 2008 and the Beijing Metro Line 4 came into service in 2009 can be called successful cases of PPP mode financing. But the PPP mode in China's elderly service project is relatively rare. By querying CNKI.net, it is found that there are about 3,700 related papers on "PPP mode applied to public infrastructure construction", while only about 160 papers on "PPP mode applied to elderly service project", which mainly focuses on the construction of elderly service institution, the elderly industry, home care, medical care combined with elderly service etc. In practice, according to China's PPP comprehensive service platform statistics, as of June 30, 2016, the total number of PPP projects in China is 9285, involving ecological construction, water conservancy construction, transportation, environmental protection and many other areas, of which, there are only 239 elderly service projects, accounting for 2.57% of the total number of PPP projects. Under the policy environment of encouraging the promotion of PPP mode in the field of national public utilities, it is of great significance to study how to apply the PPP mode to the elderly service project in view of the insufficient supply and lack of multi-level elderly service in China. In face of the problem of aging, to attract social forces to participate in the elderly business will not only alleviate the financial pressure caused by aging of the population, but also will help to improve the quality of the services for the elderly and to meet the diverse needs of social, which will make the elderly live better in his later years.

### 2 Problems of China's PPP mode elderly service project

There are some elderly service projects constructed by the cooperation of the government and business in China, but the application of PPP mode in elderly service projects supported by national

level really began from 2014. In 2014, the Ministry of Finance with the Ministry of Commerce issued the “Notice on Carrying out the Pilot Project of Developing the Old-age Service Industry in a Market-oriented Way” to raise the support for the marketization of the elderly service industry. The central government will arrange 2.4 billion yuan to support the marketization of the elderly service industry in eight provinces such as Jiangxi, Hunan and Shandong etc., playing the guiding role of the central financial funds, absorbing the funds of financial institutes such as private capital and banks to promote the development of elderly service industry in a marketization way<sup>[3]</sup>. The PPP mode elderly service project in China is still at the stage of groping. Generally, the operating cycle of PPP project can be divided into five stages, i.e. identification, preparation, procurement, implementation and transfer. In China’s existing 239 elderly service projects, most projects are in the first phase of the identification, and the number is 153, which accounts for 64% of the total, while there are only 23 projects in the implementation phase, accounting for 9.6%. Generally, there are still a lot of shortcomings of the PPP model used in elderly service projects:

First, there is no specific industry access. Although the government has introduced a number of policies to promote the marketization of elderly services, such as the “Opinions of the State Council on speeding up the Development of elderly Services industry” (2013), which proposed to further reduce the threshold for social power to build elderly service institutions in funds, venues and personnel etc., simplify and normalize the procedures. “Implement Opinion on Encouraging Private Funds to Participate in elderly Services Development” (2015), “Opinions on the Full Liberalization of the Service Market to Enhance the Quality of elderly Services” (2016) and many other policies have repeatedly referred to apply the PPP mode to elderly service industry. However, there is no specific implementation plan stipulating how social forces can enter the elderly service industry and no unified industry access conditions, which will undoubtedly affect the PPP mode elderly service projects’ development.

Second, there is no specific supervision and management system. At present, China has no specific department to supervise and manage the PPP project. It is only pointed out in the “Interim Measures for Financial Management of Government and Social Capital Cooperation Projects” (2016) that the financial departments at all levels should strengthen supervision and management of PPP projects together with industry departments. From international experience, most countries have established a central-level specialized agency to be responsible for the management of PPP projects, such as the US National Committee on Public-Private Partnerships, and Australia’s National Public-Private Partnerships Working Group etc. Whether it is from the integration of resources or from the norms of guidance, supervision and management point of view, the establishment of a unified PPP regulatory authority is an inevitable trend, and the unified management will help the PPP projects’ system construction and management standardization<sup>[4]</sup>.

Third, lacking of systematic and specialized land, tax and other supporting policy. The elderly service projects of PPP mode belong, to a certain extent, quasi-public goods, which has significant public interest attributes, and need the supporting of relative land, tax policy. But there are two problems: on the one hand, there is no special tax incentives for PPP mode elderly service project, only relative preferential policies stipulated in multiple documents. For example, the State Administration of Taxation proposed to implement the policy of “three exemptions and three halves” for key social and public infrastructure projects<sup>[5]</sup>. That is, the corporate income tax can be exempted from the project investment income for the first year to the third year, and half tax can be exempted for the fourth to the sixth year. The elderly service project of PPP mode can also enjoy the benefits if it is up to specifications. On the other hand, the policy support of different provinces is different. The overall trend is that the greater policy support, the more elderly service projects are implemented. For example, Shandong province proposes that governments at all levels should put elderly infrastructure construction land into the annual land use plan and overall land use plan. However, the government has not issued a unified policy to clarify whether the construction land of PPP mode elderly service project is put into land use plan. If there is no relevant policy support, it will be difficult for the PPP mode elderly service projects to carry on.

### **3 Practice of PPP mode elderly service project at home and abroad**

#### **3.1 Chile-pensions privatization investment operations**

Chile is the first country to apply PPP mode to endowment insurance, forming the typical “Chile mode”, which is also called “pension privatization mode”. Its main feature is the individual accounts and privatization of management. The government transfers the management responsibility for pensions to private companies, which will operate with paid by using the capital market. Usually, a number of companies will compete to operate, but not any company can become a pension fund management company. It must meet certain conditions and need to be registered in the government. Insured employees can choose a company out of free will, supervise the changes in the accumulation of funds in individual accounts, and the results are entirely accountable to individuals. In this way, the direct responsibility of the government is reduced, and it will only assume the responsibility of legislation and supervision. In terms of regulation, the bureau of pension insurance fund management and supervision will act on behalf of the country to monitor and manage the finance, actuary and implementation of fund management companies. Privatization and capitalization management not only bring a high return on investment to the pension fund, but also provide a new thinking of countermeasures to avoid financial crisis of the traditional social insurance or welfare state-based pension insurance system<sup>[6]</sup>. At present, China’s capital market is not perfect, the pension fund is still under unified management of the social security department. However, it is undeniable that the “Chile mode” also provides a new way of thinking for future investment and management of China’s pension fund.

#### **3.2 Singapore, the United States—The introduction of PPP mode in the construction of elderly service institutions**

In Singapore, social forces are the main force in the operation of elderly service institutions. The government entrust elderly service projects initiated by themselves to private organizations for specific management. At the call of the government, non-profit social groups, voluntary organizations and various social forces are actively involved in the elderly service business. Both public sectors and private enterprises cooperate with each other to effectively meet the social needs of elderly service. The United States is also actively using its developed marketization mechanism in the supply of elderly service. It introduces PPP mode to attract social forces to participate in the construction and operation of the elderly business, so as to create a new multi-level and diversified mode of elderly service<sup>[7]</sup>.

Whether it is Singapore, the United States or other countries which introduce the PPP mode to build elderly service institutions, the government are dominated in the elderly career. It is mainly shown in the following areas: first, the government actively plays its own guiding role to create a favorable environment for the implementation of PPP projects through the development of supportive laws and regulations. For example, the United States introduced the “The Older Americans Act”, “Multi-objective Elderly Center Program” and other legal provisions; second, the government designs a variety of supportive preferential policies and subsidies scheme. For example, Singapore has “double tax rebate” preferential policies, and the US government provides investment subsidies or tax incentives for private enterprises or non-profit organizations which participate in operating elderly apartments; third, the government establishes specialized departments to supervise and manage the PPP mode elderly business. Singapore set up a special project team to manage the development of the PPP mode elderly business, and built a set of pension assessment supervision mechanism. The governments of United States at all levels have set up relevant departments to deal with the design and operation of the elderly business. It also has established specialized supervision agencies and developed corresponding standards and systems for the standardized management<sup>[8]</sup>.

#### **3.3 Public-owned private management mode of Taiwan P.R.China’s elderly service institutions**

In response to the growing demand for elderly services, the Taiwan of P.R.China government is also actively exploring new ways to supply, in which, the elderly service institution of public-owned private management mode is the typical case of using PPP mode to develop elderly service. In order to meet the different needs of the elderly, the Taiwan of P.R.China government uses the concept of combining “welfare” and “industry” to encourage social forces to participate in old-age care, fully mobilizes the enthusiasm and creativity of enterprises to improve the quality of service, and strives to

industrialize the elderly services<sup>[8]</sup>. For example, Taiwan of P.R.China Heng'an Care Group operates the company with the attitude of doing charity business. It uses the funds, technology, brand, management and other advantages of the enterprise to participate in a lot of PPP mode elderly service project, making itself a mode in operating elderly service institution. On the other hand, the government is also actively fulfilling its duties in the care of the elderly, and has developed special laws and regulations on public-private partnership, such as "Law of Promoting the Private Participate in Public Construction" (2001), which standardized and explained a series matter of principles relating public sector and non-public sector cooperation, and also laid a legal foundation for the application of PPP mode in elderly business. Meanwhile, it has also stipulated corresponding development planning and preferential policies, such as the land, planning and design support during the construction of elderly service institution, and bed subsidies, tax incentives, service personnel allowance during the operation. In addition, it also takes strict regulatory system to standardize the development of the elderly business.

#### **4 Suggestions on perfecting PPP mode in China's elderly service project**

China is still in the starting stage in introducing PPP mode into the elderly service project, and it still has a long way to go in the future. In view of the shortcomings of PPP mode applied to the elderly service project in China, the following suggestions are put forward:

First, improve the laws and regulations, and clarify relevant industry access. For the application of PPP mode to elderly service projects, complete laws and regulations should be the first. The state must do well on the top design and planning in the overall objectives, making the PPP mode application more scientific and standardized. Therefore, the primary task is to stipulate specific programs for social forces to enter the field, clarify the rights and obligations of PPP project stakeholders, and regulate the behavior of the relevant stakeholders, so as to ensure the fairness of PPP mode in promotion and distribution of benefits, protect the rights and interests of social capital, and create a good legal environment for the entry and exit of social capital.

Second, build systematic regulatory system. On the one hand, a special PPP project management center should be set up, whose management permissions and scope should be clear in accordance with the provisions of national laws and regulations. On the other hand, the price and quality of the service should be monitored during the operation<sup>[9]</sup>. In terms of price, the hearing system of government-decision price should be improved, listen to the views of the public and ensure that PPP project pricing is more scientific and reasonable. In terms of quality, the credit records of the elderly service institutions and employees should be included in the national credit information sharing platform. The illegal record, the quality of service inspection results and the customer complaint processing results should be taken as important evaluation indexes. It should also formulate a blacklist system and exit mechanism of elderly service institutions and practitioners, and the disciplinary measures such as banning from the industry with limited period etc. should be taken for institutions and personnel which have serious breaks of regulations. In addition, relevant information of the implementation of project should be fully disclosed in accordance with law to protect the public's right to know and to accept social supervision. Finally, making a comprehensive evaluation on the scientific and performance level of the implemented project based on the project results and the effectiveness<sup>[10]</sup>, and learning the lessons, getting rid of its dregs and taking its essence to provide recommendations for the late operation of the project, making it constantly revised and improved, and providing experience for the operation of new projects.

Third, to earnestly implement the land, tax and other related preferential policies to encourage more social capital to enter the field of the elderly service. Put the PPP mode projects' construction land into the land use planning, and supply land according with laws for projects which are in line with the allocation of land. For the paid use of land, it should still be supplied by the method of "bidding and auction". The tax preferential policies for social capital to participate in the elderly business should be implemented, the conditions to enjoy various tax policy should be clearly defined, the coordination and cooperation of tax policy and other policy tools should be strengthening so as to prevent conflicts and jointly promote the healthy development of PPP projects and achieve public and private win-win



cooperation<sup>[5]</sup>. At the same time, the provincial government funds should positively play their own guiding role, and market-oriented elderly industry investment funds with social capital as the object should be set up according to the local situation, if applicable. The guidelines for special bonds in the elderly field should be made and the encouraging terms in favor of industrial development should be formulated to enlarge the financing of PPP mode elderly service institutions' construction.

Fourth, to strengthen the training of professionals. The PPP mode is operated by using the project franchise, which requires complex finance, law, management and other aspects of knowledge. It requires policy makers to develop standardized and normalized transaction processes and provide technical guidance on the operation of the project. Thus, it is necessary for government, professional advisory bodies, schools, enterprises and other market players to cooperate with each other and work together to increase the intensity of personnel training, to have regular learning and training, and to form a professional team which is proficient in all kinds of knowledge. At the same time, encouraging PPP consulting team with certain experience to participate in the design, program identification, financing management, etc. of the elderly service projects.

## 5 Conclusions

PPP mode is an effective way to meet the diversified needs of old people. Although China is still in the beginning of applying the PPP mode to elderly service projects, there have been a lot of successful practice in other countries. In view of the existing problems and the successful experience at home and abroad, to perfect the application of PPP mode in the elderly service project, the Chinese government must play its leading role, perfect the corresponding laws and regulations, clear the specific industry access, and create a good legal basis for PPP mode. It should also straighten supervision and management to ensure the standardized operation of PPP mode projects; Conscientiously implement the land, tax and other related preferential policies to encourage more social capital to enter the elderly service field; At the same time, the training of personnel should also be strengthened and specialized guidance should be provided for project operation.

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## Researches on the Internet Public Opinions Governance in Higher Education Institutions under the Big-data Age in China

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**Abstract** The internet public opinions in higher education institutions is a special type of internet public opinions maintaining significant meanings, and the arrival of the big-data age has endowed the internet public opinions in higher education institutions with many new characteristics. And the internet public opinions has also brought unprecedented opportunities and serious challenges to its governance. Therefore, it needs to start from the new characteristics of the internet public opinions in higher education institutions under the big-data age, seize the opportunities brought by the big-data age, to solve the difficulties encountered during the governance for the internet public opinions in higher education institutions and promote the modernization of the abilities to manage the internet public opinions in higher education institutions.

**Key words** Big data, Internet public opinions in higher education institutions, Opportunities and challenges, Governance ability

### 1 Introduction

The internet public opinions refers to the expressions of social public opinions taking internet as platform, with the main body of the public comprised by various social groups, and the object of kinds of public affairs that can attract the public's attention, which carrier is the internet space which bonds with the society in reality and showing tendency toward emotions, attitudes, opinions and behaviors<sup>[1]</sup>. Among the numerous expression forms of internet public opinions, the internet public opinions in higher education institutions is one with specially important meanings, not only because that the main body of production maintains quantity advantages in the use of internet, but also, the students in higher education institutions is a special social group with high knowledge level, active thoughts and strong social influence. Once the internet public opinions in higher education institutions are out of control, serious negative effects would occur.

Now, the academic circle has carried out in-depth researches into the internet public opinions from various perspectives as sociology, information science and communication science. There are scholars who summarized for the new characteristics of the internet public opinions in higher education institutions<sup>[2]</sup>, and those who have discussed the basic principles and mechanisms for researching, judging and monitoring the internet public opinions in higher education institutions<sup>[3]</sup>, as well as, who have tried to establish a quick response system and work procedure to carry out timely monitor and make timely response to the internet public opinions contingency events in higher education institutions<sup>[4]</sup>. These research fruits have significant reference values for understanding and managing the internet public opinions in higher education institutions. The maturity of internet and computer technology has called for the arrival of the big data age, which, on the one hand, brings new characteristics and unprecedented challenges to the internet public opinions in higher education institutions, and provides new opportunities for the governance over the internet public opinions in higher education institutions on the other hand.

### 2 New characteristics of the internet public opinions in higher education institutions under the big-data age

The internet public opinions in higher education institutions, besides the generality of the common social internet public opinions, has presents its uniqueness because of the characteristics of the group and the environment. Especially, when the large proportion of participation in society, diversified information channels, stronger initiative for information reception, low judgement ability involving complicated topics, all leading to the various reasons for the emergence of the internet public opinions, the wide impacts and the complicatedness in the governance. Especially, the arrival of the big

data age has endowed the internet public opinions in higher education institutions with new characteristics.

First of all, The remarkably diversification trend but with clear tendency. The big data volume, undoubtedly, is the most outstanding feature for the internet public opinions in higher education institutions under the big data age. As the students in higher education institutions are good at using abundant expression and transmission media, the application of pictures, memes, audios and videos ,etc. , leading to the complex data structure and gigantic volume. For the theme itself, the internet public opinions has become a holy place of carnival for the ‘grass-root opinions’ of the students in higher education institutions. The ideology it reflects is colliding with the university students’ view of world, view of value and view of life, and, with the wedge of ideology, it is generating the diversified impacts in the form of radiation. Even though being diversified in themes and ideological forms, their internet public opinions are showing a specific tendency in the behavioral way, thinking mode and values, that is, the self expression of their patriotic feelings, the release of their democratic consciousness and the blame for the undesirable phenomenon appearing on the society, etc.

Secondly, strong but controllable emotions. Staff Le Bon holds that the common psychological state of a group will bring out emotions, and the ideological forms are transmitted with the infection of emotions. Once the ideological form is widely penetrated into the psychological layer of the individuals of the group, the individual will lose his/her judgment ability, and the group behavior will show a certain consistency, become emotional and irrational. The key of the quality of a public opinion lies in the degree of rationality. Most of the university students are not mature in their mental states. They would still show impulsion in the judgment for realities. And sometime, the resistance to reality would happen because of the bother of emotions. With the big data technology, however, their behaviors as clicking, transferring or commenting on the web could be datamated on the one hand. And on the other, based on the realistic and concentrated nature of the students’ column and the strong relevance of the main bodies, the friends’ circle and fans number of the university students can be datamated, on the basis to dig the relevance of data, therefore reaching the targets of predicting beforehand, carrying out real-time analysis and positively guide of internet public opinions in higher education institutions, realizing the high-level control over the internet public opinions in high education institutions in the real sense.

Thirdly, weak individuality but strong group polarization nature. The internet has endowed the individuals with the opportunities to get rid of the restraints imposed by the social roles, and individuals could realize the personalized expression for their emotions, consciousness and subjective understandings through the media of internet starting from their personal demands. But the community psychology and empathy feature of the young generation make the individuality feature weak and the group polarization weak. The group polarization means that under the functions of the group decisions, the individuals may become more risky or more conservative, plus, the group decisions may be easier to go polarization than the individual’s decisions. In the book *The Internet Republic—The Democratic Issue in the Web Society*, Keyes Sunstein pointed out that the possibility for the happening of ‘group polarization’ on the web is two times of that could happen face-to-face<sup>[51]</sup>. Of course, the current web group events happened in higher education institutions have proved this opinion. In the big data age, the behaviors as promotion and recommendation through the relevance of data would easily get the attentions of the university students onto the same even, and the sheep-flock effect may happen, therefore, under the influence of the uncertain factors in the group, the group polarization phenomenon may happen.

Fourthly, the transmission is quick but the fermentation and development speed is quicker. The large-scale and diversified database system with a quick information transmission speed and the diversified internet platform has broken the limits of the time and space earlier. The strong curiosity of the university students has led to their sensitivity to the social information, and the internet public opinions in higher education institutions has displayed the characteristics of quick transmission and suddenness. In recent years, with the extensive popularization and application of big data, the university students have displayed a higher level of sensitivity to the social news and political hot spots than in the internet era. There are even some students who are dedicated to transmitting the non-

mainstream ideological forms. As there are more ‘contacts’ for the objects of the internet public opinions, plus the non-delaying nature of the transmission, the events that couldn’t be fermented easily before could easily become the hot topic of internet public opinions in the big data age, and transmit and develop, posing gigantic challenges to the governance over the internet public opinions in higher education institutions.

### **3 The challenges and opportunities brought by the big data age to the governance over the internet public opinions in higher education institutions**

#### **3.1 The challenges brought by the big data age to the governance over the internet public opinions in higher education institutions**

1. Big data has increased the complexity for managing the internet public opinions in higher education institutions

The big data has lay the data foundation for the governance over the internet public opinions in higher education institutions though, the Big Data Age has witnessed large data and information volume, the diversified data types and more complicated data structures, most of which are unstructured data, such as, videos, audios, pictures and E-mails whose formats are not compatible to one another, bringing significant difficulties to the extracting, storage, governance, searching and application of the data, which is unfavorable to the data digging, analysis, public opinions judgment and governance in the governance over the internet public opinions in higher education institutions. The big data has the feature of low value density of data. That means, among the large amount of data information, only a limited number of data is effective, positive and utilizable, and a large amount of other data information is ineffective, negative or even fake. For the main bodies in the governance over the internet public opinions in higher education institutions, it is difficult to draw the effective data information from the large amount of data. This will lead the governance process of the internet public opinions in higher education institutions to trend toward complexity, which is unbeneficial to the lift of the governance abilities for the internet public opinions in higher education institutions.

2. The internet public opinions main bodies have shown a serious tendency of being emotional and irrational

With the arrival of the big data age, the internet public opinions field is embracing with the characteristics of ‘everyone is the microphone’ , and each of the student on the campus could be the source and publisher of information, hence posing great challenges to the information-controlling rights and the public opinions-guidance rights of the governance personnel in higher education institutions and bringing gigantic challenges to the media pattern of the whole campus. The students, under the influence of the sheep-flock effects, express their opinions blindly with their personal understandings before knowing the truth of an event. There is no irrational thinking in the opinions they expressed. In addition, there are also many students who act against the good public morality and legal norms, taking the extreme measures to carry out the personal attacks to the people concerned, such as swearing, slandering and cyber manhunt, etc.. These public opinions are emotional, irrational and aggressive, violating the privacy rights of the person concerned in this event, and making the governance over the internet public opinions in higher education institutions harder.

3. There is ‘Group Polarization’ phenomena in the opinion expressions, and the campus violence pressure is ascending

The emergence of an education event, plus the emotional opinions and attitudes of the young students could easily ignite a field of internet public opinions. The ‘Group Polarization’ phenomena could easily happen in the young students’ transmission and comments for the contingency events<sup>[6]</sup>. The university students are shallow in the experience, passionate and sensitive, would become irrational in the expressions for the contingency events, and their public opinions expression could easily go distorted and extreme in the group communications and discussions, and sometimes the ‘violent expression’ may happen. This is relevant to some extent to the erosion of the hostility in the society into the campus. Now China is experiencing the social transformation period, and there are complaints and hostility in the society. The hatred to officials and fortune owners is ascending, and the violent expression tendency is expanding, and the higher education institutions couldn’t escape from

this tendency. After the internet public opinions happens in higher education institutions, the students would hardly consider carefully for the details of the event, but would make the ‘kindness or evilness’ judgment casually based on their own subjective understanding, putting on it with the label of morality. In the age of mobile internet, the convenience and timeliness of comments have worsened this violence tendency.

4. The internet public opinions is transmitting rapidly among students, and the leading role of the governance personnel for public opinions is weakened in higher education institutions

In the big data age, the traditional ‘golden 24 hours’ law has lost its power. Now it only takes several hours or even shorter time for a contingency event to be fermented into an event of significant public opinions influence. The internet public opinions, traditionally, can be categorized into several stages as forming, expanding and happening, and cooling and disappearing. This development rule is also applicable in the big data age, but the forming and happening time is largely shortened, and the public opinions happens in a blowout way. There could be no time delay in the information transmission, and the lines among the germination period, the upsurge period, expansion period and variation period are not that clear any more. For the university students, the contingency events in higher education institutions usually happen due to their relevant interests. For the social public and the media outside the school, the importance of the education career and the specialness of the status of higher education institutions determine that it could concentrate the public views more easily, could quicken the transmission speed easily and could enlarge the influence of the contingency events during the transmission. The students could make the ‘Live Show’ at the first minute when a contingency event happens in higher education institutions, therefore maintaining edges in the timeliness and the playability, while the governance personnel in higher education institutions may be in the disadvantageous position in the mobile internet public opinions. Under this situation, the governance personnel would tend to keep silent at the beginning period of the public opinions transmission, because they lack the supports of relevant information. But this period is usually the best chance to guide the public opinions. In the further development of the internet public opinions, the opinions leader may control the guidance for the public opinions, and the student may publish news beforehand. If the relevant governance department of the higher education institution fails to make the timely follow-up and the reasonable response, it will fall into the negative position for a long term, therefore losing the leadership for public opinions.

### **3.2 The opportunities brought by the big data age to the governance over the internet public opinions in higher education institutions**

1. The big data has expanded the scope of the main bodies for the governance over internet public opinions in higher education institutions

The governance is a behavior participated by diversified main bodies, is ‘the interaction between the behaviorists who make the governance through multiple ways and who pose impacts on one another’<sup>[7]</sup>. The internet public opinions governance in higher education institutions was led by the higher education institutions in the traditional way, and the development of internet public opinions in higher education institutions is urging these institutions to lift the governance ability for the internet public opinions, allowing more main bodies of governance to participate into the governance over internet public opinions. The arrival of the big data age has brought opportunities for the expansion of the main bodies managing the internet public opinions in higher education institutions. The university students, the teachers, communities and other organizations of the higher education institutions have generated a large amount of data through the new media, and these data are large in quantity and diversified in the sources, becoming the significant data source for the governance over the internet public opinions in higher education institutions. And this makes possible for the university students, teachers, communities and other organizations of the higher education institutions to become the main bodies of participation to the governance over the internet public opinions. These main bodies of participation could grasp and give feedbacks to the development tendency of the internet public opinions in higher education institutions in a timely manner. The various main bodies, through the cooperation, could participate into the governance work for the internet public opinions, laying solid foundations for lifting the governance abilities for the internet public opinions in higher education

institutions.

2. The big data has promoted the governance transparency for internet public opinions in higher education institutions

The previous governance over the internet public opinions in higher education institutions was a process led by the administrative force in these institutions, therefore the effective communication and supervision mechanisms were lacked. This kind of governance mode could hardly obtain the effective supports from the university students, the teachers of the higher education institutions or other departments, and the functions of the internet public opinions governance in higher education institutions couldn't be fully played. The modern Governance Theories require the number of main bodies of governance to negotiate for the problems confronted on the premise of being open and transparent. In the big data age, with the development of the data digging, analysis and predicting technology and the emergence of a huge amount of data information, the main bodies of governance for the internet public opinions in higher education institutions could all grasp effective information through the big data, and the governance mode led by the administrative force in higher education institutions could no longer meet the governance needs for the internet public opinions, and being open and transparent becomes a must choice for the governance of internet public opinions in higher education institutions. This has provided new opportunities for improving the governance abilities for internet public opinions in higher education institutions.

3. The big data provides supports for the in-depth digging for the relevance among data

The age of big data is an age of data explosion, and there are hundreds of millions data generated on the internet. Making the deconstruction and reconfiguration for the huge amount of data with big data, and deep digging the relevance between the data could provide more sufficient web information for the audience and make sufficient integration for the data assets, therefore improving the accuracy of the decisions made. The deep-digging ability of the big data technology could avoid the blind following of the public, preventing the phenomenon of the public all being on one side when it comes to the internet public opinions events. To establish the basic database of public opinions and the database of the relevant domains with the large-amount-data processing ability could enrich and perfect the decision-making and reference system of the internet public opinions, lift the abilities for handling the public opinions and settle the internet public opinions crises, constructing a harmonious web space for public opinions.

4. The big data could 'Predict' the Future of Internet public opinions

One of the core characteristics of the big data is 'predictability', which means the possible results could be obtained with the relevance relations analysis. In the reality society, the individuals, take account into their social nature, bear the pressures from the group and the concerns for being afraid of being isolated, would keep silent in front of many issues. While the anonymity and interactive nature of the internet has reassured the people, therefore the silence period is shortened in the big data age, and the transmission speed quickens. The recipient part could grasp the rights of control only if he/she could make the response for the public opinions within the incubation period. As a result, the internet public opinions governance in big data age should enhance the analysis and judgment for the public opinions information related, but should not just collect the internet public opinions data. More importantly, it needs to carry out in-depth researches and judgment over the public opinions data, making the alert and decisions in a timely manner.

#### **4 Countermeasures for managing the internet public opinions in higher education institutions in the big data age**

In the new age, the development of big data has become a must trend for the development of the internet. The governance personnel in higher education institutions shall seize the opportunity based on the new characteristics of the internet public opinions, lift the governance ability for the internet public opinions, effectively guide the correct direction to the internet public opinions in higher education institutions, creating a clean web environment for the university students. Targeted on the challenges brought by the big data age to the internet public opinions governance in higher education institutions, this paper proposed the following measures for governance.

Firstly, to widely obtain the supports of big data but could not rely totally on the data, and the people's subjective initiative should be fully taken advantage. The big data is in a mess, and the big data itself doesn't generate values, which generate in the process of usage. Each of the users is digging for the usage values of the big data based on the personal preference and use purposes. Especially, for the tasks with not a high precision request, the important thing is not the precision but the decision-making speed. Therefore, during carrying out the internet public opinions governance in higher education institutions with the big data technology, the focus should be depend on observing the abnormalities that shouldn't happen, not only on the structural data, but also on the non-structural data, therefore the most comprehensive data could be obtained. However, the big data is mechanical and cold, and the thing it discloses is the possible relevance relations but not the logical relations. As a result, to carry out scientific judgment for the values of the big data, the professional personnel's assistance is needed. Therefore, it needs to cultivate a batch of professional personnel dedicated to the internet public opinions monitoring, researching and judgment in higher education institutions, and with the logical thinking of people, to carry out accurate and rational analysis for the information hidden behind the data, therefore accurately predicting the potential behaviors of the web behaviorists and the events that may lead to adverse consequences.

Secondly, to cultivate the consciousness of rational expression for the main bodies of the internet public opinions, co-building the civilization of public opinions. In the book *A Study of the Popular Mind*, the French social psychologist Gustave Le Bon said: once the individuals enter a group, their individuality will be killed. They will become emotional. Their personal judgment ability will be lost. The group thoughts will be in the leading position and the individuals will follow the behavioral performance of the group<sup>[8]</sup>. The university students, as the main bodies of the internet public opinions that maintain the same opinions, would form a web group. Compared with the isolated main bodies on the internet, the university students' community on the internet are fragile to the emotions of the group. With the absence of their rationality, they abuse their Rights to Free Speech, therefore resulting in the happening of the campus internet public opinion events. The rational expression of the main bodies of the internet public opinions is the key factor for the higher education institutions to establish the civilization of public opinions. On the one hand, the higher education institutions must insist with the online and offline integration, to cultivate the students' consciousness for rational expression and combine the on-class education with the off-class education, guaranteeing that the students could restrain their personal words and deeds when they are making the expressions online, enhancing their abilities of judging for the public opinions and the abilities of carrying out rational analysis on the various social phenomena. On the other hand, the university student citizens should improve their own qualities and cultivate their abilities of self discipline, establishing the public opinions civilization. The university students, as the main bodies of public opinions in higher education institutions, should perceive information from a dialectical and objective perspective, judge and analyze the public opinions based on the actual situation of them, refuse to expressing opinions, transmitting information and uploading information irrationally. They should cultivate the consciousness as the main body and establish the public opinion civilization, therefore forming a good ecological environment for public opinions.

Thirdly, to observe closely the persons playing the key roles in the students' relations network in higher education institutions, carrying out timely control over them or giving a full play to their positive functions. The interpersonal relations and social interactions for the students in higher education institutions have displayed obvious community characteristics and the clear edges, and the most typical communities include grade, class, community, the same origin, and the topic group, etc. Among them, there are those personnel of node who belong to several communities at the same time, and these people are very important for the connectivity of the entire social interaction network and are the key nodes for expressing the opinions online and transmitting the internet public opinions. As a result, the governance over the internet public opinions in higher education institutions must pay attentions to the functions of these persons of nodes, not only enforcing the monitoring to grasp the new orientation of the internet public opinions in a timely manner, but also making them into the conveyors for positive energy by strengthening the education for them. Pay special attentions to the

leading functions of the opinions leader in the students' group, build up the mainstream opinions leaders. The higher education institutions should take a full advantage of the opinions leader's power for public opinions, to guide the general orientation for public opinions, assisting with the governance personnel to reduce or release the public opinions pressure. For example, the backbone teachers and the teaching instructors could all become the opinions leader, by taking advantage of data, making the timely response to the topic spots discussed by the students, positively guiding the internet public opinions on campus.

Fourthly, the governance personnel should hold firmly the discourse power for the public opinions, improving the governance level. In the big data age, only by firmly grasping the guiding power for the public opinions will determine the follow-up development orientation and hold the discourse power for the public opinions. The governance personnel in higher education institutions should take advantage of the authoritativeness of contents, being good at taking the commanding ground in the contests of public opinions and grasping the guidance power for information. When confronted with the public opinions crisis, should accurately grasp the source of information. By taking a full advantage of the principles of big data public opinions, pay close attentions to the ideological dynamics of the main body for public opinions and the orientation for public opinions. Respond positively to the public opinions offline and those online. After carrying out analysis and judgment for the nature and contents of those public opinions, publish the authoritative information you have grasped, guiding the public opinions orientation with target.

## 5 Conclusions

The development of big data has rebuilt the ecology and environment for the public opinions governance in higher education institutions, getting the internet public opinion work to become one of the priorities of the governance in higher education institutions. The higher education institutions should, by taking advantages of the data and giving a full play to the subjective initiative, cultivate the students' consciousness for rational expression, cultivate the opinions' leader with positive energy, do a good job as to check for the discourse power for public opinions and the developing process, to innovate on the public opinions dealing mechanism and to guide for the audiences' demands in the whole process, etc., therefore reaching the target of lifting the governance ability for the internet public opinions in higher education institutions.

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## An Analysis of the Targeted Supply of Urban Community Service Based on the Perspective of “Internet Plus”

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**Abstract** The targeted supply of urban community service with the “Internet Plus” platform technology and resources integration is an innovative supply model of public service. The public service embedded in “Internet Plus” is one of the newest perspectives in the field of public service supply researches. Based on the public service supply of urban community and the internal needs of “Internet Plus” platform, this study suggests that the community should establish unified norms of “Internet plus public service”, improve the infrastructure of community network, develop the professional talents on the Internet, and pay attention to the human-oriented needs of community residents and a series of optimization path to promote the deep integration and space expansion between “Internet Plus” and public service supply. Finally, this paper aims to enhance the efficiency of public service supply.

**Key words** “Internet Plus”, Public Service, Community, Targeted supply

### 1 Introduction

Nowadays, “Internet Plus” has a significant promoting effect on the development of economical society, and the integration between “Internet Plus” and urban community development is showing a vast space and unlimited potentials. From the perspective of theoretical research, some scholars have made preliminary researches on the integration between “Internet Plus” and urban public service, the role of social governance and the influence of culture construction of urban community. However, the researches related to public service supply of “Internet Plus” urban community are rare. From the practical point of view, under the background of “Internet Plus” integrating into social resources, the demand for a convenient, efficient, low-cost and individualized public service of urban community is becoming more and more urgent. The traditional non-information technology for public service hasn’t been ineffective to meet the growing demands of community residents. There is an urgent need to integrate the new “Internet Plus” information technology into community public service supply so as to achieve the targeted supply requirements for urban community public service, and promote the short radius of public service supply, efficient mating of demand and supply, effective collaboration of supply objects. Therefore, under the background of “Internet Plus” continually integrating into social diverse resources, the accurate public service supply of urban community can achieve the expected public service requirements for differentiation, convenience, transparency and high efficiency through “Internet Plus” model.

### 2 “Internet Plus” and the targeted public service supply of urban community

#### 2.1 The definition of “Internet Plus” and targeted supply of public service

In the report on the Government’s Work of the 3<sup>rd</sup> Session of the 12<sup>th</sup> National People’s Congress, the government has put forward “Internet Plus” plan as the one of the national strategies. As the concept of “Internet Plus”, academicals have given different interpretations from the different perspectives. Ma Hua-teng clearly proposed in the NPC proposal, “Based on the Internet platform, ‘Internet Plus’ uses the technology of information and cross-border integration of various industries to promote industrial transformation and upgrading, and continues to create new products, new business and new models.” Wang Guohua explained it from the social point of view. He thought that “Internet Plus” was to use the Internet to transform the existing industry, resulting in a new industry model. Huang Huang held the view that the economical essence of “Internet Plus” was the realization the reconfiguration of global information resources and an upgraded vision of industrialization and informatization. This model can achieve a comprehensive integration of industry, business, finance and

other service industries<sup>[1]</sup>.

Delicacy is an innovative management model, which originated from the concept of precise management in Japanese enterprises in 1950s. At home, Wang Zhong-qiu was the first person to propose the concept of delicacy management, and he pointed out that “Delicacy management is a technical method to adjust products, service and operation process used by managers”<sup>[2]</sup>. In the field of public service supply, Wang Chang introduced the delicacy concept into the supply of government public service and defined its connotation as four levels, that is, the precise positioning of government functions, careful service attitudes, fine management process, and competitive supply results<sup>[3]</sup>. However, Zhao Min believed that the presentation of government’s public service supply was mainly to measure whether the behavior was standardized or not, whether the process was precise or not, whether the supply was targeted or not, whether the assessment could be qualified and standardized or not and so on<sup>[4]</sup>. Hence, the targeted supply of public service was often considered in terms of supply and consumption. It emphasizes a fair, impartial and open service concept, and gives consideration to provide the equal and universal-type public service supply under the premise that the total amount of public service resources is limited and scarce. At the same time, it is for the public needs and effectively captures the precise positioning, so as to realize the optimal allocation of public resources and efficient docking of supply and demand.

Therefore, conclusion can be seen that the definition of targeted supply of public service in the process of “Internet Plus” is an innovative public service model based on the technology of “Internet Plus” platform and resource integration. It integrates with medical care, hygiene, education, pension and other public service through the Internet technology, and provides residents with humane, intelligent, standardized, convenient and targeted supply. By the way of optimizing the supply factors, updating supply systems, reconstructing supply models and so on, it promotes the transformation, upgrading and innovation of community public service supply, so as to realize the differentiation, standardization and efficiency of public service supply<sup>[5]</sup>.

## **2.2 Internal requirements of “Internet Plus” for the targeted supply of urban community public service**

Firstly, the requirements for the information transparency and collaborative communication of public service supply. The multi-agent supply of public service has become an inevitable trend of community public service supply, but the collaboration of supply subjects of public service often causes supply failure due to asymmetry and incomplete information, resulting in information mismatching of supply and demand and information distortion between the multiple supply subjects. Then, this information barrier heavily blocks the efficient supply of community public service and it is difficult to realize the optimal allocation of public resources. However, “Internet Plus” makes it possible to eliminate the “information island” between the demand subjects and supply subjects and change the blocking supply information of public service. On the one hand, government, market and the third part organizations finish the spread and display of comprehensive information of public service products through the Internet, cloud computing, internet of things and other new technologies, making national public service policy and supply service information more transparent and open, which is helpful to promote share and interconnection of public service information between various supply subjects; on the other hand, urban residents can choose service according to complete service products information displaying on the Internet, which can effectively hit and meet the key needs of residents.

Secondly, the requirements for intelligent and digital construction of smart community. The Ministry of Housing and Urban and Rural Construction put forward that the construction of smart community should take the comprehensive information service platform as the support, fully apply modern science and technology, integrate community information, and then coordinate resources such as public administration, public service and business service, and finally form an intelligent, modern, information-based innovative model of community management and service. It can be seen that smart community establishes developing space and good foundation for “Internet Plus” to deeply integrate with community service and to realize information platform as support. Moreover, although the construction of smart community provides residents with convenient public service, the covered

aspects of intelligent service is narrow, also lacking the suitable operation model of public service, and personalized and individualized demand for residents' public service is difficult to realize effectively. Therefore, "Internet Plus" can use Internet, cloud computing, Internet of things and other information technologies to effectively improve the efficiency of community public service supply. Through the "Internet Plus" professional and core operational capacity, "Internet Plus" can have an in-depth exploration on the existing data based on smart community, further expand the construction channels of smart community and build the two-way information docking platform between demand and supply so as to achieve precise supply and personalized design. This model can not only improve the efficiency government's public service supply, but also effectively satisfies the personalized needs of residents. Driving under this two-way interaction of endogenous power, this model can make "Internet Plus" and the construction of smart community integrate with each other to promote community public service in the direction of sustainable development.

Thirdly, the requirements for human-oriented interaction and differentiation supply. The traditional construction and development of community public service lack humane consideration on residents as the subjects, and the political performance of community public service construction is prior to the performance of human development. Certainly, there exist many other shortages, such as too much emphasis on the size and function, seeking for more, a dominant role in the "vast" value cognition, ignoring the differentiated and personalized need for public service. However, under the community public service supply "Internet Plus" model, the disadvantages of residents in acquiring the public service information can be effectively reversed. As the bridge between demand and supply, "Internet Plus" can make residents become relatively complete rational people. They can not only deeply know the quality, efficiency, process and cost of public service, but also they can participate in the process of design, production and operation management, so as to achieve deep interaction. Thus, the relationship between supply and demand changes from the government-leading supply to the residents-leading supply. Finally it fundamentally changes traditional model between supply and demand, and forms the cornerstone of the targeted supply of public service.

### **3 The targeted supply requirements for the public service of community in the process of "Internet Plus"**

#### **3.1 The targeted supply requirements for the public cultural service of community in the process of "Internet Plus"**

Community culture is the internal meaning and soul, and is the important contents of community construction and development. Moreover, rich and prosperous community culture is beneficial to cultivate residents' sense of belonging and identity and to narrow the distance between neighbors, which has a positive effect on promoting harmonious community. In recent years, the cultural construction of our country has improved a lot, but there are still some defects, such as most of community lacking the spirit of responsibility, inadequate effect on the cultural guidance, dull and single cultural forms and contents. Especially, when Internet technology is widely used in all aspects of social lives, using Internet to satisfy residents' cultural service needs to be further improved. After vigorously promoting the community cultural service construction under the Internet system and developing traditional community culture at the same time, residents can actively participate in the community cultural construction<sup>[6]</sup>. Thus, it is beneficial to add residents' sense of belonging and identity and make community culture construction refresh new vitality. Here, community public cultural service is not to apply mechanically and follow the same patterns, instead it should present the cultural value of community and forge the multilevel and normal interaction of diverse subjects. Therefore, "Internet Plus community culture" can ensure the shared and public-spirit community culture and narrow the demanding differentiation between districts, communities and residents, which makes the forms become more diverse and the contents more creative. Especially, for those floating population, they can know the community culture through community network service platform so as to reduce the strange and departed sense and improve the sense of belonging.

### **3.2 The targeted supply requirements for the medical service of community in the process of “Internet Plus”**

The medical service of community is the basic way for community residents to enjoy the health care service. Although the number of the medical service institutes is increasing year and year with growing investment in service people, health facilities and health funds and more wide covering area, the allocation of resources of community’s medical service is still unbalanced and the distribution is still unreasonable at the present stage. Therefore, providing residents with quick and convenient service becomes urgent. On one hand, the information of medical health service has a high specialization and is tailored for residents. Except the general information of medical service that residents need to know more, residents should also obtain the exact and precise medical service information for different disease; On the other hand, under the condition of unbalanced allocation of medical resources, there exists the mismatching time and space, high medical cost and low medical efficiency when residents enjoy the precise medical service<sup>[7]</sup>. Hence, “Internet Plus community’s medical care” mode can put the medical subjects and resources in the same and different regions together so as to form a medical community stretching across time and space. This mode also enables to realize the organic integration between medical subjects and resources, break the service distance of time and space, achieve the convenient treatment service and activate medical health service system of grassroots community.

### **3.3 The targeted supply requirements for the pension service of community in the process of “Internet Plus”**

With the increasing development of ageing of population, the population bonus decreases gradually. Thus, the problem of community pension service becomes a significant issue in the process of constructing and developing community’s public service. Recently, *Notice on the Further Improving the Work related to Pension Service* jointly which is issued by National Development and Reform Commission, Ministry of Civil Affairs and National Office for Ageing, has clearly put forward to make full use of existing resources and social forces and apply the Internet and internet of things to the pension service, so as to push on the “Internet Plus action” mode in the field of pension. However, there exist many problems in the community pension service, such as single and unprofessional service. In addition, Internet makes the elderly population lack of pension services. So, it is urgent to implement the pension service contents of “Internet Plus” and fully take advantage of the platform of Internet. Thus, those aged people can experience the convenience and high efficiency of Internet and rich modern network life on the Internet so as to make Internet become the new entertainment for elderly. At the same time, the elderly is a group who can easily become ill and they don’t accurately understand their own physical condition. However, the cloud service platform of Internet can comprehensively analyze the healthy files and body condition, exactly judge whether people are healthy or not, and provides accurate and efficient pension service<sup>[8]</sup>. Through “Internet Plus pension” mode, people can also build the special service zone on the community social network, can combine the housekeeping services, the spiritual service, medical services and caring service, in order to enhance life quality of the old people and makes Internet technology play an important role when the elderly spend their time in their late years.

### **3.4 The targeted supply requirements for the education service of community in the process of “Internet Plus”**

The orientation of community education is to meet every resident in the community, and use flexible learning time to provide convenient, diversified and targeted educational services for the community residents. Represented in the actual teaching, the traditional community education mainly focuses on the three aspects: cultural appreciation, education counseling, and home economics education. This form of education is fixed, single and rigid. Moreover, the number of audience is not large and the educational coverage is not wide. At the same time, due to the asymmetrical education resource information, it is difficult for a large number of residents in demand, especially floating population, to acquire and share community’s education resources. Besides, most of residents who are able to easily enjoy the education resources are not willing to participate in community education because the education contents cannot be updated frequently, which also results in the waste of

community resources. “Internet Plus community education” mode enriches the contents of community education and broadens the forms and channels of educational resources. The model is put into community education, which can not only optimize the allocation of educational resources, but also enable community residents to enjoy the educational resources beyond time, space and age limits. Furthermore, through providing a unified and standardized education service operation mode by the third party, we can satisfy the different cultural education needs of different-level residents. In addition, this mode can promote neighborhood relations and community’s harmony in the learning and interacting process<sup>[9]</sup>.

#### **4 The optimized paths of the targeted supply of urban community public service in the process of “Internet Plus”**

##### **4.1 Building standard “Internet Plus community public service” mode**

“Internet Plus community public service” suggests a new way for community construction and community public service, and forms intelligent precise supply mode for community public service. The core idea, targeted supply, can be guaranteed under the support of “Internet Plus”. Therefore, the first thing is to let “Internet Plus” establish a set of basic common standards in the community, for example, public identification standards, E-government standards, data information interchange standards, etc.. Set up uniform rules to regulate supply order and rules, and continually perfect the supply system of community public service. Secondly, furthest broaden and support the Internet industry to access to the areas of public service; strengthen the daily supervision, remove those Internet industries which behave improperly, maintain the fair competition and prevent the formation of monopolies and barriers. Finally, maintain Internet security. Resolutely and forcefully crack down on Cybercrime, protect the legitimate rights of community residents, and upgrade technology at all times to protect and guard community confidential information or residents’ personal and financial information, in order to reduce the potential dangers “Internet Plus” may bring to the lowest.

##### **4.2 Improving urban community network infrastructure**

According to the 38<sup>th</sup> Chinese Internet development statistics report released by China Internet Information Center, as end of June 2016, the number of China’s Internet users has reached 710 million and the number of mobile phone users has reached 656 million. In such great situation, the traditional network infrastructure may not meet the needs of the contemporary people. Therefore, improving urban community network infrastructure can make Internet more efficiently integrate into the community public service. We start this from the following three aspects. Firstly, continue to strengthen the construction and maintenance of infrastructure, accelerate the transformation plan of the fiber network and focus on the construction of network service station in the remote areas. Secondly, enhance the application base, and improve the infrastructure construction of new-type large application platforms such as Internet, networking of things, cloud computing and big data platform. Finally, make a solid technical foundation. It requires us not only to ensure the quality hardware facilities, but also to seek to break through the barriers of core technologies and software facilities. Thus, we need to focus on researching and developing the intelligent terminal operating systems which is suitable for the characteristics of urban community public service supply in China.

##### **4.3 Meeting the needs of urban residents-oriented community**

The traditional mode of public service supply emphasizes the supply-oriented principle while the targeted supply in the “Internet Plus community public service mode” is oriented by residents’ personalized and individualized needs. Community public service targets for community residents, so, can the targeted supply mode of “Internet Plus community public service” be operated accurately and effectively, can play an important role in enhancing residents’ sense of belonging and satisfying, the only criteria is whether they can meet the needs of community or not. Therefore, in the process of integrating “Internet Plus” into community public service, residents’ practical needs are the significant factors to consider. We need to refine the modules of residents’ practical needs, reasonably distribute network to avoid the network congestion in the peak period, and in the network service platform add the answers of the difficult and important questions which may be encountered in daily life. Moreover, we need to make the design of service platform more humanized, fully consider the factors such as the

age and education of service objects and so on, so as to meet the needs of special groups such as the children, the elderly, and the disabled and so on. In addition, establish a standard feedback evaluation index system, value the experience and feelings of objects and continuously improve the community service network system according to the feedback information.

## 5 Conclusions

In the rapid development of “Internet Plus” today, integrating Internet and community public service into one has become a developing trend. With the help of “Internet Plus” technology, community public service can achieve the goal of precise supply, which effectively makes up many deficiencies of traditional community. When “Internet Plus” and other emerging technologies become more and more mature, they will also play an increasingly important role in the supply of community public service, which makes the public service supply more efficient, more convenient and more accurate.

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# A Research on the Main Parties for Cooperative Governance of Environmental Group Events and Their Rights & Responsibilities

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**Abstract** As economical and social development grow recent years as well as the improvement of social living standard, people's demand for the environment are more strict, thus causing the frequent explosion of environmental group conflicts. Only when all social parties work together to manage environmental group events can we get out of the Dilemma of Zero-sum Game. Based on the cooperation parties of managing environmental group events, this paper will explore the respective status of all the parties and the relationship between them, and come to the conclusion that the underlying reasons of the failed traditional environmental governance of group events lies in the failure of government, market and voluntary. Therefore, cooperative governance of all parties is a must, which should be based on the prerequisite that the status of each party must be defined clearly. The government should decentralize relevant power, the public be organized to participate in, enterprises bear social responsibility, communities build platform, the citizen take part in actively, etc. Only when all the rights and responsibilities of parties are clear, can the environmental group events be well dealt with through cooperation.

**Key words** Environmental group events, Cooperative governance, Main party, Rights and responsibilities

## 1 The background

At present, China is in a period of social transition, during which group incidents caused by various social contradictions have occurred occasionally. For the causes are complex and diverse, the impacts are different, while to some extent negative impact has been brought to the social stability. Thus it proposes higher requirements to government governance. In the "Small Government Big Society" trend, the government-led response to environmental group events has become increasingly powerless. The participation in governance model often emphasizes the government guidance, but government is not omnipotent, and often powerless in dealing with environmental group events.

## 2 The reasons

In part, environmental group event outbreaks triggered by a variety of reasons, so traditional participation governance model is difficult to fully handle these kinds of events; in other part, it is due to the inequality of rights and responsibility of the main governance parties. The fundamental reason is government failure, market failure, and voluntary failure.

### 2.1 Government failure

The current mainstream governance model of environmental group events is the government-led governance with the coordination of other parties, which bases on the traditional government functional model of "management" and can deal with social contradictions and problems efficiently. But this model has shortcomings that the government shows a sorts of contradictions and problems, especially in the modern society of prevalent requiring "small government and big society". The reason is that the government itself may fail and the government failure leads to social contradictions everywhere. Government failure refers to the situation that the government can't overcome its own shortcomings to reach the ideal theoretical state when providing public goods or making public decisions(Lu Li, 2003<sup>[1]</sup>). Excessive government power leads to the damage of the interests of the people or enterprises in the environmental group events, and also makes it hard to handle the incidents properly, which is not conducive to the construction of a harmonious society.

### 2.2 Market failure

Environmental group events occur mainly due to the market failure operations and enterprises

pursue excess profits while ignore the benefits of the people, which leads to resentment even outbreak of large-scale group events. The limitations of market system, “market failure”, refers to that the market can not overcome their own limitations, thus resulting in market operation imbalance and the market losing its role in optimizing the allocation of resources, eventually reducing the economic efficiency (Wei Jing, 2012<sup>[2]</sup>). Enterprises pursue high profits, while people pursue a comfortable environment. The contradiction between the two irreconcilable subjects lead to a vicious large-scale outbreak related to the environment. As the member of the market, enterprises are inevitably subjected to market regulation, however, the market is not completely healthy and positive, which leads to the “evil” role of enterprises in the environmental group events, and generally comes to a unsatisfactory end to this kind of events.

### **2.3 Voluntary failure**

Salamon proposed that in the environmental group events, the third party organization has its drawbacks—“voluntary failure”. NGO has its inherent limitation. As in the volunteer activities, there is a phenomenon that many problems during the operation causing the stagnation of volunteer activities namely the market failure are mainly due to the “amateur and special” of the third party organization pointed out by Salamon (Salamon Lester M, 1995<sup>[3]</sup>). In the realistic society, under the condition of trust lacking, the public is more willing to believe in independent third party organizations, so they put forward higher requirements to the professional third party. In the environmental group events, volunteer failure has two parts. On the one hand, it is the lack of charity. The third party organization is characterized by the “voluntary” and “public service”. So the third party may be lack of funds, lack of understanding of the situations or not professional enough, causing disservice. On the other hand, voluntary failure performance is that the third party provides invalid or excessive help, which in the environmental group events, it is defined as that environmental protection organization or environmental monitoring agencies may focus too much on one’s interest while ignoring the other subjects.

Because the above three aspects, government failure, market failure, and voluntary failure cause the complexity and diversity in environmental group events governance, the governance of environmental group events need all parties to working together, without neglecting any one. In the governance of environmental group events, it takes all parties, the government, enterprises, the third party organization, the community, and the public to be organized and to define their duties and rights, by using cooperative governance model. As the important content of the innovation of environmental group events governance system, the core issue of multiple subjects involved governance is to define the respective responsibilities of the parties in the environmental group events, such as the government, the third party organization, the enterprise, the community, and the public.

## **3 The conditions for cooperative governance**

It is a complicated mechanism with multiple social parties in to solve problems and balance interest in Cooperative governance environmental group events. It must meet certain conditions to achieve equality and coordination between the various parties in this process. Such as the decentralization of government, the trust mechanism between each party, the power boundary problem, etc...

### **3.1 Government decentralization**

The original government dominant pattern should be abandoned in the environmental group events that government plays an absolute power and usually as a leading role to hold the power to command other participants. In modern times, however, in the “small government big society” trend, it is urgent to change the way of participation governance for it can no longer adapt to the needs of social development, so it should be transformed into a cooperative governance mode that requires the power decentralization from the government. Thus cooperative governance model comes into being which is different from participation in cooperative governance that the government just play a guiding role of social trends and its function is to formulate and implement legal supervision, but not manage all social affairs. Government decentralization means that the government is no longer in the lead status but be equal to other social subjects, and cooperatively protect environment by trust and communication in



the governance of environmental group events. Specifically, it requires government decentralization in the field of environmental protection, such as entitling the professional third party organization to handle environmental assessment, introducing public participation in the neighboring separation projects, and letting the community to mobilize and coordinate the compensation of loss.

### **3.2 The trust mechanism**

Trust is the cornerstone for good social function, and the trust mechanism should be universally introduced into all areas of society, which bases on two aspects. Initially, the trust mechanism is nurtured by social cultures including group beliefs, consciousness and customs, etc, and formed trust relationship by these spiritual cores. As Max Weber argues that “social morality is a capability developed by personal moralities, which include trust, voluntary social interaction and group cohesion” (Max Weber, 2002<sup>[4]</sup>). If there is a universal mechanism of mutual trust that be established in society, then the process of development can be predicted or even controlled in the field of morality. In the management of environmental group events, each party can rely on the general trust relationship of society to reach an agreement. On the other hand, it is a trust relationship based on institutional trust. The institutional environment can promote the “legitimacy” to combine relevant stakeholders together, and provide a behavioral motive and a path, in which the institutional based trust relationship is protected by law. That means to promote the formation of trust by using the mandatory forces of institutions and policies. In the field of environmental protection, using the power of the policy to establish a trust mechanism mainly means that the government should improve the social integrity system and establish a fair image.

### **3.3 Definition of rights and responsibilities**

In traditional government-led governance, the government occupies a dominant position with absolute leadership and command. This governance is based on the “central-marginal” structure, in which the government is at the center of authority while other social subjects are marginalized. In contrast, cooperative governance is a complex governance process that includes government, enterprise, third party organization, community, the public and other social subjects. One of the basic characteristics of cooperative governance is that “the extroversion function of administrative power is obviously greatly weakened, and even close to zero, and the governing body will no longer rely on power to act directly on the object of governance” (Zhang Kang-zhi, 2008<sup>[5]</sup>), so the government power will be weakened; The rights and responsibilities of third-party organizations are mainly to play their own professional and organizational independence and use their specialized knowledge and skills to publicize and educate, and evaluate environmental indicators to detect whether the environment is damaged; the main right and responsibility of the enterprise is to produce and provide quality products and services under the standards of government and third-party organizations for society, and fulfill its responsibility for environmental protection; Community in public service plays a transitional role, as a link to the public, government, and business, whose main right and responsibility is communication. First, it safeguards the interests of the public; second, it delivers the government’s policy as well as negotiate with the enterprise. The rights and responsibilities of the citizen lies in the rational maintenance of their rights and interests to maintain public environmental health.

## **4 The rights and responsibilities of each party in the cooperative governance**

The primary task is to define the right and responsibility of each governance entity to realize the cooperative governance of environmental group incidents. Only when the rights and responsibility boundaries are clear and reasonable, can they perform their respective duties in cooperation and jointly accomplish governance.

### **4.1 Government**

“Any delusion that you want the decision-making party to do any practice is stupid” (Perter F. Drucker, 1973<sup>[6]</sup>), the traditional role of government has a fuzzy boundary and no clear functions which lead to “authority dominance” and become the constraints in environmental group events governance. Cooperative governance is an open governance (Zhang Kang-zhi, 2012<sup>[7]</sup>). In this mode, the government function is to guide the healthy development of the society, and to ensure the right direction. The main function is to formulate laws and policies, then supervise them to ensure that every

governance party in the process of governance is equal and plays its due role actively. Therefore, the government must decentralize in the existing control methods, giving back the power to society, and accepting opinions equally from the third party organizations, enterprises, communities, and public and incorporating them into the assessment.

#### **4.2 Third-party organization**

Third-party organizations are organizations that are independent of government and markets, and their typical characteristics are to remain independent and professional in their field. In the co-governance of environmental group events, third-party organizations mainly include environmental protection associations, volunteer associations and other environmental assessment agencies, which can play an important role in all aspects of environmental group events. They are responsible for providing advice on government decision-making through their own professional skills and knowledge, and providing decision-making advice to enterprises based on their knowledge and skills; they communicate and popularize relevant environmental protection and laws knowledge to the public, and help to do political propaganda and educate the public. The third-party organizations have their own professionalism, independence and certain voluntary with considerable social credibility, so they can play a powerful role in the governance of environmental group events.

#### **4.3 Enterprise**

Business is a profit organization. They focus on their own interests to launch a series of activities, during which they may go beyond the scope permitted by law, or may damage the interests of the public. So enterprises tend to play a negative image in the environmental group events. Therefore, in the process of cooperative governance, it must re-establish and position the rights and responsibilities of the enterprise. "The market is a well-functioning, cost-effective and most effective machine that effectively regulates the economic operation and activities of various economic entities" (David Osborne, Ted Gaebler, 1996<sup>[8]</sup>), so the private sector must pursue a mutually beneficial and win-win situation. In the co-governance of the environmental group events, it must clarify the rights and responsibilities of the enterprises. The responsibility of the enterprise is to provide high-quality products for the society, to ensure the safety and cost-effective products, and to cooperate with the government and third-party organizations to fulfill the responsibility of protecting the environment, and accept third-party organization's detection and communicate with the public to establish their own brand image. Its rights is to produce products that be of the utmost benefit within the scope of law, and to request assistance from third parties when questioned.

#### **4.4 Community**

Community as a public interests group, has a huge cohesion function. The modern community has become the basic unit of public service provision and consumption. So in modern society, it must attach importance to the strength of the community. As a common interests group, the community builds up a communication platform between the public and the government, establishes a bridge for interest exchange between the public and the enterprise, and as the representative of the public can invite the third party to be its interest representative. In the cooperative management of environmental group events, the community mainly represents the interests of the public to negotiates the community interests, or as a platform for communication. Their main function is to standardize the daily system of the residents 'committee and regularly carry out residents' committee, listen to the public's appeal for the environment, and upload these demands to the government and negotiate with the enterprise; its another responsibility is to convey the government's policy and system, publicize and popularize the law system, then guide the public to use the rights. The rights of the community are to maximize the interests of the public in the context of the power conferred by the law, to fight for their own living environment, to supervise the conduct of the enterprise, and to request social support.

#### **4.5 The public**

The public is the smallest in society and the most important constituent, and all things revolve around the public. However, the public can form different groups with its own characteristics and interests. In the environmental group events, the public specifically refers to the infringed local residents or will be infringed. In the traditional way of governance, as vulnerable groups of the public are difficult to maintain their own interests so they have to take extreme way to safeguard their own

interests. But the core of the cooperative governance system is equal and fair, and the public is one of the main governance party. So the public not only have the obligation to bear social responsibilities, but also enjoy the rights to safeguard their own interests. In the environmental group events, the public's duty is to protect the environment rationally, maintain public order consciously, and communicate with other governance subjects actively. Its right is to maximize the benefits in the context of the law, to form an alliance with the enterprise or government to negotiate, to participate in the filing process even to make their own views into the policy agenda, which reach the goal of protecting their living environment.

## 5 Conclusions

Cooperative governance has a strong realistic basis that to achieve a good social operation under "small government big society" trend, other governance subjects outside the government must be introduced together with the government to make contribution to the healthy operation of society. This theorem mainly base on the theory of multi-center governance, whose core view is that the government as a single center of public affairs has a limitation, so it advocates the introduction of market mechanisms and social mechanisms outside the government to build a multi-center cooperation governance system including government, market and society, in order to overcome the shortcomings of government single-center governance effectively (Elinor Ostrom, 2000<sup>[9]</sup>). The environmental group events involve many aspects and many parties, so an equal and fair cooperative governance system should be built by including all the parties in the governance of environmental group events. The government should decentralize from the traditional dominant one gradually, enterprise take more social responsibility, third-party provide decision-making advice for government and enterprise and publicize and educate the citizen, the community build communication platform, and the public as a community of interests protect the ecological environment and comply with social order. Under the framework of cooperative governance, each party is equal within the scope of the law, and actively participates in the governance of the ecological environment through consultation and dialogue.

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## Research on the Smartness Construction of Tourist Attractions from the Perspective of Experience Economy \*

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**Abstract** The tourist industry is a demand-pulled industry. With the coming of experience economy, the construction and development of tourist attractions should especially focus on the improving of tourist experience. At present, China is rolling full steam ahead for the smartness construction of tourist attractions, which will prompt the services and consumptive content to innovate and will improve the tourists' experience degrees and satisfaction. Therefore, in the background of experience economy, it is necessary and feasible to carry out smartness construction of tourist attractions. Based on the research of the joints of the forming progress of tourist experience and the smartness construction of tourist attractions, this paper puts forward the intelligent measures on how to improve the tourist experience, provides theoretical and practical references for the smartness construction of China's tourist attractions in the background of experience economy.

**Key words** Experience economy, Tourist attraction, Smart tourism, Smartness construction

### 1 Introduction

In the 1970s, an American futurologist Alvin Toffler has predicted that "the experience economy" will become the fourth human economic life after agricultural economy, industrial economy and service economy (Alvin Toffler, 2006<sup>[1]</sup>). In their article "Welcome to the Economy of Experience", B. Joseph Pine II and James H. Gilmore (1998) have described experience as an activity that taking service as stage, commodity as prop to create a memorable experience for the consumers, they also pointed out that the experience economy era has already come (Pine II and Gilmore, 1998<sup>[2]</sup>; Zou Tong-qian, 2003<sup>[3]</sup>).

The tourists are going for a unique experience which is worth aftertaste and super-utilitarian (Li Sheng-li, 2009<sup>[4]</sup>), as a demand-pulling industry, the tourism has to pay more attention on tourist experience. Tourist experience is the integration of feelings during the whole process of touring and the primary spacial carrier of the tourism resource in the destination which takes quite a part of the kernel space in tourists' activity. Therefore, the tourism atmosphere and its quality have significant meanings in satisfying and promoting overall tourist experience (Ye Yang-peng, 2003<sup>[5]</sup>).

### 2 The necessity of smart tourism construction under the experience economy background

The concept of "smart planet" was first raised by IBM in 2008, since then the wave of "smart city" has swept the globe, while "smart tourism" is a significant manifestation of "smart city" in practical application. Between the years 2012 to 2013, China National Tourism Administration (CNTA) has set 32 "national pilot cities for smart tourism", and set the year 2014 as the "smart tourist year", which has raised a wave of smart tourism construction around China. Taking Sichuan Province as example, Sichuan has set 13 pilot cities for smart tourism, which takes up 61.9% of the prefecture-level cities in the province; in the meanwhile, 33 pilot scenic spots for smart tourism has been established. The widely development of smart tourism construction has its necessity under the experience economy background.

#### 2.1 The nonresident of tourism requires the smart tourism construction

As an open-ended activity, tourism usually involves the flow between different spaces; therefore,

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the tourism process has great uncertainty and unpredictability. To reduce the uncertainty and unpredictability during the process of touring, the demand of tourists on information service is generated. In the experience economy era, to acquire real-time and on-site information at anytime and anywhere has become a significant way of improving the tourist experience quality. Based on innovation and popularization of technologies such as internet of things, cloud computing and internet, smart tourism enables the tourists to acquire information more convenient and faster, and can better satisfy the higher requirements of tourists for the information service in experience economy era.

### **2.2 The enrichment of travelling experience of the tourists require the smart tourism construction**

Nowadays, with the improvement of people's income and the increment of spare time, tourism has become the "necessity" of most Chinese. As the times of touring increases, most tourists are consumers with rich travelling experience rather than popular consumers. They no longer pursue the tedious tourist experience; instead, they want a touring with more individuation, differentiation and diversity. This requires the tourist enterprises to provide tourism products that can meet the demand of individuation, differentiation and diversity with the experiential core of aesthetics and pleasure and integrates multiple experience values. Smart tourism makes it possible for the collection of mass data including basic information, tourism preference, attentions on different scenic spots, tourists' satisfaction and brand recognition of the tourists. This could establish a solid foundation for the tourist enterprises to design and develop tourism products that can meet the multiple experience needs of the tourists through mass data digging and analysis.

### **2.3 The demand changing of tourists in experience economy era requires the strengthening of smart tourism construction**

After entry into experience economy era, the following changes have emerged in the demands of the tourists: changing from group touring to independent touring; from "being organized" and "being arranged" to "self-organizing" and "self-arranging", that is a changing from options of standardized products to personalized customized tourist products; A changing from purchase a integrated product to selective buying and then combine them by oneself; from a sightseeing touring that one can only "gain a superficial understanding through cursory observation" to a leisure travel that one can participates in; from a "have visited this place" type of touring that only focus on the result to a experiential touring that cares about both the "result" and the "process" (Zou Tong-qian, 2003<sup>[6]</sup>). Through the changes mentioned above, it can be found that the tourists' requirements on the quality of travelling experience are increasingly high. The improvement of travelling experience quality not only calls for the improvement of the objective tourism landscape and the objective tourism service but also needs the help of the emerging technology and devices to provide the tourists with timely and comprehensive information, to give them more options of better tourism service, and more flower tourist experiences. This has provided the smart tourism development with a wider market space.

## **3 Feasibility of using smart tourism construction to improve the tourist experience**

Zhang Lingyun holds the view that "smart tourism is a management reform that based on the new generation of information technology to meet the individualized demand of the tourists, provide high quality and high satisfaction service, and ultimately to realize the systematized and intensified resource sharing and effective use of tourism resources and social resources." (Zhang Ling-yun, Li Nao and Liu Min, 2012<sup>[7]</sup>). Zheng Xiangmin et al. consider smart tourism as "A brand new development concept and operation way of tourism that integrates the latest scientific and technological achievements, takes the independent experience of the tourists as core to serve the tourists, tourist enterprises and the tourist destination government on the basis of all-around and integrated management services over the information in tourism industry" (Fu Ye-qin and Zheng Xiang-min, 2013<sup>[8]</sup>). Through the representative concepts of smart tourism mentioned above, it is easily to find that although there is no unified, standard or scientific concept of smart tourism in the academic circles, the awareness that "smart tourism takes the improvement of tourist experience of the tourists as core" has been commonly accepted (Deng Hui, 2015<sup>[9]</sup>).

Firstly, smart tourism enables the tourists to complete the online travel consultation and online reservation via a more convenient and fast digital terminal, to order a private tourist route, reasonably

arranging personal schedule and arrange the travelling time by their own will, and also enables the tourists to have a more comprehensive, direct and deep understanding of the destinations with the help of virtual aiding systems. All these measures have laid a foundation for the improvement of tourist experience in the experience economy era.

Secondly, smart tourism makes it possible for the information interaction between tourists and the node systems of the smart tourism, including the scenic spots, hotels and travel agency. Through digging and analysis of the mass data about the tourists, the node system could discover the personalized demands of the tourists, makes continuous innovation on the tourism products and service, and offers the tourists with more diversified experiences and feelings. In the meanwhile, the node system of the smart tourism could realize the domination of product value through accurate marketing, enable the tourists to acquire information of tourism products in a more efficient and accurate way to make a more reasonable plan on the private tour route, and better satisfies the individualized travelling demand of the tourists.

Finally, the management level and service quality of smart tourism can be improved by the application of access control system, monitoring system, payment system and information system to make the travelling much easier and more convenient, and reduce the time cost of the tourists to give them better tourist experiences.

#### **4 The smartness path of tourist attraction under the background of experience economy**

As the kernel space of tourist activities, tourist attractions are of great importance to the forming of tourist experience, scenic spots have become the key application objects of smart tourism under the background of experience economy. The smart tourist attraction construction mainly consists of two parts, which are the application platform construction of smart tourism in the front end and the smart supporting system construction in the back end. The application system in the front end is confronted with subjects such as tourists, tourist attractions, governments and tourist enterprises; while the support system in the back end mainly relies on the technology of the smart tourism, it construct platform of internet of things, video monitoring platform and network data center to provide a comprehensive and strong support for the application system in the front end. Just like commodity and service, experience needs to be realized, designed, written and directed to fully present itself. Given this, this paper discusses the smartness path of tourist attraction from three stages, which are experience design, medium experience and field experience.

##### **4.1 Smartness construction of tourist attractions in the stage of experience design**

For the tourist attractions, they can only forming the core competitiveness of their own by designing tourism products with individualization and differentiation and providing tourist experience with distinct features and endless aftertastes for the tourists. To develop this kind of tourist products, the tourist attractions have to take the scenic environment as scenery, service as stage and commodity as property to build a platform in which the tourists can fully involve and engage during the tourist activities, and provide cheerful experience for the tourists accordingly. Also, the steps of experience requirements investigation, experience theme determination, tourism products design and experience atmosphere creation should be followed to develop this kind of tourism products. In the whole process, the smartness construction of tourist attractions would play a very crucial role.

(1) Rely on mass data, investigate in experience requirements.

The design of tourism product with individuation and differentiation should start with the heterogeneous demand of the tourists and analyze the possible activities of the tourists during the process of experience to design products and services that both reflect the features of the tourist attractions and displays the personalized images of the tourists. This calls for the comprehensive analysis and studying on factors such as quality, income, tourism preference and consuming behaviors, while the collection of these data is largely rely on the construction of smartness tourist attractions.

Nowadays, with the popularity of smartphone, the tourists' enthusiasm and initiative of data contribution are very high, it is quite normal for the tourists to publish information such as travelling strategy, travelling experience and evaluative feedback through microblog, WeChat and tourism

e-commerce platform. As mentioned earlier, the smartness construction of tourist attractions could collect, integrate, analyze, compute and process the mass data uploaded to the cloud by the tourists, subdivide the customers into groups and then provide individualized travelling demand for the target customers.

(2) Identify the experience theme, construct the experiential platform

As the basis and spirit of experience, a clear theme is the first and the key step to business success in the management experience of the tourist attractions. Based on this cognition, the tourist attractions have to combine the natural and cultural environment of the tourist attractions to determine a distinctive, individualized and unique theme according to the individualized demand discovered by the smart tourism system.

Once the thematic image were set, all the works in each part of the tourist attractions should be carried out around this theme. Each link, from the scenery, buildings, equipment and facilities to marks, souvenir packages and the dressing of the service staffs, should be dynamically integrated and supplement each other to construct the experiential platform comprehensively and display one image and one culture only. This could offer the tourists with a unified, harmonious and pleasure experience through watching, listening, smelling, tasting and touching as soon as they enter the scenic spot (Li Sheng-li, 2009<sup>[10]</sup>).

During the construction of experiential platform, the successful planning of the experiential activity is the key to deepen tourist experience and promote scenic attraction. Experiential activity planning is the design of flexible, vivid and concrete tourism products with strong participatory and abundant experience around the theme and makes use of the factors such as landscape architecture, folk custom, specialties, historical legends, production and living patterns and culture type. The successful planning of experiential activity not only relies on the accurate understanding of the individualized demands of the target customers, but also calls for the participation of the tourists in the design and combination of the project. Smart tourism could enable the tourists to acquire information, making decision, evaluation and interact conveniently via internet equipment to make it possible for the tourists to take part in the determination of the scenic theme and the planning of the experiential activities.

From the analysis above, it can be seen that the smartness construction of tourist attractions in the stage of experience design mainly consists of the construction of supporting system in the back end, including acquisition terminal, cloud, internet of things platform, network data center to realize the accurate understanding of the target customers and better accomplish the work of theme design and experiential platform construction through collection, integration, analysis, computation and processing of the mass data.

#### **4.2 Smartness construction of tourist attractions in the stage of medium experience**

At present, the tourists lay more emphasis on the information collection about their destinations before they set out. The vast specific and visual publicity materials from the travelling intermediary provide the tourists experience of the natural scenery and local customs and practices in advance, and generate the experiential expectation of the tourists. Since the experience is formed merely through the media like the marketing materials, this stage can be called as the stage of medium experience. The experiential expectation formed in the stage of medium experience has a crucial influence on the quality of experience in the process of field experience. If the field experience is better than the experiential expectation, the tourists' satisfaction degrees are high, otherwise, they will be disappointed. Therefore, in the stage of medium experience, the tourist attraction could increase the quality of field experience by the adjusting and controlling over the tourists' experiential expectation. According to the investigation, up to 51% of the tourists using internet to get the picture of their tourist destination; when making tourist decision, 85% of the tourists would comprehensively refer to the information from internet and other channels (Zhang Qi, 2013<sup>[11]</sup>). This shows that in the stage of medium experience, the tourist attraction could adjust and control the tourists' experiential expectation via the smart marketing system in the destination.

The smart marketing system in the destination belongs to the front end application system which is confronted with the tourists, it consists of scenic spot navigating system, itinerary planning system

and destination resources reservation system. Scenic spot navigating system uses pictures, videos, 3D animation simulation and virtual reality to fully display the spots and landmark buildings in the tourist attraction, and to realize the online touring of the spots and improve the sense experience of the tourists. Itinerary planning system could search and screen all the information in the smart tourism information system according to the basic requirements (time, budget, hobbies and interests, must go spots) raised by the tourists to plan the itinerary and Services En Route automatically. Also the final order would be presented to the tourists in the most intuitive way after the tourists have looked through and made small adjustments, which could meet the individualized needs of the customers and realize the personal order of the travelling. Destination resources reservation system could provide the reservation of tourism entrance tickets and other related services, after payment, the order would be sent to related enterprises or department to provide a convenient, safe and brand new experience of payment to the tourists (Zhu Zhu and Zhang Xin, 2011<sup>[12]</sup>).

#### **4.3 Smartness construction of tourist attractions in the stage of field experience**

Field experience is the most important part in the whole process of tourism experience. In this stage, the tourist attractions could provide comprehensive, timely and thoughtful service for the tourists to improve the experiential quality through the construction of smart guide system and smart management system.

The smart guide system is consist of real-time information system, digital map system and guide interpretation system, which the tourists could use via the smart tourist navigation facility or smart terminal provided by the tourist attractions. Real-time information system can be used to publish the information that is closely related to the tourists, including weather, dressing index, visitors flow, traffic flow and seat occupancy rate in the restaurants. With the digital map system, the tourists can immediately get the information about the routines and visitors flow in the tourist attractions, and can choose the routine in the scenic spots according to their own preferences. The guide interpretation system enables the tourists to get the interpretation of the smart guide in the routine that is designed by themselves without hiring a guide or following the group to listen to the interpretation, also a plenty of basic and extended information about the spots and places could be provided to realize the deep experience of the tourist attraction.

Smart management system is consists of the management system of each department in the tourist attractions and the integrated management platform. Department management system is responsible for the management of the business and staffs in the department, including the management system of tickets center, tourist center, traffic dispatch center and security and protection monitoring center. On the basis of the digital map of the spots, these management systems receive the real time location, environment and business data acquired by the sensors, they can operate independently; integrated management platform using GIS spatial data to organize the important information of each department and each link of the tourist attraction which could not only concentrated convey in the control center, but could also be shared and sent according to the different authorities between departments. It could help to understand the visitors flow, material flow, business flow and traffic flow in the tourists attraction, the time, location, scale and distribution characteristics of the emergency rescue, facility maintain and tourist complaint, which makes it easier for the integrated supervision, management and dispatch over the people, incidents and activities in the scenic spots, and could help improve the tourist environment and service mode in the scenic spots by finding the relations and rules between different phenomena (Long Yi, Ge Jun-lian, Li Qing, Xie Yi and Zhang Ling, 2014<sup>[13]</sup>).

## **5 Conclusions**

The tourist industry is a demand-pulled industry. With the coming of experience economy, the construction and development of tourist attractions should especially focus on the improving of tourist experience. The smartness construction of tourist attractions could improve the tourists' experience during the whole process, such as information collecting and tour routes planning before they set out, the service feeling and consuming content on their trips and the feed back after leaving, which reflects that there are many joints between the forming of the tourist experience and the smartness construction of the tourist attractions. And they can carry out the smartness construction according to these joints to



improve the experience degrees and satisfaction of the tourists.

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## Research on the Realization Paths of Social Organizations' Participation in the Public Service for the Elderly — From the Perspective of Supply-side Reform

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**Abstract** In order to achieve the optimal allocation and regeneration of resources, the side-supply aims to promote the incremental adjustment through stock reform. The social organizations which partakes the provision of public services for the aged are mainly the institutions that provide social services for the elderly. With the accelerating speed of Chinese aging rate, the necessity of social organizations' participation in public service for the elderly is becoming more and more prominent. However, there exist many problems: insufficient stock of social organizations' participation; limited carrying capacity; incomplete mechanism for social organizations to participate in public service; low public acceptance of social organizations. There are the following paths for social organizations to participate in the public service for the elderly from the perspective of side-supply reform, namely, building "incubation-training" mode of social organizations so as to improve the speciality of service; perfecting the legal systems to enhance the outcome control; pushing on the embedded cooperation between social organizations and government in order to achieve the efficient communication between social organizations and the public.

**Key words** Supply-side reform, Social organizations, Public service, Public service for the elderly

### 1 Introduction

The study on the aging of China's population began in the 1980s. As the aging of China's population becomes increasingly obvious, more and more scholars make extensive studies on the aging of population and the problems of the elderly. China's economic development is very rapid, and following this, the aging of China's population also faces many new problems and situations. The speed of aging is accelerating, and the function of family supporting is becoming weaker. At the same time, the demand of the elderly service is expanded; Individualization is generated; The social rights of the elderly are gradually strengthened; The legitimate reflections on the traditional rational bureaucracy are made. All these promote social organizations' participating in the public service for the elderly.

In November 2015, Chairman Xi Jin-ping makes it clear that "At the time of moderately expanding the gross demand, we should vigorously strengthen the structural supply-side reform, improve the quality and efficiency of the supply, strengthen the substantial developing impetus of economy, and promote the achievement of the overall jump of our country's social productivity" (Feng Yi, 2016<sup>[1]</sup>). Yu Bin, the member of the Leading Group of the Development Research Center of the State Council, says that the year 2017 is the year when the structural supply-side reform is deepened. The ultimate goal of the structural supply-side reform is to meet the demand, the main direction is to improve the quality of supply, and the fundamental way is to deepen reform (The State Council Development Research Center, 2017<sup>[2]</sup>).

Government is required to regard improving the supply quality of public goods as an important goal, and to integrate labor, capital and other elements. Meanwhile, government should make efforts to promote the structural adjustment of public goods, correct the distorting problem of part of allocation, promote the resource integration, and improve the productivity of economic factors, for the purpose of achieving the effective supply of social public goods. The supply-side reform means that the supply of public goods enters into a more open field. That is, the resources of social organizations are included into the supply system of public service for the elderly, so that the capacity of social organizations can be stimulated, and the participating degree can be improved. And, the social organizations' participating in the public service for the elderly faces an unprecedented opportunity.

## **2 Organizational advantages of social organizations' participation in the public service for the elderly**

Social organizations' participating in the public service for the elderly is conducive to generating the behavior of high cooperation, trust and reciprocity. The redistribution of responsibility and impartiality enriches and develops the supply content of the public service for the elderly. What's more, social organizations' participating in the public service for the elderly provides a most suitable cooperating mode for the communication between social organizations and the elderly.

### **2.1 Improving the supply efficiency**

In the process of social and economic development, the elderly group increasingly requires a large number of high-quality and effective public services, and social organizations' participating in the public service for the elderly conforms to the historical background of supply-side reform. Social organizations can be traced back to the tradition of free association, which not only include social groups, foundations and private non-enterprise units that have registered at all levels of civil affairs departments, but also contain all kinds of non-profit and reciprocal grass-roots organizations that base on the elderly' s common hobbies, values and needs. As a spontaneous force, social organizations increase the supply quantity of public service for the elderly, by virtue of their extensive social capital, public participating mechanism, and the inherent loose, flat, network-based organization structure and form. It's required that the supply-side reform of public service for the elderly should go deep into the grass-roots level, approach to the common people, and better reflect the needs of grass-roots people. Thus, the effective supply of public service for the elderly can be ultimately achieved.

### **2.2 Achieving the supply diversity**

Supply-side reform is committed to improving the supply quality and perfecting the supply system; the diversity of social organization and the reform of its traditional supply methods conform to the requirements of the supply-side reform. On the one hand, the heterogeneity, refinement and specialization of the supply of public service for the elderly becomes the new direction of supply, which means that the public service for the elderly is not only oriented to the needs of the aged, but also needs to emphasize the demand of heterogeneous individuals. Social organizations form a social exchange network in social life on the basis of different needs of the elderly. Therefore, they pay attention to the diversity and emotionality of public demand with their flexibility, adaptability and responsiveness to satisfy this kind of demand. On the other hand, social organizations not only produce the public service for the elderly but also consume the public service for the elderly, so that social organizations can be more accessible and suitable to the needs of the public. This not only achieves the effective maximization of the production, supply and consumption of the public service for the elderly, but also reflects the fair and just value orientation.

### **2.3 Enhancing public participation and attention to public affairs**

Supply-side reform focuses on supply, emphasizing the adaptability and flexibility to the demand-side development and change. The scope and scale of the public service for the elderly are expanding, the supply situation has undergone tremendous changes, and participatory democracy has become more and more recognized. "The public service for the elderly has been integrated into the consumption logic of this mass consumption era and become a trusting bond linking government and the public" (Kong Fan-duo, 2008<sup>[3]</sup>). On the one hand, government purchases social organizations' public service for the elderly, forming a reasonable decentralized structure. Thus, the formation of the inter-organizational partnership becomes possible and inevitable, and a parallel relationship between government and social organizations is achieved. On the other hand, social organizations' participating in the public service for the elderly is a kind of shared mechanism of public responsibility, and social organizations' participating in the public service for the elderly "emphasizes the establishment of a trust-cooperation-reciprocity based social capital, the establishment of an autonomous network of resource exchanging and sharing, and the formation of a self-management model among socially autonomous citizens" (Yu Ke-ping, 2008<sup>[4]</sup>).

### **3 Restrictive factors of social organizations' participation in the public service for the elderly**

The supply-side reform is aimed to promote the incremental adjustment through stock reform, and to realize the optimal allocation and regeneration of resources. Social organizations do not need to pursue market share and profitability just like enterprises do. However, they promote the reform of supply methods of the public service for the elderly by integrating new exogenous variables. It is because of social organizations' reform-orientation that they are inevitable to be restricted and affected by multiple realistic factors.

#### **3.1 Insufficient stock of social organizations**

The basic premise of the supply-side reform of the public service for the elderly is that there is a sufficient number of undertakers in the supply market of the public service for the elderly. "The research report about the development of China's nursing institutions for the elderly", released by China's scientific research center on aging in 2015, shows that the bed vacancy rate of the nursing service is as high as 48% according to the surveyed 257 nursing institutions for the elderly. Among them, the income and expenditure of 48.1% nursing homes is flat, 32.5% suffer from loss, and only 19.4% have a slight surplus. The survival of the nursing institutions for the elderly is particularly difficult, and they generally keep the occupancy rate by reducing the price. Meanwhile, the high-end nursing institutions for the elderly have not yet gotten rid of the operating pressure brought by the high investment (China Government Procurement network, 2016<sup>[5]</sup>). This means that the overall development of social organizations in China is lagged, restricting the competition between undertakers of the public service for the elderly. Management master Peter Drucker once said: "Social organizations engaged in public service need the excellent management" (Wang Ming, 2010<sup>[6]</sup>).

Most of social organizations in China have a middle-or-low level management capacity, and the legitimate organizing directors are usually appointed by the government agencies with a strong administrative color; The day-to-day management system is not perfect, and many social organizations are lack of the necessary regulations; The capacity of extending resources is inadequate, and part of social organizations' participating in public service for the elderly have the characteristics of fragmentation, inadequate supply and lack of participation; Some volunteers are lack of the appropriate professional knowledge and skills of nursing service, resulting in the service quality difficult to be guaranteed. In addition, social organizations generally lack the supervision and evaluation of third parties, and some social organizations' financial system is imperfect with a low financial transparency and over-drafting organization's integrity and industrial ethics.

#### **3.2 The imperfect mechanism of social organizations**

The survival and development of social organizations require a lot of external resources, and many social organizations reduce the supporting and organizational resources for the future development due to the depletion of existing resources. It can be seen that social organizations are very dependent on the external resources. The lack of resources may lead social organizations to more respond to the needs of those institutions that control key resources. Thus, an overall trend of polarization is shown. Namely, the government-sponsored service institutions and traditional institutions are more powerful. However, social organizations on the basis of civil gatherings and associations are relatively weak. Accordingly, social organizations have the problems of a low level, lack of developing space, a narrow interest-expressing space, less opportunities to participate in government's purchase, shortage of the capacity to join the public service for the elderly and so on.

At the same time, the purchase documents made by many local governments only involves the purchase directory, and the procurement budget, purchasing final accounts, purchase processes and purchase guarantees are little involved. Thus, it is difficult for the social organizations' participating in the public service for the elderly to play a clear guiding role. In addition, the basic characteristics of the responsibility and impartiality of the old-age public service project make it difficult to quantify the performance, and the quality is often reflected in the public's feelings and the practical effects. In practice, there are assessment principles that are difficult to be implemented and ambiguous requirements rather than uniform implementation standards for the social organizations' participating in the public service for the elderly. Some scholars have suggested the introduction of third-party

assessment mechanism, but there are no restrictions for the qualifications of the third parties (Gao Meng and Chen Bing, 2013<sup>[7]</sup>).

### **3.3 Lower credibility of social organizations**

In China, social organizations develop best in the city that the government invests the most resources and many social organizations are government-sponsored or spawned. As for the government, many local governments have shown a strong administrative color when they buy public services for the elderly. The public services for the elderly that the government are not willing to manage or cannot manage well are transferred to social organizations, and the social organizations participating in the public service for the elderly shows the trend of “involution”. In the context of supply - side reform, the needs of the elderly are not only the source of social organization’s participation in public service, but also the resources of social organization’s survival and the goal of development.

However, in today’s society, the elderly’s trust is based on the customary, legal custom or contract, which is mainly embodied in the trust of government power and explicit laws and regulations, and it is difficult for them to accept pension public service provided by the social organization outside the traditional system. For example, the founder of the Nanchang Volunteer Federation “Little White is not at home” had the experience of being rejected when he participated in the activities of respecting the aged and take good care of children and helping the disabled; when the Tangshan volunteers provided medical services to the villagers, the villagers did not believe their professional level, did not understand their identity, and did not want to listen to their explanation. The effective supply of public service for the elderly needs to reshape the relationship between the two in the framework of trust and understanding to form a positive citizenship and complete social organization role construction, otherwise it is difficult to alleviate the tension and uncoordinated relationship between them (Wang Pu-xun and Salameng, 2008<sup>[8]</sup>).

## **4 Realization paths of social organizations’ participation in the public service for the elderly**

The supply-side reform of the public service for the elderly means cultivating the new subject, forming a new impetus, mobilizing the new supply force through innovation, and improving the supply-to-demand by improving the total factor productivity.

### **4.1 Building “Incubation-Training” model of social organizations**

The premise that social organizations participate in pension public service is that the pension public service market has a large number of undertakers and competitors, and social organizations achieve intensive development. Mobilizing and organizing the masses to participate in social management and public services through the incubation training of the relevant nonprofit organization. Rely on the basic support of the community and the active participation of residents to achieve community support and wide participation of the public and at the same time, promote the social organization of professional capacity building and management innovation.

The professional competence of social organizations is the basis and prerequisite for participation in public services, and the impetus of the supply of high quality public service. First, implement institutionalized internal management of social organizations to improve the volunteer’s comprehensive service capabilities. Establish talent selection system to select qualified and excellent talents; strengthen the training and development of talents and improve the professional ability, adaptability and capability of the talents; establish and improve the incentive system to retain the talents through the promotion of cause, feelings and appropriate salary (Wang Da-mei, 2012<sup>[9]</sup>). Second, build a strategic organization of social marketing mechanism to strengthen the ability of social organizations and mobilize internal and external resources. Set the core marketing strategy and select the key target groups through the analysis of the organization of the purposes, objectives and tasks, organizational culture, organizational strengths and weaknesses, as well as the external environment. Third, establish dynamic alliances of the social organizations. Many problems in the process of social organization development have gone beyond the sphere of influence of a single social organization, and it is difficult to fight alone so it is necessary to integrate resources together and form a concerted effort. Establish a dynamic alliance to increase the influence of the organization and enhance the

resource integration ability of the public service for the elderly.

#### **4.2 Perfecting the legal systems**

First, we must improve the relevant system of social organization and further reduce the barriers of social organization access and simplify the registration process to expand the development space of social organizations. Establish and improve the overall planning and coordination system of social organizations, and clarify the tax relief that the social organizations can enjoy through legislation. Make the financial data of social organizations as well as a clear range of public services known to the public to ensure the legitimacy of social organizations.

Second, build a government buying mechanism. Dig the real needs of the elderly groups, solicit projects from the community and make the specific purchase information known to the public; to achieve government projects commissioned through the bidding to create a favorable competitive environment. Establish the operation mechanism of the government purchase of the social organization service project, and coordinate the collection, examination, project and operation of the project. The project funds are included in the budget as part of the social organization development funds.

Thirdly, strengthen the supervision of the supply of public service to implement the purchase of the effectiveness of control. Establish specialized regulatory authorities to shoulder the overall responsibility for regulatory matters to promote the standardization of public service supply supervision and improve the administrative capacity according to the law. On the basis of supervision according to law, introduce social supervision, give full play to the news media supervision of public opinion, and pay attention to the social effect of public opinion supervision. In terms of the effectiveness control of the public service for the elderly, the multi-dimensional index can be used to construct the index system with the satisfaction degree of the public as the focus.

#### **4.3 Establishing embedded cooperation and communication mechanism**

The supply side reform in the field of public service requires the establishment of a coordination mechanism and a strategic partnership between the government and the social organization. The institutional coordination between the government and social organizations in the public service supply of pension provided solid foundation for the embedded cooperation. Embedded cooperation is a process of continuous construction from unilateral dominance to harmonious supply, from passive union to active construction, from outside cooperation to substantive cooperation (Gao Meng and Chen Bing, 2013<sup>[10]</sup>). The embedded cooperation is based on the mutual trust of each other, and it extends the development space of the public service cooperation field. It can be said that “the participation of social organizations in the public service makes the two organizations of human beings achieve the functional complementarity and the consistency of the pursuit of value, and it also optimizes and expands the community of consistent action platform” (Shi Guo-liang, Liang Ying, 2013<sup>[11]</sup>).

At the same time, the public’s understanding and trust of social organizations affect the effect of social organizations participating in public service, and the communication and dialogue between them becomes the key to the effective supply of public service. Social organizations can communicate through newspapers and magazines, radio and television, Internet media and other forms and channels to achieve benign interaction between the social organizations and the external environment. They can also build main platform for the multi-stakeholder dialogue through the hearing, democratic council, online review and other forms of public service so that the elderly and their children can express their demands and views through the news media and the network and give feedback timely and make recommendations and strategies for future development.

## **5 Conclusions**

With the increase of the degree of aging, supply of public services for the elderly has never been fall into the wave of a wave of call and concern like today. In the context of today’s supply-side reform, the checks and balances of government power, the balance and supply of pluralistic subjects, the diversified and heterogeneous needs of the public, and the social distribution of social organizations and the mission of concerning the disadvantaged groups provide a broad space for the social organization’s participating in public service. It is a good and efficient supply mechanism to explore the mechanism of social action consistency and realize the sincere cooperation between social

organizations and government. It is also the key to the reform of supply side in the field of public service for the elderly.

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## Research on Optimization of Cooperation Model of Collaborative Decision-making among Public Sectors in China

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**Abstract** Confronted with the complicated social circumstances, how to cooperate among governmental departments becomes the hotspot issue for government management and governance, and it is also the key and difficult point in establishing and improving relevant systems. Issues exist in the method, channel and process concerning the cooperation model of collaborative decision-making among governmental departments. Focusing on the issues existed in the cooperation model of collaborative decision-making among governmental departments, this paper analyzes three major factors affecting its operation, introduces the theories on collaboration and cooperation to optimize the cooperation model and promote its effective operation.

**Key words** Governmental departments, Collaborative decision-making, Cooperation model, Model optimization

### 1 Introduction

As the economy are developing worldwide, science and technology are making good progress, and the civic awareness are aroused among people, social problems and people's needs become more diversified, complicated and dynamic. Consequently, governmental departments need to change and reform its management in accordance with the developing requirements of the society and the public as well as the changing social environment. One of the most significant characteristics is that the government is gradually transforming itself from vertical management, in which each department is only responsible for the affairs of their obligation, and professionalization of administrative departments is intensified, to cooperative development among governmental departments. In an International perspective, Collaborative decision-making among governments is the key point of global focus (Zhou Zhi-ren and Jiang Min-juan, 2010<sup>[1]</sup>). In that case, cooperation among governmental departments becomes the hotspot issue for government management and governance, and it is also the most crucial and difficult point in the establishment and improvement of relevant systems.

Currently the government set out to provide "cross-department", "24-hour" and "one-stop" services, so it need to find ways to integrate its subordinate branches and facilitate inter-departmental collaboration both in theory and in practice. In the process of economic reformation, China needs to reform its current governmental departments, through which the transformation of governmental functions can be reflected (Zhu Li-jia, 2008<sup>[2]</sup>). Chinese government is increasingly concerned about accelerating of collaborative decision-making reformation among governmental departments. In 2008, for instance, it proposed the "overhaul" reform of governmental systems during NPC&CPPCC. In the course of reformation, the most important thing is to find solutions to two issues: first, to effectively integrate departments so as to connect them among governments and systems; and second, to bring some departments into certain governmental systems and to implement the cooperation model of collaborative decision-making among departments. Nevertheless, researches and applications of the theories of collaboration and cooperation in administrative management is rather insufficient. Moreover, most of existing researches are only applied by direct quotation of the aforesaid theories. Few try to optimize the cooperation model of collaborative decision-making among governmental departments by referring to these theories, and thus to realize the transition of traditional government governance to collaborative governance (Ji Zhao-liang, Dai Yong-xiang and Hu Wei, 2013<sup>[3]</sup>).

### 2 Subsistent problems

The cooperation model of collaborative decision-making among our governmental departments mainly includes the models of leading group, joint conference, administrative service center and



innovated models established by local governments. Operation of these models promotes the cooperation on collaborative decision-making among governmental departments, but there are some issues that impede the progress in departmental cooperation. In general, these issues include three kinds: cooperation initiation, cooperation channel and cooperation method.

### **2.1 Initiation of cooperation**

Initiation of cooperation on collaborative decision-making among governmental departments has the characteristics of randomness, retardation and circumvention.

First, the cooperation can be initiated randomly. At present, our government hasn't got a frame for the inter-departmental cooperation, and collaborative systems are often random initiated and formulated. The department heads mainly decide to establish cooperation model at will, leading to a "vacuum" cooperation among collaborative systems, and collaboration can be interrupted in such circumstance. Nevertheless, the heads' intention plays an important role in these situations. Secondly, the initiation of cooperation can be deferred. Collaboration is implemented slowly, because the work and function of each department is not clearly framed. Therefore, it is necessary to build a collaborative system among departments. Take crisis management for example, cross-departmental cooperation is set up afterwards, leaving such cooperation under constant modification instead of providing any feasible solution in advance, and thus the effect of cross-departmental cooperation is affected by such delay. Last, initiators will consider the risks in such cooperation beforehand, and try to avoid them. Basically, the cooperation is initiated to handle complicated issues which are mainly characterized by large responsibility and high risk. As a matter of fact, cooperation could easily be used to avoid responsibilities and transfer risks due to the lack clear division of responsibility and authority among departments. Meanwhile, departmental cooperation could easily be used to seek benefits and strengthen authorities.

### **2.2 Narrow channel for cooperation**

Cooperation channels for collaborative decision-making among governmental departments are usually conflicting, monotonous and less legalized.

First, cooperation channels are usually in face of plenty conflicts. Currently, the government has no proper models to promote cooperation and the horizontal cooperation among departments in itself is conflicting. When certain issues arise, relevant departments may blame each other without taking any real responsibilities. Take the regulation of food safety for an example, on February 6, 2010, the State Council decided to set up the State Council Food Safety Committee, responsible for the highest collaborative cooperation in food safety, so as to implement the *Food Safety Law* and strengthen guidance in such implementation. In such cooperation, the food safety regulation department was led by Li Ke-qiang and 15 departments participated in such cooperation. However, the *Food Safety Law* clearly provides that "Ministry of Health (MOH) is fully responsible for food safety". Consequently, MOH and China Food and Drug Administration (CFDA) are not clear in their responsibilities in collaboration, and MOH and other relevant department, such as the Agricultural Industry Department and General Administration of Quality Supervision, Inspection and Quarantine, who have comprehensive collaborative responsibility in the supervision of food safety, have no real advantages in actual collaboration, making it hard to achieve the target effect. Second, cooperation channels are monotonous. The administrative system in China is highly unified and current cooperation among departments are mainly through meetings, temporary or joint, or leading groups, i.e., collaborative agency and special agency. Such model of cooperation involves only the exchange of opinions among leaders and solves no actual problems. Moreover, due to departmental protection of its line of business and territory, false information may be used in departmental resource sharing, making it hard to form departmental trust and realize win-win results. Third, collaboration is less legalized. After the collaborative system is set, there are governmental departments strictly following the regulations and rules in practice and collaborate by mandatory orders, making departmental collaboration a field of bureaucracy. As departmental collaboration has no well-founded legislations to protect relevant rights and interests, equal departmental negotiation would always be replaced and dominated by personal will, which greatly reduces departmental positivity in conducting equal dialogue and further affects the results of collaborative cooperation.

### 2.3 Deficiency of cooperation method

Cooperation method on collaborative decision-making among governmental departments is short-term, uncertain and incomplete.

First, cooperation is always short-term. Current cooperation model among departments are mostly short-term collaborative system, given the history of discussion and collaboration agency. Such collaborative system focuses not on long-term cooperation, nor all-round collaboration. Therefore, it is more “targeted”. Once its objective is obtained or suspended, the cooperation among departments is over. As such, it does not involve deep changes among departments, nor does it directly affect the solution of other issues among departments. Second, cooperation method is uncertain. Results of departmental collaborative system are always uncertain, i.e., the cooperation model does not necessarily bring good collaboration among departments. At present, there are no mandatory provisions stipulating the objectives or the results of cooperation; therefore, cooperative departments do not necessarily take it serious (Chu Hui-xia, 2011<sup>[4]</sup>). Last, cooperation is incomplete. Current departmental cooperation is mainly based on the decision of the superior leadership and the participation of higher leaders becomes the basis for the cooperation. However, such collaborative system established by authority can only temporarily hide the conflicts and issues among departments without actually solving them. Besides, the cooperation models mostly exist on a short-term basis so that even the issues are solved temporarily, they would relapse later. Using collaborative cooperation to solve issues is mostly administrative or political, rather than legalized and standardized. As the system in itself has certain deficiencies, such as incomplete solution of issues, overlap of duties, unclear accountability and concealing and mutual blaming in cooperation, the cooperation is incomplete.

## 3 Influencing factors

### 3.1 Boundaries among governmental departments

The dilemma in inter-organizational cooperation is mainly due to the relation among organizational structure and functional structure. Organizational structure refers to the structure composed of tangible and static agencies, organizations, systems, rules, etc. within administrative system, i.e., including the personnel and administrative rules of different departments organized organically. Regarding the relation among organizational structure and functional structure, the later determines the former and government functions are the primary basis for establishing government agencies. Government system in itself is changing and consists of individuals and departments organized by different functions and interests. Therefore, the “boundary” based on division of labor among departments always exists. Within each “territory”, its department begins to seek its own benefits and values and transform public interests into departmental interests. As statutory authorities have provided the main scope of responsibility for each department, the role of a department in different tasks is not similar. For example, in some instances, a department may act as the main body leading the task; while in other tasks, this department becomes subordinate and auxiliary. Conflicts of departmental interests and unclarity of the scope of administration allow departments to blame each other and further increase the conflicts among departments over the control of certain resources and regions. At the same time, departments with common interests share no clear boundaries. On the contrary, constant collaboration among departments enables the organizational boundary to fluctuate within a certain degree and such fluctuation then promotes the cooperation among departments. Presently, a typical feature of the setting of our governmental agencies is “large, separated functions and unclear accountability”. For the gray area, departments would fight each other over benefits and blame each other over responsibility. Departmental boundaries are fluctuating.

### 3.2 Hierarchy among governmental departments

Administrative intervention from higher level is vital when departments are reluctant to cooperate. The relationship among superior and subordinate also affects the cooperation among organizations. Noncooperation of superior departments severely blocks cross-departmental cooperation, and for affiliated departments in particular, horizontal integration becomes much more difficult. In a City, for example, if the housing management department is led by the construction bureau, the department would better coordinate construction; but if the two were in the same national land department, they

would conflict, because the disparity between Ministry of Land and Resources and Ministry of Housing and Rural Development makes it hard for grassroots departments to undertake relevant works. In some places, real estate is separated with land, so the several transfer of real estate does not involve the transfer of land. In other places, management of real estate and land management are well integrated, so their collaboration in the service hall is satisfactory as well. Some leaders have great confidence in “overhaul” reform as they view it as an integration of functions and will benefit platform integration. Within the clear hierarchy relations in China, information down-flow is smooth, but up-flow and horizontal flow are blocked, making it hard to conduct cooperation. In general, affected by the aforesaid relations, cross-departmental cooperation of local governments is hard to integrate and information among governmental departments is well communicated vertically but horizontally.

### 3.3 Trust among governmental departments

Trust refers to the dependence, attitude towards responsibility and risk and reduction of cost in supervising each other among departments participating in organizational cooperation. Organization is willing to give up certain discretions and comply with certain conditions in sharing and decision-making. Besides professional aspects, such as the requirements for fiscal resources and coordination efficiency, the most important premise is the willingness to cooperate. On one hand, more and more literatures focus on the issue of trust in collaborative cooperation among organizations. “If horizontal and willing relations keep increasing in modern society, trust seems to be an important collaborative system, because we can not expect the hierarchy of powers, detailed contracts or direct supervision to reduce all the uncertainties in life (Jurian Edelenbos Erik-Hans Klijn, 2007<sup>[5]</sup>).” On the other hand, the game of information among two sides would strengthen the level of cooperation. However, as many game theorists point out, “when the gamers gradually get to the strategy of their rival and learn to benefit from betrayal, the cooperation is on its way to termination.” Therefore, trust is the sufficient condition and lubricant for collaborative cooperation among departments; it helps participating departments form group consciousness. Once trust is absent among departments, their cooperation becomes hard to maintain and gradually reduces to small individual groups.

## 4 Optimization

Optimization of the cooperation model of collaborative decision-making among governmental departments is mainly based on two theories. First, collaboration, which means that the drive for system evolution comes from internal collaboration, while coordination is the impetus for realizing self-organization; second, cooperation, which is realized under two conditions: a. It has to be an intentional act; b. act of an individual must be affected by other individuals (Wei Qian, 2012<sup>[6]</sup>). Accordingly, we propose that the optimization should include three aspects, i.e., initiation, channel and method.

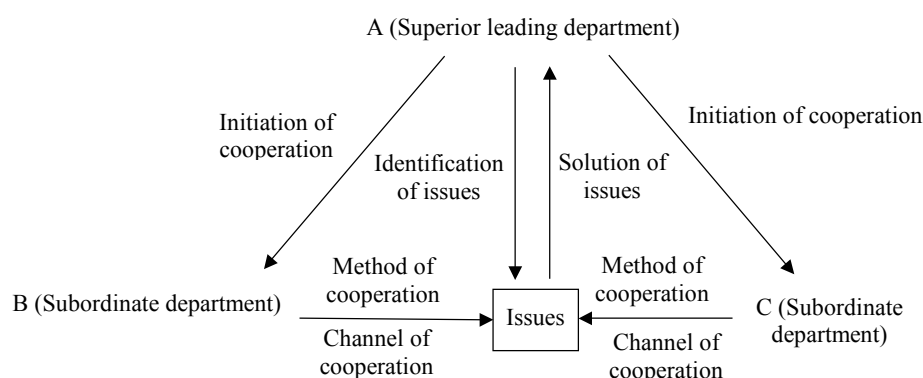


Figure 1 Optimization of the cooperation model of collaborative decision-making among governmental departments

### 4.1 Optimization of Initiation

Initiator under the cooperation model of collaborative decision-making among governmental

departments is usually the superior. As personal judgment may easily lead to deviation and error, the cooperation may thus fail. Therefore, such initiation of cooperation must be institutionalized. First, duties and authorities among departments must be clarified. Cross-departmental cooperation can only be achieved before the departments are clearly divided, and because of that, we can so avoid passing responsibilities and governance disorder. Current governmental functions for each department are designed only in a “general, separated and unclear” sense. Therefore, to identify relevant boundaries, it is necessary to clarify the functions at first. Second, establish a network of departmental relations and legalize such relations into systems, so as to manage the departmental boundaries. Departmental network reflects a long-lasting and rather stable cooperation among departments, so it could adapt to departmental changes as soon as possible and enable departments to optimize its model in cooperation. Last, it is important to formulate laws and regulations including *Law on Departmental Relations of Government or Regulation on Governmental Relations*, so as to provide legal grounds for peer governmental departments to collaborate and cooperate (Tao Xi-dong, 2011<sup>[7]</sup>). In all, optimization in the three aspects would help to initiate cooperation on collaborative decision-making rationally and legally.

#### 4.2 Optimization of cooperation channels

Besides a clear division of responsibilities, sharing information is another important factor when it comes to cooperation on collaborative decision-making. Horizontal departmental collaboration on decision-making is based on a full sharing of information. However, as departments have different interests, such information sharing is rather incomplete. For vertical departmental collaboration on decision-making, information flow is smooth from the top to lower level, but not otherwise. Both horizontal and vertical departmental collaborations are affected by information flow. Then we can optimize cooperation channels with these two in consideration. On the one hand, we can strengthen the building of departmental communication and cooperation & sharing mechanism so as to improve departmental information sharing. Information sharing smooth the running of cooperation channels and promotes the rationality and soundness of departmental collaboration on decision-making. On the other hand, promote democratic cooperation to facilitate normal flow of information among subordinates and ensure effective channels for vertical cooperation.

#### 4.3 Optimization of cooperation method

Objective for optimization of cooperation methods is to realize long-term complete cooperation. As Peters suggested in his model, “collaboration is developed from the bottom up, not otherwise”. Therefore, the key lies in the beneficiary of the plan, not the organization providing services and organizing bureaucratic relations (B Guy Peters, 2001<sup>[8]</sup>). As indicated, to redistribute governmental functions via integrating or uniting services (comprehensive service), we need to consider specific public service first and improve them, and then urge the integration of governmental functions, rather than relying on the government to impose collaboration and cooperation among departments. By providing services, the government can integrate these services and thus promote collaboration among governmental departments. In that the government can find a solution. Cross-departmental cooperation model may not necessarily be the same, but the goal of each cooperation model is to provide public service. Therefore, integrating services could promote departmental integration and prolong the integrity of cooperation among governmental departments. We need to constantly explore the rules in multi-level and multi-functional integration in micro-level and the establishment of adaptive organizational structure (Zhu Yu-zhi, 2011<sup>[9]</sup>), and attach great importance to the cultivation of organizational culture for public service and spiritual qualities throughout the cooperation.

### 5 Operating safeguard

To promote the sound development of collaborative cooperation among departments, we need to establish auxiliary systems besides the existing departmental cooperation model to ensure the success of the cooperation model.

#### 5.1 Establish incentive and accountability system

For departmental cooperation, we need to clarify the rights and duties of each department first, and then to establish relevant incentives, which can help to reduce negative effects on cooperation and

improve the willingness for cooperation among departments. From the perspective of joint action, if one department is left out of common benefits, it will show no interest, let alone taking any action. If the majority make such choice, common benefits would be impossible to realize. Presently, there are no incentives for events where both sides are winners, and that is why government officials prefer “vicious” competition to cooperation. Therefore, cross-departmental cooperation needs a supplementary incentive, i.e., to reward the department and individual who effectively solve public issues via cross-departmental cooperation and encourage them to continue. Such deeds can motivate others to cooperate within their scope of business and explore other areas for cooperation as well. Punishment should be given to departments who fail to accomplish relevant works, and are reluctant to take relevant responsibilities, so as to reduce irresponsibility among departments and promote the sustainable development of departmental cooperation.

### **5.2 Establish collaboration system at the level of leadership**

Construction of cross-departmental cooperation needs a well-built leadership level in the collaboration system; the formulation & implementation of strategy and policies among departments require the participation of “the most professional” personnel (Tan Xue-liang, 2014<sup>[10]</sup>). In addition, the role of leaders should also change when establishing specific departmental cooperation. Leaders should gradually shift their position from the controllers of departmental cooperation to equal participants and then to the supervisors of such cooperation. As a result, cross-departmental cooperation can be realized automatically. A good leadership system needs to transform leaders from rule makers to participants. Besides, leaders in the collaborative system are the key personnel to coordinate conflicts in cross-departmental cooperation. Alleviation of departmental conflicts could promote departments to cooperate and the collaboration and governance by leaders are the best way to do it.

### **5.3 Establish inter-departmental trust mechanism**

Trust is a requisite to accomplish inter-departmental cooperation, the significance of which in inter-departmental relations has been elaborated in the above. As stated, trust mostly come from lasting interaction among “acquaintance” and departments. However, for cross-departmental cooperation, that kind of the trust can hardly maintain such cooperation when human relations change frequently. Therefore, when constructing inter-departmental cooperation, we need to break the restriction of family and interpersonal relations and turn to institutionalized trust, interpersonal trust and common trust. Trust could promote cross-departmental cooperation, as it represents “the organizational ability required in cooperation, shares common values and reduces unnecessary cost incurred by negotiation and coercion (Francis Fukuyama, 1998<sup>[11]</sup>)”. Trust in cooperation is built on the trusted relations backed by laws, which could reduce the uncertainties and increase the impetus for preliminary cooperation. Meanwhile, by establishing effective punishment measure, we could reduce the possibility of betrayal among cooperative departments and provide support for long-term uninterrupted cooperation among departments. Besides, we need to fully exploit the interpersonal relations form out of trust among departments, so as to ensure long-term cooperation among departments.

## **6 Conclusions**

When society becomes increasingly complicated, the government cannot solve these various problems with a single department working on them. Effective cooperation among departments could enhance efficiency, improve their ability to handle complicated situations and promote the government to develop it into the one providing service, which is also the direction for modern government. Therefore, how to construct a well-functioned cooperation mechanism becomes a vital topic in the public area. This paper applies the theory on collaboration to the optimization of cooperation model among governmental departments, in a bid to improve the soundness and effectiveness of the cooperation on collaborative decision-making among governmental departments and enhance the government’s ability in governance and decision-making.

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## Analysis on Governance of Government Online Public Opinion Big Data Perspective

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**Abstract** With the self media era, online public opinion has played an important role on politics, economy, science and technology, culture and civic life in China. But some false information, rumors and network violence are still filled in cyberspace, while the Big Data era of information data explosion brings more serious challenges to the government's governance of network public opinion. Therefore, the big data perspective analyzed the problems existing in the government network public opinion in the governance and in response to public opinion, put forward the corresponding countermeasures and suggestions in the Big Data era of governance network public opinion. Therefore, from the big data perspective, this paper analyzes the current government in the online public opinion governance problems and coping with the lack of public opinion. It puts forward some countermeasures and suggestions for the government to control the network public sentiment in the Big Data.

**Key words** Big Data, Internet public opinion, Government governance, Self media

Since 21st century, information technology has been fully integrated into all social life aspects; the total amount of information growth has led to changes in the information quality; the information explosion has become the age characteristics. The arrival of the Big Data era has changed the production and life style of human society, and also brought new opportunities and challenges to the construction of our government's governance capability. Highly developed in the information network era, the Internet public opinion spread more quickly and widely, the social influence deepening, the negative public opinion even can cause great damage to the normal social order and people's life in a very short time, and also bringing enormous challenges to the government's social management. Under the special development background of the network public opinion, how to deal with the network public opinion has become an unavoidable problem for the government departments at all levels.

### 1 Introduction

Victor Maier Schoenberg "The Big Data Era" mentioned that the Big Data bringing the information revolution storm changes our life, work and thinking, and also the era of network public opinion. IDC Market Research Company (2012) believed that "the Big Data" obtain valuable information from large capacity, different data types to design new architecture and technology.<sup>[1]</sup> Some scholars define the big data from its extension angle, such as Guan Jian-wen (2013) has mainly divided into the big data: one is the media data; two is the political data of government departments; three enterprises of all types of production, sales, management and other economic data; four is the all kinds of Internet cameras to shoot data; five is the audience's personal data.<sup>[2]</sup> Zhao Lu-ping, Xu Xin, et al. (2011) have analyzed the relationship between Internet public opinion and public crisis communication; the public opinion is the information interaction result in the process of public crisis dynamic communication, and it can be used as a breakthrough point to establish a public opinion analysis and judgment mechanism of public crisis towel.<sup>[3]</sup> Yu Guo-ming, Xie Geng-yun et al. (2011) expound the online public opinion concept and characteristics.<sup>[4]</sup> Internet public opinion is the characteristics of freedom, emotion, and dispersion, instant and changeable. It can cause more extensive social impact, especially negative influence on some social hot issues.

### 2 Government governance of Internet public opinion situation in China

According to Internet Network Information Center (CNNIC) in China released the thirty-seventh "Internet development statistics report" shows Chinese netizens reached 688 million, the Internet penetration rate 50.3%, the number of mobile phone users reached 620 million, 90.1% netizens

through mobile phone on December in 2015.<sup>[5]</sup> The large-scale popularization of smart mobile terminals, such as mobile phones and tablet PCs, has further promoted the mobile Internet development, and has become an indispensable part of our people's lives. The rapid development of information technology, a large variety of data explosion, inadvertently, our society entered the big data era.

### **3 Government governance of Internet public opinion problems in China**

The government has made positive exploration in the governance of network public opinion, and achieved positive results; but with the big data era arrival, the Internet space has also undergone new changes. In the big data era, there are new characteristics in the network public opinion, and some new problems are in the governance process. This paper summarizes the following aspects.

#### **3.1 The public opinion data complexity increases the governance difficulty**

The data and information technology revolutionary progress. The data is collected by various sensors. The various websites data is generated by Internet users have become important big data sources at present. These data contain structured, semi-structured, unstructured data, and the semi-structured proportion and unstructured data is increasing. As the carrier of network public opinion and the main information source, portal, BBS, post bar, and micro-blog, WeChat and other social networking tools produce a large number of semi-structured and unstructured data in real time, many of which are useless data. It is relatively difficult to dig out and locate the data affecting the network public opinion from the mass of data, to analyze, to identify their role, and to manage them.

#### **3.2 The legal system defected limits the governance intensity**

According to statistics, at present our country special laws and regulations involving the Internet. There isn't the law in the government network public opinion management; no unified standard set for the management of the network public opinion. Some the existing policies and regulations on the network public opinion governance are scattered, partial, scattered in different laws and regulations. By the big data regulations technical service, the network public opinion governance lacks of laws support, limiting the network governance potency dimension to clear space.

#### **3.3 The public opinion governance lags behind and affecting the governance depth**

At present, China has continued the public opinion management traditional way, paying attention to dealing with and guiding public opinion, ignoring the analysis and judging the public opinion. Many network hot events from happening to detonated public opinion, evolved into public opinion crisis, to attract the public attention; the government is forced to intervene, at this time the government's public opinion guidance is difficult to play a role.

#### **3.4 The lack of information openness hinders governance transparency**

The public sharing of information and data is an important prerequisite to realize the value of large data. Only by mining, analyzing and integrating information, the data can the maximum efficiency be achieved. Publication of information is the fundamental obligation of the government. When the hot spot of online public opinion happens, the public should know the matter truth, the government attitude to the crisis and find the way to solve, favor to the open information and transparent information environment, to shape the government a good image. Lack of transparency in information disclosure affects the credibility of the government and weakens public support for the government's network public opinion.

### **4 Analysis the reasons of the public opinion governance problems in China**

Network public opinion is often closely related to unexpected events. According to the new characteristics of the network public opinion in the big data era, the following problems exist in the current network public opinion monitoring technology.

#### **4.1 The limited traditional network public opinion monitoring technology**

The tools and methods of public opinion monitoring are lagging behind. The key to monitoring network public opinion is to discover in a timely manner. At present, the network public opinion monitoring is still dominated by artificial web browsing and search. The public opinion analysis ability is insufficient, and the information quality is not high. Some event information gathered in the network



environment is unreliable; some public opinion information departments still remain in the form of similar events, logs and work in the form of dynamic. There is no timely in-depth analysis and studying the specific issues reflected in the background and the intelligence value of the information is not fully functioning.

#### **4.2 The limited traditional network public opinion monitoring technology**

The existing Internet related laws and regulations in China mostly regulate the general Internet problems, such as Internet infrastructure and network management. However, there is not a specific law for network public opinion in our country so far. There are few relevant provisions of Internet public opinion in relevant laws. Most of the existing laws and regulations are relatively general, and the specific operation is poor, which leads to poor enforcement of these laws. Legal enforcement difficulties further exacerbate the difficulty of network governance in the future. Although the Internet related laws and regulations have a certain scale, but the Internet laws and regulations are few. There are many the department regulations and the local laws.

#### **4.3 Informing network governance**

As the main participants in cyberspace, the public and other social organizations have not yet fully played their role in the Internet public opinion governance process. The situation of multi governance and co governance has not yet taken shape. In the current governance practice, the netizens' enthusiasm to participate in the public opinion governance is not high and lack of strength. The government has some doubts about the Internet users participation in governance. News media and network information platform play an indispensable role in the governance of online public opinion. However, "false news", "title party" and other phenomena are common, many of which are online media for their own commercial interests, clicks, access to public attention. Some media lost their professional ethics and social responsibility, destroying the clean cyberspace environment.

#### **4.4 Improving government information data publicity**

At present, many local governments can do public information when dealing with the online public opinion hot spots, but the amount of public information has failed to meet the public needs. With the enthusiasm and comprehensive quality of Internet users participating in government and state affairs, netizens have set a standard for judging the government's public information. At the same time, some local governments are eager to cope with the hot spot of some online public opinion and ignore the authenticity of judging public information. At the moment, netizens will come back to protest, resulting in a great decline in the credibility of the government. The internal information collection and analysis standards are inconsistent, and each department has an independent business system and information database, which is more difficult to share; which the data can be open, when to open, how to open, etc., there is a lack of clear and unified regulations, and the actual implementation is difficult to guarantee.

## **5 The government governance network public opinion strategy by the big data perspective**

On the basis of summing up the past experience and taking the big data advantage, this paper proposes that government governance network public opinion should be changed from the following four aspects.

### **5.1 Strengthen big data thinking and promoting the big data technology**

Data in the big data era means extracting information from public transactions, transforming this information into data through quantitative methods, from which you can get more value beyond the value of information dissemination. The big data core lies in the prediction. The governance core of the Internet public opinion is also based on the prediction, grasping the trend, making the correct judgment, achieving the purpose of taking preventive measures. At the same time, it is necessary to innovative network love big data analysis methods. Only by continuously optimizing and innovating the method of large data analysis of network public opinion can we achieve accurate and reliable analysis of network public opinion and serve in the process of network public opinion governance. Data processing technology is the focus of large data technology applications, and also the urgent need to strengthen the field.

## 5.2 Improving the big data legal system to rule by law

It is urgent for the legislature to set up a dominant law on the management of network public opinion at the national level, and to standardize the management of network public opinion of various departments and local governments, so as to form a unified management standard of network public opinion. In order to better realize the governance network space and standardize the network space behavior, the central government has set up an organization to manage network security and information. The government governance of the network public opinion field changes from the character management of sensitive words to the rule management of online behavior. From the governance netizens to the governance network platform, especially portals and WeChat, micro-blog and other self media platforms. In accordance with the rule of law on the network, China is constantly exploring “both to promote development and ensure safety”, “both to protect the freedom of Internet users and maintain the order of the network governance network”.

## 5.3 Using large data to realize multivariate co governance

The government in the construction of network public opinion management system, change the past by the present situation of the government party led the management of the network public opinion, the introduction of multi force, to participate in the management of Internet public opinion in action, the formation of multiple governance situation. The media bears the responsibility of releasing the authenticity of the information data, and must stop the emergence and dissemination of false news, and strictly examine news and information sources. Carrying out extensive media literacy education and enhancing the rational thinking of Internet users, netizens learn to use big data thinking to participate in public opinion governance. When public opinion crisis occurs, we can collect information and verify it in many ways, and strive to restore the whole process of the event. Insist on the facts as the basis and ensure that information is truthful and objective. Follow the events progress and correct information and opinions in time

## 5.4 Integrating operational mechanism for big data public opinion to enhance governance

At present, Chinese public opinion management network mainly includes public opinion monitoring, public opinion analysis and judgment, public opinion early warning, public opinion disposal and guidance, public opinion, rehabilitation evaluation and other institutional mechanisms. These institutional mechanisms need to be systematically integrated on the basis of big data technology, and become a set of effective network public opinion governance system.

Government collection and monitoring work should first be done in a comprehensive way, and as far as possible, it is possible to collect comprehensive network information without missing any seemingly irrelevant public opinion information. The second is the accurate first, the network information data to collect further integration and analysis, according to the actual work will need to collect public opinion information corresponding summary and classification, to facilitate the next step work. The third is prescription first, public opinion information needs the first time to obtain, to analyze, to display and to warn. In order to make the government understand the people through the Internet, access to the demands of the people the most true, accurate collection of public opinion information of government departments need, effectively prevent the harmful information of public opinion and public opinion dissemination of flood control, to help the government to eliminate negative emotions, enlarge positive voice, guide public opinion, and to provide the basis for government decision-making in data the next step.

Public opinion information data collection monitoring is not a simple analysis and judgment, but after the integration of large data processing technology, the use of data mining and analysis capabilities, information and data collected are automatically split, clustering detection, statistical analysis of subject orientation, focus and topic analysis, tracking trends, to fully grasp the dynamic network public opinion. The basis of public opinion judgment for the big data must be complete, accurate and speed information grabbing. On the basis of analysis and judgment, according to the result, the principle and measure of deciding the corresponding rank of warning grade are determined. The construction of early warning mechanism can proceed from the following aspects. First, establish a scientific public opinion index system; two, formulate warning level and early warning program; three, establish public opinion hot case library and data model.

The government is the largest information and data holder. They should publish information and data in a timely and accurate manner. The first sound is government public opinion crisis, to follow the “fast facts, caution that the reason” principle, to leave some leeway in public opinion environment. When interacting with the media and the public, “a little more sincere, less routine”, and more people from the perspective of thinking. In practice, as soon as possible to identify the truth, at any time through the information publishing platform to release the latest progress of events, to meet the supervision of the public. The information that the government grasps is far more comprehensive and professional than that of the Internet users. The government should take advantage of this advantage and issue authoritative information in time to guide media reports and attitudes towards netizens. The network public opinion should stress the strategy appropriately, prevent the improper way of work and arouse the contradiction.

Rehabilitation evaluation is an important part of public opinion governance. The evaluation mechanism of network public opinion rehabilitation refers to government departments, will be restored to the normal order of the network, through comprehensive analysis of the relevant event information, data, in early warning, control, restoration and reconstruction work and make rational judgment and highly summarized, so as to avoid the risk of recurrence of the same type to provide policy reference. The government should control every time through the network public opinion, find out the management system and mechanism, and correct them, mainly in the following aspects: one is the summary of the network to public opinion after the reflection system, summarize the experience and shortcomings; two is to improve the existing network public opinion management issues, exchange experiences and lessons the network public opinion response; the three is to evaluate the functions of the government departments of the network public opinion management ability and status. Only by attaching importance to the evaluation of the aftermath, summarizing the experience and lessons learned in the governance of public opinion, and further enhancing the ability of the government to respond to public opinion on the Internet, can we avoid mistakes in our work again.

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## Research on the Problems and Countermeasures of Online Public Opinion under the Background of Big Data in China

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**Abstract** As a new governance resource, Big Data has a promising prospect in promoting the national network governance modernization. The usage of Big Data resources and technology can improve the national network governance wisdom of the decision-making level, public service capabilities and risk management capabilities. This paper is based on the new characteristics of network information such as massive heterogeneous, multi-source heterogeneous, low density value and fuzzy ownership. It has been expressed from five aspects: the emergence of network public opinion governance, new features, new challenges, the current problems and their reasons and countermeasures analysis. Due to that the network is virtual, anonymity and flat, it is very easy to cause the “group polarization effect” which may change people’s life or even change the public opinion ecology, leading to network public opinion explode. It may cause the crisis of government credibility.

**Key words** Big Data, Network public opinion, Network governance, Media

### 1 Network public opinion and governance emerge under the background of Big Data

At the beginning of the 1980s, according to the world famous futurist Alvin Toffler’s *The Third Wave*, it explains that the social changes and trends are caused by science and technology development, and it forecast the human society will entered the information age in the mid-21st century when information, energy, and substance will become the world’s three major elements<sup>[1]</sup>. At that time, his argument was regarded as an unrealizable and even absurd inference. However, Since 1980s, the rapid development of computers and the widespread use of many other “pervasive computing” devices have made people aware that Alvin Toffler’s inferences have been gradually confirmed and that the various data collected by computers and other devices also showed a blowout development, the information age is quietly coming.

As we gradually stepped into the data network era, information storm brought by Big Data is profoundly changing people’s production and living ways. Under the background of Big Data, network public opinion arises at the historic moment; as a result, the network governance for such public opinion is logically put on the agenda. Now the social networking platforms represented by Weibo, WeChat has gradually become the main media for people to communicate, receive and send message, publish personal opinion and make political statement. The common features of these networking platforms are that they can condense comments, induce users’ behaviors in a relatively short period. Therefore, these platforms are the cradle of network public opinion. In recent years, the authoritative definition of network public opinion is that the Internet users publish some influential and tendentious opinions and insights about the social and public affairs, especially the hot networking issues.<sup>[2]</sup> Against the background of Big Data, how to collect the massive network public opinion data and how to establish an effective network public opinion supervision mechanism to carry out corresponding network governance decisions become the hot and difficult issues of today’s research.

### 2 New features of network public opinion governance under the background of Big Data

“Big” of the Big Data attributed to “4V + 1C”: Massive data scale (Volume), quick processing speed (Velocity), a wide range of types (Variety), huge data value (Value), and complex analytical processing difficulty (Complexity).<sup>[3]</sup> Thus, when the characteristics of the Big Data integrating with the network public opinion governance of public offices, the following new features will be emerged:

### **2.1 New media technology has become a new channel for network public opinion governance**

New media in 21st century mainly refers to the technology that make use of digital technology, network technology, through the Internet, broadband local area network(LAN), wireless communication network, satellite channels, as well as computers, mobile phones, digital TV and other terminals, to provide users with information and services. Based on the advantages of convenience, universality and large storage capacity of the new media technology, it is widely used in the field of public administration, which also provides the prerequisite for the practice of the integration of the new media technology and the network public opinion crisis governance. The government with the help of new media technology, network government forum and other online government to improve government responsiveness has become an important measure of national governance transformation. Because the public opinion crisis have sudden, urgent, chaotic, diffusion, fear and other characteristics,<sup>[4]</sup> so if it is desirable to change danger into safety, ensure low administrative costs with the most effective ways, and let public opinion governance achieve efficient operation in a short time, the media carrier of the guidance of public opinion is required to play a role of data media regulation, filtering and so on to judge and control the trend of the network public opinion. (<http://baike.baidu.com/item/%E6%95%B0%E5%AD%97%E6%8A%80%E6%9C%AF>. <http://baike.baidu.com/item/%E7%BD%91%E7%BB%9C%E6%8A%80%E6%9C%AF>)

### **2.2 Attaching importance to the development of data resource is the new direction of the national network public opinion governance**

Public decision-making in the face of the network under the crisis of public opinion is different from the usual way under the public opinion governance. Facing with the network of Big Data statistical time, huge statistical volume, decision-making techniques and procedures and other constraints, the country has many difficulties in governing network public opinion. “The most critical part of the Big Data is analyzing data and mining data value,” said Wu Guan-sha, chief engineer of the Intel China Research Institute.<sup>[5]</sup> Based on these above, in the process of managing network public opinion events, the country needs to attach great importance to the development and integration of data resources to provide a comprehensive, multi-level public service platform for the human society, and improve the scientificity of the network public opinion governance decision-making under the background of Big Data.<sup>[6]</sup>

### **2.3 Information disclosure is the new requirement of national network public opinion governance**

The uncertainty of current society makes the information become an important factor affecting human social behavior. The reliability and validity of information greatly affect people’s value judgment and behavior. The Big Data era is an information explosion era; the miscellaneous (including true and false) data further affects people’s judgment and behavioral decision-making. In the traditional public opinion governance mode, the country should adopt a top-down close-end or even mandatory management way to deal with network public opinion, which leads to various conflicts between the people and the management personnel. Against the background of Big Data, the behavior information between citizens and citizens, governments and governments, citizens and government will be presented to the public through variety of informatization technologies. The government public sectors also follow the new requirements of information disclosure when governs network public opinions, which will effectively improve government’s credibility and make up for the shortcomings of traditional public opinion governance.

## **3 The new challenges of network public opinion governance under the background of Big Data**

Big Data means that the data people using and analyzing is surging, while it also means that the effective management and utilization of Big Data is becoming more difficult. In this case, network public opinion governance is facing unprecedented opportunities and challenges.

### **3.1 The mass data scale makes the traditional public opinion monitoring methods hard to work, affecting the level of decision-making**

The most critical characteristic of Big Data is Ocean information data. CNNIC report shows, by June 2016, China’s phone users’ number reached 7.10 billion, and the Internet penetration is up to

51.7%. Among them, the number of mobile phone users reached 6.56 million, and the mobile Internet users account for 92.5% of the total number of internet users.<sup>[7]</sup> In this case, it seems that Internet have become an important channel to spread thoughts, culture, and social opinions. The amount of data generated by various social networking sites, such as Weibo, WeChat, and Tencent media surges every day. The social networking field has become a public carrier and media platform for public sector policy agenda setting and public implementation of social mobilization, inducement, manufacturing, and diffusion of network public opinions. It is difficult to calculate mass data. Unexpected data and related factors make network public opinion more complex, traditional judgment and research methods are difficult to work so the new monitoring and research techniques and methods to put forward higher requirements, which have greatly increased the difficulty of mining public opinion information. For example, Beijing Lin Ke public monitoring system statistic shows that from May 5, 2016 to May 9, 2016, the amount of public opinion information caused by Chen Zhong-wei event up to 1.4 million, and quickly became a social event with tremendous impact.<sup>[8]</sup> Ocean information data brings hitherto unknown challenges.

### **3.2 A dispersed discourse right caused by public opinion information block exacerbates the crisis of public opinion governance**

Under the background of Big Data, data information explosion bringing a huge amount of redundant and fragments information, different thought-oriented and value-oriented multi-network cultures information interact with each other, which lead to the irregular transmission and the possibility of group polarization of network public opinion. The emergence of online media platform has promoted the opening and communication of information personalized communication, and the spread of the propaganda. It is easier for some extreme views to find “similarity” in the diversification of information transmission, thereby enlarge the false opinion or the public and exacerbate the public opinion crisis. Especially in the public opinion crisis, ordinary people and public authorities, as the main part of public opinion, have different standpoints and views because of information asymmetry and poor communication. As a result, network violence and rumors are triggered, intensifying public opinion crisis.

In March 2016, in the early period of Sichuan Normal University event, label propagation and poor management of public opinions led the voices of doubt such as “Whether Teng Fei’s spirit really has a problem? Whether the police have implemented the appropriate enforcement process?” flooded the network. For a time, all the people have joined the case discussion, caused deep misunderstanding between both police and ordinary people, and damaged the reputation of the school and the credibility of the government. The case also reflects that there are many drawbacks of the public opinions; the government credibility is very fragile in the current era of Big Data. The blockade of the news and the absence of timely statement led to a passive and embarrassing situation of the public sectors. After the incident, the government should reflect on the network public opinion management methods. First, the information should be disclosed in a timely manner, which is the key for the government to seize the initiative. After the incident, although network users lamented the deceased, but in fact more people are concerned about the causes of the incident and the impartiality of the accident, so the government should be timely calmed citizen down to curb the spread of network rumors. Second, the involvement of the third party in the investigation may make the results more convincing and credible.

### **3.3 The network public opinion information is presented in multimedia modes, increasing the difficulty of network public opinion supervision**

Network public opinion data mode vary widely, mainly to taking Weibo, WeChat, news sites, BBS, blogs, mobile clients as a means of transmission, through text, pictures, sound, video, web and other information carrier act on public opinion objects at the same time. Today, all kinds of data are readily available. In the current open environment of the network, more and more information obtained by individuals, institutions through data mining and analysis are often spread like wildfire, which increased the difficulty of managing network public opinion. Network public opinion under the background of Big Data shows the features of diversification of sources, public participation, and complexity of information structure and communication mechanism, which will undoubtedly increase the difficulty of monitoring public opinion for the public sectors.

## **4 An analysis of the challenges and causes of network public opinion governance in the background of Big Data**

### **4.1 The scientific and theoretical system of Big Data is still not perfect**

To measure the development level of a discipline, the depth of its basic theoretical study is a major sign. Although as early as 1980, the famous Futurist Alvin Toffler in his book *Third Wave* praises Big Data for “the most grand, magnificent and attractive part of the third wave”, the public generally recognized 2013 as the first year of Big Data. Big Data intends to implement the development and transmission from data to theory to science, to build a clear scientific framework, to form an independent scientific system in a short time facing a lot of academic and social questions.<sup>[9]</sup> The transfer with traditional technology, the construction of Big Data scientific and theoretical system need better integration with Internet of Thing, cloud computing and other emerging technologies. And also perfecting Big Data communication, acquisition, storage, management, development, analysis, decision-making technologies according to the actual needs of the field expansion is required.

### **4.2 The government's network information publicity system is imperfect**

In March 2017, the general office of the State Council issued the Main Points of Government Affairs Opening in 2017, which includes this year's government information disclosure work deployment. The Main Points of Government Affairs Opening in 2017 asks the government to advance the process of the decision-making, execution, management, emphasize result openness, and enhance the interpretation of the response to expand public participation, and improve the effectiveness of the information openness. Government information disclosure work should take protecting people's right to know, participate, and supervise as the prerequisite, and constantly enhance the effectiveness of information openness, expand the theoretical scope of publicizing the government information, render openness data, and better play the promotion role of information disclosure on the construction of the rule of law government, clean government, innovative government.<sup>[10]</sup> This also expresses the determination of Chinese government to open the government information system, as well as expectation that the central government hopes governments at all levels open their information to the public. However, in the actual implementation process, there are still many drawbacks. For example, government at all levels still exist the traditional practice that block the news first, quash rumors, and then gradually control public opinions. In fact, as long as learn enough real information, the public have the ability to judge the truth, and make the right judgments. British well-known politician Charles James Fox said, “When people can only secretly communicate ideas because of persecution, public opinions will bring danger to the country.”<sup>[11]</sup> So when the sudden public opinion event happened, the full range of and multi-channel information disclosure enabling the public timely and accurately know what happened, help the government reduce public opinion crisis risks. In the process of dealing with emergencies, the governments may have one without another; therefore, to mobilize the enthusiasm of the masses helps solve the case quicker.

### **4.3 Network public opinion crisis alarm mechanism is not perfect; personnel's training is not professional**

Currently, China is lack of a professional network public opinion crisis alarm mechanism. The effective public opinion supervision is aimed to grasp the dynamics of the network public opinion and the direction of public opinion timely, make correct judgment for complex information, assess the risks that caused by public opinion information, and govern illegal information according to the law. All mentioned above are forward-looking, foreseeable, and complex tasks. On the other hand, China is lack of professional personnel training in the network public opinion crisis alarm mechanism. The members of temporary emergency response team do not understand the planning procedures, therefore, no professional response measures are formed, or the people of the team do not know each other, they cannot cooperated with each other. Professional and systematical training is essential for handling the network public opinion crisis.

### **4.4 Network public opinion management mode is single**

China's network public opinion governance is still in the initial exploration stage, in the face of sudden and complex public network public opinion incident, the ability and experience of the



government to deal with the problem are still lacking. Under the influence of the traditional bureaucratic concept, the method of the government managing network public opinion is relatively simple. Today, a wide range of information subjects and multi-channel information processing modes can be effectively used, governments and public departments should learn to decentralize the right to broaden the channels of governance, solicit opinions and suggestions, and find effective ways to comprehensively govern network public opinions.

## **5 Network public opinion governance strategy analysis under the background of Big Data**

Network public opinion governance is based both on traditional societies and on virtual space, both using traditional public governance and adding emerging information technology elements. In the face of the difficulties of national network governance in terms of safety, efficiency and rationality, it is urgent to construct a national network governance mechanism. Clarify the laws and regulations to make the network governance path clear, expand the field of Big Data to enhance network governance technologies, which complied with realistic requirements of the data-driven national network governance that is participatory, forward-looking, and manageable.<sup>[12]</sup>

### **5.1 Construct a network public opinion database platform, synergy governance role of multiple subjects**

In February 2014, the establishment of the central network security and information technology leadership team which represents the state of network governance is a significant step in the strategy, giving full play to the government and other public sectors in the top overall management of Internet public opinion. However, there are no data sharing and cooperative decision making among the subjects of online public opinion governance. Therefore, we should set up the concept of public opinion, establish the basic data platform for unified and efficient as soon as possible, build information source-sharing system, decision oriented governance information analysis system and linkage emergency mechanism, break all departments and industries “data isolated island”. At the same time, the government and other public departments should timely adjust the public service strategy, improve the participation mechanism of social public affairs based on internet, encourage the public to participate in the construction of Big Data applications, target the equalization of public service system, and actively cultivate and guide the network opinion leaders and give full play to its social and political role. The mainstream media should make good use of Big Data to enhance their public opinion, communication power and influence, and provide correct public opinion guidance for the national network governance publicity. By giving full play to the cooperative governance role of multiple subjects, we should maintain good public opinion ecology and actively resolve the contradictions of reality.

### **5.2 Aggregate the fragmentary information, construct the public opinion correlation system, and improve the ability of network public opinion evolution analysis and trend judgment**

In the era of Big Data, the spread of network public opinion is rapid, but the value density is low. The huge amount of network information is mixed with redundant data and false information, which seriously affects the efficiency of data mining and analysis and the level of governance decision-making. Therefore, based on the Big Data technology, the network public opinion should be fully statistical sampled, and the focus will be changed from the descriptive statistical and causal analysis of events to the analysis of public opinion. Establishing public opinion case database and the hot topic on the Internet features of rules, accurately mining and analyzing attitudes, public opinion trends and the complex social relations network, implementing information puzzle of internet public opinion, provide a comprehensive and detailed public opinion information for the government and the majority of Internet users, improve the real-time information of public opinion and its warning efficiency analysis. For example, the “open source center” network monitoring organization set by CIA after the “9·11” incident, obtains massive data to track terrorist intelligence and monitor social mood, in a way to provide an important basis for the U.S. government’s antiterrorism operations and foreign policy.

### **5.3 Construct the quantitative evaluation index system and evolution analysis model of network public opinion, so as to improve the ability of guiding and disposing rapidly**

The quantification of public opinion is the premise and foundation of the realization of the value of Big Data. To establish and perfect the network index system such as opinion public index, early warning index and evolution index, realize the acquisition of changes to the data processing and visualization from public opinion information collection only, the full range of information services from one degree of crisis. Comprehensively evaluating public opinion, the future development trend of the nature of the incident, the public opinion dissemination platform and scope, the network of public opinion public opinion tendency and social impact and other multidimensional data, quickly and accurately dividing the public opinion level, provide enough time for the government and other public sector intervention in advance of network public opinion management, thus starting the different early warning plan, to achieve accurate and precise management of network public opinion control.

### **5.4 Draw lessons from the useful experience of the Internet governance, pay great attention to the network public opinion security monitoring technology, and realize the legalization of the network public opinion space**

A perfect legal system is the fundamental guarantee for the governance of the state's online public opinion. As the birthplace of the Internet, the United States adopted "communication purification act" in the year of 1995, to protect the rights and interests of citizens, at the same time, to strengthen the supervision of Internet action. In order to strengthen the "common control" of the Internet, France adopted the "information society act" in 2006.<sup>[13]</sup> In addition, Germany, South Korea and other countries have also passed a series of network management laws and regulations to maintain network order and national information security in terms of institution. At the Forum on network security and information work held on April 19, 2016 in China, general secretary Xi Jin-ping pointed out clearly: "we should speed up the process of network legislation, improve the regulatory measures in accordance with the law and defuse network risks." Therefore, we should learn from the successful experience of foreign Internet legislation, on the basis of guaranteeing the right of supervision and expression of Internet users, to draw up targeted and forward-looking network management laws and regulations which can reflect the characteristics of Big Data technology, clear task boundaries, governance responsibilities and practices of network public opinion governance. Adhere to the "governance plus technology" principle, vigorously develop the network information monitoring technology and data security technology, accelerate the process of network real name system, safeguard national sovereignty and security of personal information, ensure the healthy development of network public opinion.

## **6 Conclusions**

Network public opinion is the concentrated reflection of social feelings and public opinion on the Internet, and is also an effective way to test the credibility of the government and the capacity of public services. In the background of Big Data "everything can be quantified", under the general goal of promoting national governance capacity and modernization of network management system update, the network has gradually become the "mirror" of social reality, becoming increasingly integrated with the real world. we should make good use of Big Data thinking concept and architecture to innovate management system and governance model of network public opinion, combine monitoring data of online public opinion with actual public opinion survey in real society, and reconstruct the new relationship between government and citizens in the network context. The state of network public opinion governance is no longer confined to the virtual area, and we should carefully grasp the law of public opinion movement and its interaction with the real society, to achieve effective interaction on the Internet, join forces to resolve social contradictions, to rebuild the credibility of the government, to create a good network space environment in the era of Big Data.

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## Strategic Choice of China's Local Governments in Response to NIMBY Conflict: Theoretical Explanation and Empirical Evidence

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**Abstract** Resistance movements caused by NIMBY facilities occurred frequently, which has brought great challenges to local governments. Facing NIMBY conflict, some governments give hardline response, while other governments choose to compromise. What are the factors that influence the choice of government response strategies? Based on the visual angles of rational behaviour pattern, organizational behaviour pattern and government political pattern, this paper chooses 7 influential factors of the NIMBY conflict, namely, scale and type, media exposure, organization preferences, organization attention, political cycle and game force, to build the theoretical explanation framework. By using qualitative comparative analysis method on multi-case analysis, it is found that the combination of four conditions will cause government to change its initial decision to respond to the conflict, among which “protest scale, protest type, media exposure, organization preferences and game power” has the strongest explanatory power.

**Key words** NIMBY conflict, Government decision, Qualitative comparative analysis method, Fuzzy sets

### 1 Introduction

As urban population and urbanization rate increases continuously, it is necessary to build a large number of public facilities to serve the production and life of urban residents. Some of these public facilities will have a certain degree of negative externalities, cause the cost and efficiency asymmetry, resulting in public disgust and opposition to their construction near their own houses. The academic community name such facilities as NIMBY facilities, and the protest movement caused by NIMBY facilities as NIMBY conflict. In the face of NIMBY conflict, the government needs to make timely and effective response. However, in the same institutional environment, the response strategy of local governments will be different. Then, what factors affect the choice of local government response strategy? The author found that Western scholars pay attention to the topic of “government response” earlier, while domestic scholars pay less attention to the topic. Few studies regard government response as a process of “political and civil interaction” and investigate factors influencing the Government's response by using empirical methods from the perspective of public administration<sup>[1]</sup>. Besides, the existing researches lack sufficient explanations for events in reality. As Yang Yun-kang points out that the government's response interpretation framework, which is based on rational choice theory, has lost its explanatory power to the environmental protest events in China in recent years, the weight of economic interests on government decision-making is diminishing, and new evidence needs to be added to broaden the explanatory framework<sup>[2]</sup>. Other scholars also pointed out that these studies are affected by the source distribution of the selected cases and the type of NIMBY facilities, and whether the conclusions are robust needs to be further validated<sup>[3]</sup>. Therefore, this paper attempts to study the existing researches by systematic literature review method, construct an integrated interpretation framework, and use fuzzy sets-qualitative comparative analysis to analyse the empirical data to examine the interpretation framework.

### 2 Literature review

Government decision-making is a result of multi-factors, and most of the changes in the policy-making of the government are interpreted from a unilateral perspective. By reading literatures, the author extracted and integrated the influential factors listed in the literatures as follows: rational actor model, organizational behaviour model and governmental politics model. Through the above three kinds of models, the author examined China's local government's strategy choice to respond to

NIMBY conflict.

## **2.1 Rational behaviour pattern**

Rational behaviour refers to the consistent choice of maximizing value under certain restrictions. The theory of rational behaviour can be used to calculate the advantages and disadvantages of the actors and explain the decisions made by it. Simon clearly distinguishes between “complete rationality” and “bounded rationality” and points out that the vast majority of decision behaviour is limited rationality. Therefore, the “rationality” in the paper is defined as bounded rationality. Refer to existing literature<sup>[4-6]</sup> and choose the three variables: scale of protest, type of protest and media exposure.

### **2.1.1 Scale of protest**

In the literatures on the scale of protest, many scholars point out that the scale of protest is the most important factor affecting local governments’ decision-making<sup>[7,8]</sup>. Statistics show that in China, the people attempt to safeguard their legal rights through mass disturbances accounts for as high as 45.43%, and the people who think “It’s going to work out when things get more serious” accounts for 16.34%. As the legitimacy of China’s local governments is authorized by the superior government, since the 1990s, the central government has requested all levels of governments to prevent the occurrence of mass disturbances and the superior government to implement to officials making inadequate disposal of mass disturbances and causing adverse social effects<sup>[9]</sup>. Therefore, a massive protest means a “big problem” for the governments. For the people, it means getting more external power through “making things more serious”. The bigger the protest scale is, the more likely it is to succeed in changing the governments’ initial decision.

### **2.1.2 Type of protest**

In the study of the type of protest, scholars conclude that the use of violent protest by groups can increase their chances of success<sup>[10]</sup>. As Li Yan-wei divides the protest type into two categories: violence protest and non-violence protest according to the protest degree, pointing out that violent protest has a higher chance of changing the government’s initial decision<sup>[4]</sup>. China’s institutional structure result in a limited coordination of the inquiry suits in system, so violent protest becomes an extreme way of solving problems among people. Local governments, which face problems such as the pressure of maintaining stability, etc., often choose to “make concessions to avoid trouble” when the public chooses violent protest game with it. However, a violent protest does not always make the government change its decision. Because the bottom line of government tolerance is that the violent protest has no political attempt and no threat to the stability of its regime<sup>[11]</sup>.

### **2.1.3 Media exposure**

Media exposure not only brings “visibility” and “transparency”, but also empowers disadvantaged groups to become a tool for their protest with the government. By observing of the NIMBY protest movement in Xiamen, Dalian and Ningbo, it can be known that the NIMBY protest movement of these three cities is exposed through the media initially, enlarging the influence of events, exerting pressure on the government, and finally realizing the aim of forcing the government change the decision. Glasbergen points out that media plays a role of an important participant in the protest movement, and that for the government, the media exposure is also a huge pressure, which can urge the government to change its initial decision<sup>[12]</sup>.

## **2.2 Organizational behaviour pattern**

Weber sees the organization as an effective tool for making rational choice, which influences follow-up studies to treat government as a single rational actor, namely, a decision-maker that can centralize unified action, fully information and pursuing value maximization. Whether the social conflict can cause the change of public policy is not entirely dependent on the conflict itself, but on the attitude, preferences and ability of the policy subjects. In view of this, the paper chooses organization preferences and organization attention as the influence factors of organizational behaviour pattern.

### **2.2.1 Organization preferences**

This paper defines “organization preferences” by discussing the differences between organizational behaviour patterns and rational behaviour patterns. The organizational behaviour pattern has different understanding on government behaviour with the rational behaviour pattern. The former thinks that in

order to complete complex tasks, it is a must to coordinate the behaviour of more than one person, which will produce standard operating procedure. And the standard operating procedure provides the “path” for government behaviour and forms a kind of organization preferences similar to “path dependence”. Organization preference is the most familiar or appropriate decision made, based on past experience, by the organization, rather than the decision of the maximum benefits. At present, few studies have discussed the issue of organization preferences of government decision-making behaviour in protest movements, so this paper discusses organization preferences as an exploratory variable.

### **2.2.2 Organization attention**

When an issue arises, the most relevant department in the organization will respond to the issue according to what it deems to be the most important goal. Ocasio, based on the influence of attention configuration on organizational decision-making, puts forward the basis theory of attention and thinks that the success or failure of organizational decision-making depends on its focus<sup>[13]</sup>. In that case, what are the key factors that determine the concentration of government organizations? Keohan asserts that the system shapes the organization’s preferences and powers and determines the organization’s attention<sup>[14]</sup>. Chinese governments make a top-down management through bureaucratic system and the central government has placed local officials in the promotion competition game to inspire local officials. The important basis for the promotion appraisal is the relative position of economic performance in the official area, which has led to strong incentives for local officials to promote regional economic growth. Therefore, this paper will regard the organization attention as a factor influencing government behaviour in NIMBY conflict.

## **2.3 Governmental politics model**

Unlike the previous two models, the governmental politics model regards the actor as multiple, rather than a single one involved in the game. The actors involved in the game determine the government’s actions through political bargaining, instead of rational decision-making. Based on this, the references of this paper<sup>[4][6]</sup> include game power and political activity events as influencing factors.

### **2.3.1 Game power**

In the game process with government, whether the protesters can absorb more resources and form a strong game power affects the success or failure of the protest. The relatively open political structure, the widespread existence of environmental politics and the influence of local factions in the West all deepened the protesters’ game status, and the process of NIMBY conflict is often accompanied by compromise and even a complete withdrawal of NIMBY facilities’ constructors. As an environmental group of NGO, local governments can respond more strongly to the expression of environmental policy and local values, and resist the “one size fits all” policies formulated by the governments<sup>[15]</sup>. In addition to powers out of the system, such as the NGO organization, academics, business and opinion leaders, powers within the government system can also become game power in changing government decision-making, such as NPC deputies, CPPCC members, retired officials and etc.

### **2.3.2 Political activity events**

Since the central government has maintained social stability as a political task for subordinate government departments, governments at all levels have been implementing economic development and maintaining social stability as the most important task. In China, political cycle is a sensitive and critical moment, which represents the announcement of a series of important matters such as personnel change, system regulation and development direction. In this time period, the central government has ordered local governments to fully cooperate with the successful convening and conclusion of the Conference, in which “maintaining stability” is one of the most important tasks. After discussing the “Panyu Incident” in Guangdong Province, Li Yan-wei and other people pointed out that because of the hosting of the Asian Games, local governments suspended the promotion of incineration project for maintaining stability<sup>[5]</sup>. Therefore, in this paper, the scope of political events is defined as the general election campaign of the central government, the central conference, the host of national or international competitions.

## **2.4 Government response strategy**

Through literature reading, it is found that there are different types of government response strategies among the educational circles. Prut divided the coping strategy into four categories

according to the difference of risk perception: Contending, Yielding, Problem Solving and Avoiding. Cai Yong-shun, by summarizing a large number of cases, pointed out that in the face of social conflict, China's local governments have four kinds of responses: neglect, repression, conditional compromise and unconditional compromise<sup>[16]</sup>. Li Yan-wei, divided the government response strategy into two categories in the study of NIMBY conflict: change the initial decision and not change the initial decision, in which cancellation of the construction project and relocation is classified as the government changing its initial decision, while continuous construction as the government not changing its initial decision<sup>[4]</sup>. In summary, this paper chooses cancellation of construction projects, relocation, suspension of project construction and continuous project construction as government response strategy.

### 3 Research methods

#### 3.1 Qualitative Comparative Analysis (QCA)

Qualitative Comparative Analysis (QCA), as a case-oriented research approach, aims to integrate the advantages of qualitative and quantitative research methods based on aggregation and Boolean algebra. Ragin, the method proposer, argues that social phenomena are complex and difficult to explain. There are a variety of influencing factors for social phenomena, and the occurrence of which is likely to be a specific result after the formation of a combination of reasons<sup>[17]</sup>. In the QCA operation method, the operation method of crisp set had been put forward earliest and applied most. The basis of the method is to divide a variable into two parts. In order to improve the applicability of QCA method, Ragin developed the crisp set method, and proposed the fuzzy-sets method (FS/QCA). The biggest difference of a fuzzy set is that when Set A intersects with Set B, the case of Set A belonging to Set B can be represented as different values from 0 to 1, depending on the degree of intersection<sup>[17]</sup>.

#### 3.2 Case selection

The author searched out 137 articles in the CNKI literature database by keywords "NIMBY" and "case" and 128 reports in the CNKI newspaper database by keyword "NIMBY". After reading those articles, the author finally chose 75 cases; meanwhile, taking into account the typicality, representativeness and operability of the cases, combine with the spots where the cases occurred and the types of NIMBY facilities, the author selected 48 cases involving 17 provinces and municipalities as study samples from 2007 to 2016.

#### 3.3 Variable assignment

In the variable assignment method of fuzzy sets, direct and indirect methods can be used<sup>[17]</sup>. Due to the lack of ratio data and interval data of the selected condition variables, this paper chooses the direct method, using the 4-value scheme (0, 0.33, 0.67, and 1) to assign the condition and the result variables. The government response strategy is based on the change degree of government decision to correspond to the size of the assigned value. For example, "project construction cancellation" is assigned with "1", "re-selection" is assigned with "0.67", "project construction suspension" is assigned with "0.33" and "continuous project construction" is assigned with "0". In terms of protest scale, refer to the "National General Emergency Plan for Outburst Public Accidents" issued by the State Council, 5,000 people and above is assigned with "1", 3,000-1,000 people is assigned with "0.67", 500-1,000 people assigned with "0.33" and under 500 people is assigned with "0". In terms of protest type, refer to the academic study<sup>[4]</sup>. "Violent protest" is assigned with "1", "peaceful set" is assigned with "0.67" and "network denounce" is assigned with "0.33". In terms of media exposure, "central media" is assigned with "1", "local media" is assigned with "0.67" and "network exposure" is assigned with "0.33". In terms of organization preference, the values are assigned in accordance with local governments' decisions on dealing with similar events in the past. "Stop action" is assigned with "1", "compromise" is assigned with "0.67" and "fight" is assigned with "0.33". From the previous discussion, "organization attention" selected "financial relevance" as a measurement index. The project investment accounting for more than 10% of GDP is assigned with "1", 6%-9% with "0.67", 2%-5% with "0.33", and less than 1% with "0". In terms of game power, refer to the studies of Verweij<sup>[18]</sup>. According to the type of game participants, "more than 10" is assigned with "1", "8-10" is assigned with "0.67", "5-7" is assigned with "0.33" and "1-4" is assigned with "0". In terms of political events,

the “Central Government Meeting” is assigned with “1”, “international activities” is assigned with “0.67”, and “local government meetings” is assigned with “0.33”.

#### 4 Data analysis

Based on the calculation offs/ QCA2.5 software, the paper needs to further discuss the explanatory power of the conditional combination on the result. The author selected standard analysis when using the software to simplify the combination mode of conditions and show the results for intermediate solutions (see Table 1).

**Table 1 Analysis results for intermediate solutions**

No.	Combination of conditions	Unique coverage	Consistency score
1	Protest type * media exposure * organization preferences * political events * game power	0.070712	0.856223
2	Protest scale * protest type * media exposure * organization preferences * organization attention * political events*	0.179420	1.000000
3	Protest scale * protest type * media exposure * organization preferences * political events * game power	0.436412	0.837497
4	Protest scale * protest type * media exposure * organization preferences * organization attention * political events * game power	0.035356	1.000000
5	Overall coverage	0.800264	
6	Overall consistency		0.816113

From Table 1, we can see that the intermediate solution obtained through the author’s analysis contains four kinds of condition combinations. Scores of the overall solution consistency and the overall solution coverage were 0.816113 and 0.800264 respectively, indicating that the output of this study was good<sup>[17]</sup>. In all the conditional combinations, the unique coverage value of combination 3 is the highest, indicating that combination of 3 has more explanatory power on the change of government decision-making than other combinations.

#### 5 Conclusions

In this study, through qualitative comparative analysis of 48 cases, the author determined two necessary conditions (protest type and media exposure), five sufficient conditions (protest scale, organization preferences, organization attention, political cycle and game power) and their influence on the choice of government response strategy.

Firstly, in the four conditional combinations, the protest type and the media exposure, both have appeared, can be identified as necessary conditions to affect the government’s decision-making change. In NIMBY conflicts, violent protest can effectively influence the change of government’s decision-making. This finding is consistent with the existing findings, such as those of Cai Yong-Shun<sup>[16]</sup> and Li Yan-wei<sup>[4]</sup>. This shows that the public NIMBY protest in China, to a large extent, relies on violence to exert pressure on local governments, forcing them to respond to public demand and change their original decision; similarly, media exposure has a greater impact on government’s response strategy. The significance of modern mass media is not to provide a free public dialogue space for the public, but to provide a new weapon for the public to realize their own interests.

Secondly, organization preferences and political events occurred in 3 combinations of conditions, thus they are considered to be sufficient conditions in the combination of conditions affecting government decision-making. The government will routinely find out how similar events were handled in the past and rely on the past experience to make decisions to deal with the present issues. The political events have explanatory power to the government’s response strategy, manifesting that local governments will regard maintaining stability as the most important task to cope with the instability in the process of modernization.

Thirdly, protest scale, game power and organization attention appeared in both the two combinations, showing that the three factors have limited influence on government decision-making in the NIMBY conflict and need to rely more on the interaction of other factors. The impact of the protest



scale is limited, which is consistent with the study results of Li Yan-wei<sup>[3]</sup>. Under China's pressure system, only peaceful social protest cannot activate the top-down control mechanism within the Government, and its discourse agenda cannot be fed into the government's agenda. The effect of game power in government decision-making is limited, which, to some extent, reflects that the government decision-making in the NIMBY conflict is a kind of emergency decision-making. In the process of emergency decision-making, government decision-making relies more on its own ideas. In this study, organization attention has limited explanatory power to the government's response strategy, partly denying the viewpoint that "construction projects account for a high proportion of local government GDP and have a strong incentive for local government officials, so it is not easy for them to choose compromises in response to conflicts".

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## Research on Integrative Service Mode of Fire Facilities Maintenance\*

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**Abstract** The agency for fire facilities maintenance is an important part of the social fire service system, which plays an increasingly significance role in improving the social fire control level. The integrative service mode of fire facilities maintenance is proposed. In this pattern, the technical service of fire facilities maintenance is provided by their construction enterprises, which combines the installation testing and maintenance together. The advantages of the integrative service mode are analyzed in the views of construction enterprise, consignee and fire department. And the measures of promoting the mode are discussed. Strengthened supervision function and policy guidance is necessary.

**Key words** Fire protection, Fire facilities, Testing and maintenance, Integrative service mode

### 1 Foreword

At present, the maintenance of fire facilities is provided by the agencies qualified to give the technical testing and maintenance according to the regulation. These agencies might contain the construction enterprises or the manufacturers of the equipment and the other maintenance agencies.

The integrative service mode proposed is the technical service that the fire facilities maintenance is provided by their construction enterprises, which combines the installation testing and maintenance together. The construction enterprises own a longer development history than the other maintenance agencies, which have a considerable scale now. The main business of these enterprises is providing maintenance service of fire facilities. What's more, they also take the responsibility of the operation and adjustment of the established system, which equips them with the ability of fire facilities detection. In the view of practicing, the construction enterprises have reached the technical standards of fire facilities maintenance. Except for the construction enterprises, the integrative service mode will bring benefit to both consignee and fire department. Thus, the suggestion of the integrative mode in concept is of great significance.

### 2 Testing of fire facilities and maintenance of fire facilities

#### 2.1 Testing of fire facilities

Testing of fire facilities is defined as detecting the technical performance indexes of fire facilities in buildings by specific equipments and methods before use of constructions or in the process of using. It aims to make sure if the technical indexes of fire facilities system meet required standards. According to different stages of implementation, testing of fire facilities can be divided into two forms, testing before use of constructions and testing in the process of using.

Testing before use of constructions is mainly refers to technical test before delivery and use of the construction work, which targets to the quality and technical indexes of automatic fire facilities installed by construction work. It aims to check quality of fire facilities and practical effect, providing technical reference to evaluation of fire equipments quality, construction quality, various technical indexes and running state. Based on testing of fire facilities before use of constructions, the criterion of completion acceptance of fire protection is presented.

Testing in the process of using is mainly refers to the detection of technical indexes of the fire facilities after the building has been put into use. It aims to check the operation condition of fire facilities so that the quality of facilities can be evaluated and the advice of maintenance can be given. According to *Fire Protection Law of the People's Republic of China*, all units must check fire facilities

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at least once a year in order to make sure that the facilities are in good condition. What's more, additional relevant rules about testing fire facilities are noted in *Fire Safety Management Regulations of Enterprises and Institutions* (Order No. 61 of Ministry of Public Security, 2002) and *Fire facilities Management and Maintenance* (GB25201-2010). Thus, it can be seen that both the fire facilities testing before use of construction and the fire facilities testing after the construction has been put into use belong to legal requirements.

## **2.2 Maintenance of fire facilities**

Fire facilities maintenance is defined as maintenance of equipments and components of fire protection system according to practical requirements, which is based on the relevant technical standards. It is all too natural that the system will be aging and appear tear and wear as time goes on, making the reliability reduced and the system out of order, so carrying out maintenance of equipment is necessary, which is the important measure to make sure the fire facilities run well.

According to *Fire Protection Law of the People's Republic of China*, units must check and maintain fire facilities regularly. What's more, relevant rules about testing fire facilities are also noted in *Fire Safety Management Regulations of Enterprises and Institutions* and *Fire facilities Management and Maintenance*. However, these regulations only define maintenance of fire facilities as the duty of each units and the institutions providing this kind of service are unclear. Therefore, there are different types of enterprises in the market now, construction enterprises or the manufacturers of the equipment and the other maintenance agencies.

Fire facilities construction enterprises offer fire facilities maintenance service after the completion acceptance of construction work during the contract term which usually lasts for one year to three years. The units using fire facilities should authorize fire facilities maintenance institutions with qualifications to offer service beyond the due time.

Fire protection product manufacturers offer maintenance service for the equipments produced by itself during guarantee period. However, the manufacturers mainly provide the service for isolated equipments and components, which doesn't include the whole fire facilities system maintenance.

## **3 The advantages of the integrative service mode of fire facilities maintenance**

The advantages of the integrative service mode are analyzed in the views of construction enterprise, consignee and Fire Prevention and Supervision Division of fire department.

### **3.1 From the view of construction enterprise of fire facilities**

The advantages construction enterprise owned to take the responsibility of fire facilities maintenance can be listed as below:

Firstly, their practitioners are better skilled. Up to 2011, there are 5282 enterprises in China, whose practitioner number has reached 204893. Most of the enterprises work in fire facilities maintenance. At the same time, the practitioner major work in the design, construction and maintenance. And thanks to it, they are familiar with the equipment characteristics, which enables them to handle the fire facilities maintenance.

Secondly, the enterprises have better brand effects. The construction enterprises mostly are more powerful. These strong company pursue economic benefit in long term. At the same time, they have the high costs of breaking the law. As a result, they attach great attentions to corporate image and service quality.

Thirdly, influences by human factors, such as bounded rationality or opportunism, on service quality can be limited. In the integrative service mode, an improved service quality of fire facilities maintenance is necessary for establishing a long-term co-operation, which prompts the fire protection construction quality level ups. By carrying out the pattern, enterprise units won't have to sign short-term contracts with consignees repeatedly. Thus, the influences by bounded rationality, opportunism or so on can be limited effectively.

Fourthly, the maintenance quality can be ensured and needed costs of maintenance will be lower. Equipment replacement, or even the system upgrade is inescapable in fire facilities maintenance. While the brands vary and the technical coefficients of the facilities differ. Once the characteristics are incompletely known, the agencies' efficiency would droop shapely, which means increasing costs.

Additionally, there're extra profits in the process of purchase. What's mentioned above would cause a great reduction of the maintenance effect, with a greatly increase in costs. Instead, the malicious price raise of maintenance service wouldn't occur objectively in the integrative mode. For one thing, the construction enterprises are more familiar with the technical characteristics of different equipment, which enables them to make better purchase and maintenance. For another thing, the maintenance costs must be based on the prices in construction, which makes the extra price rising unreasonable.

### **3.2 From the view of consignor**

Compared to the agencies purely working in fire facilities maintenance, construction enterprises own apparent advantages as consignees.

Firstly, the commission costs will be lower. In addition to maintenance, the construction enterprises also work in the design and construction of fire facilities. Thus, maintenance is more like the after-service to these enterprises. In a long-term co-operation relationship, they'll not ask for high charge. At the same time, the enterprises' operation costs are reduced in such an integrative service mode, which guarantees lower costs on the premise of high-quality services.

Secondly, the spend on supervision will be less. Once the fire facilities installed, the co-operation relationship between the consignor and consignee has been established. A long-term co-operation must set up on the basis of mutual trust, which must be based upon the principle of ensuring the service quality. So the after service can be promised too. As a result, the consignor can reduce the spend on supervision.

Thirdly, the remaining problem caused by discontinuity of short-term contract can be solved. Discontinuity is a typical feature of short-term contract between the consignor and the fire facilities maintenance agency. It will encourage the opportunism of the agencies on one hand, and will cause the remaining problem of unclear responsibility determination when the consignor deposes a new agency. In the integrative service mode, the trouble can be avoided.

### **3.3 From the view of fire prevention and supervision division of fire department**

The practice of the integrative service mode of fire facilities maintenance will benefit fire prevention and supervision division of fire department in several aspects.

Firstly, the whole process of supervision can be simplified. Statutory duties like qualification testing and approval or supervision of practicing process for fire facilities maintenance agencies are carried out by the fire prevention and supervision division of fire department. By putting the service mode into practice, the focus can be shifted to the supervision of the fire facilities construction enterprises, which is one of the statutory duties for fire prevention and supervision division of fire department all along and will exactly lighten the workload.

Secondly, the supervision implementation can be more convenient. By carrying out the service mode, there's no need to input the information of enterprises or practitioners repeatedly when supervising, for the maintenance process has been integrated with the construction. Besides, relatively perfect management system is possessed in the construction enterprises in most cases, which also helps to the supervision.

Thirdly, the legal responsibilities can be easier to determine. In the integrative service mode, the design, construction and maintenance of fire facilities are combined in a continuous service process provided by the construction enterprise. Any problems occurring can be easily detected and the one to take the legal responsibility can be easily determined.

## **4 The procedure of carry out the integrative service mode of fire facilities maintenance**

A rapid development will be urged by the implementation of *Provisions on the administration of social fire protection technology services* (Order No.129 of The Ministry of Public Security, 2014, named *The Regulation* below). In present stage, the instability of laws and damage to maintenance agencies' interests may be caused by carrying out the integrative service mode arbitrarily, which can even intensify the social conflict. Based on the social reality, policy guidance is needed to push the integrative pattern gradually. In this process, something mentioned below should be done.

#### 4.1 Strengthening regulatory by engineering consultant company

As an important part of the construction, fire protection engineering project is taken seriously in the regulatory process. The quality directly determines whether the facilities can work effective or not, and consequentially, it greatly influences the maintenance service. Thus, regulatory by engineering consultant company should be strengthened to ensure the construction reliability.

Firstly, Certified Fire Engineers should be included for a consultant company to reach the standards. Nowadays, works in fire protection engineering is specialized by the wide application of novel technology. Although some expressions in *Provisions on the quality management of Engineering Supervision Enterprises* (Order No.158 of The Ministry of Construction, 2007) have asserted claims on professional skills, pertinence to fire protection engineering isn't pointed out yet. To solve the problem, it's necessary to regulated in law that Certified Fire Engineers should be included for a qualified consultant company.

Secondly, supervision of engineering consultant company's regulatory process should be enhanced. Fire protection engineering project is attached with great importance in the whole construction project, of which a slight move may affect as a whole. In order to avoid the troubles, some pre-measures, such as laying more stress on the supervision in the construction process, should be taken. Besides, the commission deserves emphasis, where the supervision should be emphasized, for example, by asking the consultant company to sign on the commission report.

Thirdly, legal liability of engineering consultant company should be intensified. As the direct regulatory unit, potential safety hazards would be left hidden and bad influences on fire protection system's work and maintenance may exerted afterwards once the consultant company neglects its duties. So it's necessary to strengthen the legal liability of engineering consultant companies when supervising and the punishment of violating the law and disciplines, which makes the authority, responsibility and interests combined to urge the consultant companies' execution of supervision duties.

#### 4.2 Abolishing the testing before construction acceptance and focusing more on maintenance

The testing before construction acceptance is provided to ensure that the facilities can be properly constructed and trouble-free used. However, in the market of fire protection products in China, the Compulsory Certification Management System is currently in effect, in which the engineering consultant company is authorized to supervise the construction building process. The construction enterprise is authorized conduct the operation commission, testing and the maintenance during the time of warranty of about 3 years of the fire facilities as a special agency. Besides, the responsibilities of acceptance, are endowed with fire department. Accordingly, the testing before construction acceptance is totally a meaningless repetitive work. It's more efficient and economical to focus more on maintenance rather than waste costs in the pre-testing that should have been abolished.

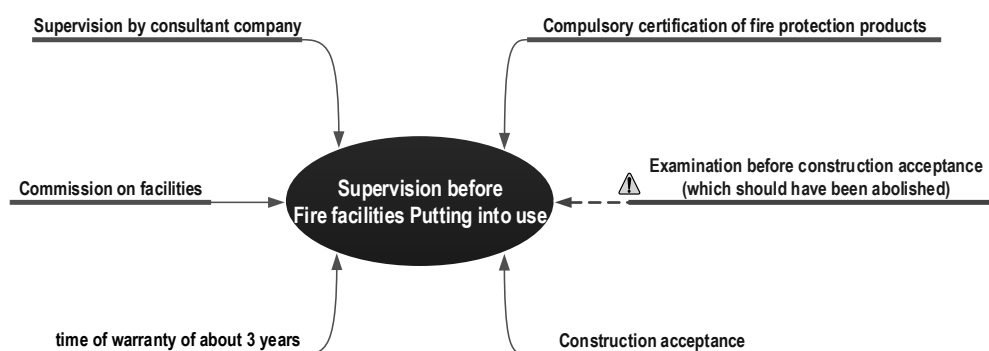


Figure 1 Supervision before fire facilities putting into use

#### 4.3 Gradually carrying out the integrative service mode by policy guidance

By the implementation of *The Regulation*, the development of fire maintenance agencies is rapidly prompted. So the practice of the integrative service mode should be taken under both market

discipline and policy guidance.

Firstly, the qualification standards of the construction enterprises should be raised, which needs to be re-regulated in several aspects such as the qualification of practitioner, technical level of equipment and functional scope according to *The Regulation.*, so as to make the enterprises qualified to meet the technical need for not only design and installation, but also maintenance service. While in the perspective of the number of technicians in an enterprise, it should also be regulated concerning of the general situation of the staff to prevent from wasting human resources.

Secondly, the validity is supposed to be given to enterprises certificated with the ability to design and construction for fire protection engineering, to engage in the maintenance work. The integrative service mode could never realize without the construction enterprises' legality to engage in maintenance for fire facilities. Only in this way that the working initiative of the enterprise.

Thirdly, amalgamation of construction and maintenance companies ought to be undertaken during the practicing process of the integrative service mode. Compared to those enterprises simply engaging in maintenance, those amalgamated establishments own more advantages in competitive power, technical level, service price and quality. Thus, the push of amalgamation along with market selection can bring more benefits.

## 5 Conclusions

1) In the view of construction enterprise of fire facilities, consignor and fire prevention and supervision division of fire department respectively, the advantages of the integrative service mode that the technical service of fire facilities maintenance is provided by their construction enterprises, is analyzed.

2) While the procedure of carrying it out must be taken under consideration of the social reality, preventing the interests of the maintenance agencies from unprovoked loss. The function of the project supervision enterprise must be strengthened, which can be realized by carrying out inspection after fire protection facilities being used instead of the inspection before the fire protection facility acceptance of construction project. In the respect of the laws of the market, the integrated service model can be implemented gradually under the premise of policy guidance.

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## The Public Service Delivery Entity Based on the “Grid Mechanism”

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**Abstract** This paper, under the context of the most popular “grid management”, addresses the multi-delivery mechanisms for China’s public service entities by referring to the principle of “convergence, nodes, coordination and sharing”. The author has investigated the forming, contents and development of “grid management”, especially the practical application of such “grid management” to the public sector management and analyzed the status of public service entity diversification in China as well as the problems along its development. With the concept of “grid management”, the author probes into the interrelationship between government-led public service grid mechanism, market-led service grid mechanism and third sector-led service grid mechanism.

**Key words** Grid mechanism, Public service, Public service entity, Delivery mechanism

### 1 Introduction

Public service delivery is one of the basic functions of government in the modern market economy. While China is accelerating its progress in building the socialist market economy system, delivery of sufficient, premium and balanced public service products has become the focus of public attention. The enhanced delivery of public service necessarily results from a sound delivery entity system. Since the 1970s, under the context of “new public administration”, people began to realize the tremendous positive role of the market and the third sector in public service delivery<sup>[1]</sup>. Public service started to be delivered in a multiple way. However, few studies contemplate the practical approach to drive the multi-delivery development and how to redress the relationship between various entities. This paper, based on the theory of “grid mechanism”, focuses on the countermeasures against the problems along the development of public service multi-delivery in China so as to build a more balanced relationship between various elements both within the entity and without, clarify the responsibilities, consolidate the system and optimize the resource sharing.

### 2 Public service grid mechanism

The work “grid” originally comes from the computer science which allows nodes to share resources and link each other; while grid mechanism is the basic rules and norms which each node or action follows during the course of linking. In management science, grid mechanism can be interpreted as a management mechanism based on the grid theory and grid technology, which combines the grid theory and grid technology, aiming to regulate the social system in a scientific way. Safety, resource management, information service and data management are the four central mechanisms ensuring the effective operation of grid mechanism. The four mechanisms reflect the precise definition of gridding, fast transmission of information and standardization of information resources.

Public service mechanism is a group of typical mechanisms related to the public services. For example, regarding the public service delivery methods, there are collaborative mechanism, competitive mechanism, compensation mechanism and exchange mechanism, etc. Regarding the public service delivery categories, there are mechanisms for education, medical care, health care and elderly care, etc. Therefore, public service grid mechanism is a normal element in the public service mechanism category, which utilizes the grid mechanism as a basic management method during public service delivery and improves public service delivery performance as a new service mechanism.

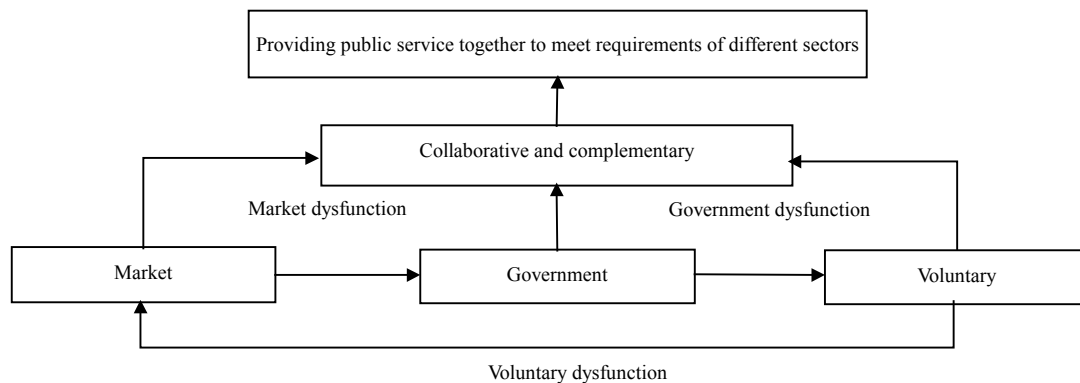
### 3 Public service entity diversification

#### 3.1 Public service entity diversification

The grave 1929-1933 capitalist economy crisis disillusioned people about the “miracle of market”. The 1970s stagflation further reduced government to bankruptcy. The dysfunction of these two major

public service entities diverted people’s attention to the third sector. However, “perfect organization” only exists before its deficiency is not fully exposed. Voluntary sector has inherent defects just like government and market. Lester M. Salamon believes the insufficient funding, unprofessional and paternalistic operation of voluntary sector would lead to such dysfunction. Given that the government begins to disassociate more and more duties and turns to private sector or voluntary sector, which blurs the boundaries of obligations. Problems, including how to define the roles of government, society and market in the public service multi-delivery mechanism, how to clarify their interrelationships, and how to coordinate the internal elements within the individual entity, are prominent in the public service entity diversification of different countries.

The 1990s governance theory believes that the traditional borderline between the three service entities are increasingly being breached and blurred and public service delivery is developing into a complicated grid management process with various players participating. To clarify the responsibilities and duties, it is necessary to establish a coordination mechanism, multi-center mechanism and complementary mechanism between the three service entities. By tapping into the unified, standard, sharing and dynamic grid management, it is expected to demonstrate advantages of each service entity.



**Figure 1 Relationship between three entities**

### 3.2 Highlights of public service entity diversification overseas

Since the 1980s, the public service modes and regulation methods overseas had undergone radical changes. Despite different internal situations and reform measures, all the countries had pursued “new public administration”, aiming to boost public service entity diversification and enhance public service efficiency. We will define the problems of public service entity diversification in China by drawing light upon the public service evolution in the US.

#### 3.2.1 Public service delivery entity diversification in the US

Public service delivery diversification in the US emerged after the Bush Administration in 2001 and continued into the Obama Administration, gradually developing into a market-orientated and multiple public service delivery system.<sup>[2]</sup>

During the reform course, the US government abandoned the sole choice of market or government but emphasized the cooperation between them. Government and market are supposed to complement each other to ensure the effective delivery of public service. Cooperation and diversified service methods are essential to the multiple delivery process. Government capability, citizen preference and market entities should be considered in a comprehensive way to determine the flexible and highly effective delivery methods. Service-oriented government is the target for this diversification process. Besides providing public service which private sector is unable to offer, government’s main responsibility is to conduct supervision, coordination and communication over private sector, voluntary sector and individuals while they are providing private services. To facilitate government and private sector cooperation, the federal government had issued *Freedom of Information Act (FOIA)* and *The Federal Advisory Committee Act (FACA)* as a legal basis.<sup>[3]</sup>



### **3.2.2 Enlightenment of public service entity diversification in the US**

Public service diversification effectively reduces the fiscal pressure of the federal government. By utilizing the funding and advantages of other service entities, this mode improves the efficiency and level of public service and allows the government to devote more time and energy to fulfilling other functions. The cooperation method, mechanism and legislation experience constitute a significant reference for China to build its public service entities.

## **4 Problems of public service diversification in China**

Since the reform and opening up, China has begun to shift from administrative orders to market control regarding its public service system. The whole process could be divided into three stages. The first stage is from 1985 to 1992, during which the Chinese government enacted a series of attempted reformative policies regarding education system, cultural and art system and medical care system. The second stage is from 1993 to 2000, during which the structure adjustment happened. The bidding system was introduced into the public service sector, accelerating the marketization process of public services. The third stage is from 2001 till now, during which the Chinese government issued *Several Opinions of the State Council on Encouraging and Guiding the Healthy Development of Private Investment* and *Several Opinions of the State Council on Encouraging, Supporting and Guiding the Development of Individual and Private Economy and Other Non-Public Sectors of the Economy*, which marked the full-fledged development of public service marketization reform and the diversified integration between government, market and voluntary entities.

During the course of public service entity development in China, therefore, given the strong administrative orders of China's economy system, the government needs to deepen the marketization of public services, transform the roles of government and redress the relationship between government, market and social entities.

### **4.1 Challenges to government service entity development**

The major challenges to China's government service entity development are as follows. First, the government is not lean enough. It fails to transform its roles completely. The new system building is sluggish. Government still intervenes into many affairs which are supposed to fall under the domain of market and society. The management style is "over-administerization". The current government is far from being service-orientated. Take the administrative approval system reform as an example. On the one hand, there is a lack of new system that could meet new requirements. On the other hand, the invalid system overflows: numerous planned economy approval systems are still ongoing. The whole system could not be adjusted dynamically as the time changes or adjustment is too slow, which poses challenges to the traditional progressive reform mode.

Moreover, the absence of government still exists. Guided by the conventional GDP-orientated assessment method, the local government tends to devote more attention to the economy growth but ignores public services like education, medical care and culture which are unable to deliver economy growth in a short period. The less input into public services, the more imbalanced public services delivery would be. Livelihood issues regarding housing, employment and medical care require our immediate concerns.

### **4.2 Challenges to market service entity development**

The major challenge to China's market service entity development is "over-marketization" which diminishes the nature of public welfare. When government decentralizes its power, but fails to timely institute new systems to guide and monitor market entities, private sector is tempted to ignore its social responsibilities out of the pursuit for economic interests. Ordinary consumers, with disadvantaged bargaining ability, are prone to unfair treatment when dealing with service providers. There is even immense deviation between the service delivery and people's real requirements.

As shown in the Figure 2, revenue of the water supply company has soared since 2007 with growth rate over 400%. If we rule out the possibility that water supply grows due to local economy success, we could conclude that the reason behind such revenue growth is water price increases rapidly since the water supply water marketization. The consequence is water supply service, instead of improving citizen lives, inflicting great stress on livelihood and local economy development.

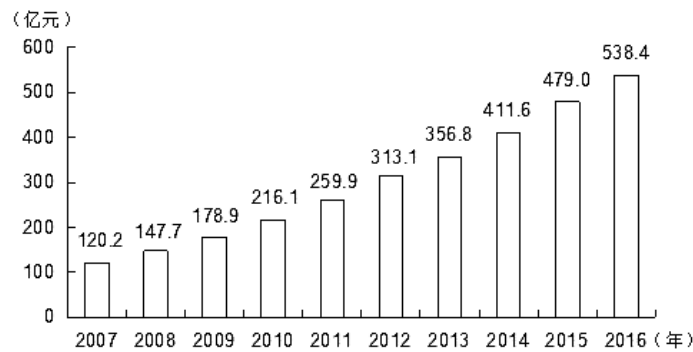


Figure 2 Revenue growth of a water supply company

### 4.3 Challenges to voluntary sector service entities

Currently voluntary sector in China performs poorly in terms of its influence, independence, scale, balance and quality. Most social organizations are concurrently led by government leaders and close attached to the government. According to the *Annual Report on China's Philanthropy Development 2014*, by the end of 2013, there are 541,000 social organizations around China, up 8.4% than 499,000 in 2012.<sup>[4]</sup> There are 286,000 social entities, up 5.5% than 271,000 in 2012. There are 3,496 foundations, up 15.4% than 3,029 in 2012.<sup>[5]</sup> There are 251,000 private-run entities, up 11.56% than 225,000 in 2012. Private-run entities for each 10,000 Chinese are 1.45, for French 110, for American 51.79 and for Indian 10.21.<sup>[6]</sup> Compared with western developed countries or even some developing countries, China has performed poorly. The sluggish development of the whole voluntary sector also causes the underperformance in terms of independence and balance.

## 5 Discussion on China's public service entity diversification based on grid mechanism

### 5.1 Feasibility analysis of grid mechanism as a solution to China's public service entity development

The basic features of grid mechanism are uniformity, dynamic, sharing and autonomy. Just like computer system, all resources must be allocated according to the instructions of computer administrators. To avoid the rigidity of management and some other obstacles, system is also required to operate dynamically and be able to select, adjust and optimize as the user requirement alters. The sharing and autonomy principle enables nodes to collect information and share with each other and continually intensify the capacity for self-regulation and self-management. Therefore, based on the grid mechanism, we intend to establish a diversified public service entity delivery system, which could effectively solve the problems such as the absence of government, negligence of duty, negligence of public service requirements and interest demands, less independence and autonomy.

To establish the diversified public service entity delivery system, it is required to design a diversified, lean and practicable method. There are some common laws for different types of service entities. During a certain historic period, limited to their service level and expertise, service entities have their unique features. So do the public service requirements. We could digitalize these public service entities and demands, build separate data cells, and finally convert these data cells into information library linked to public service entities and public service demands. With the information grid technology, we could enable cells to link each other so as to build a gigantic computer grid system and achieve the grid operation of diversified entity system. Finally we are able to address the challenges of public demands caused by poor communication and imbalanced resource allocation between service entities.

### 5.2 Discussion on China's public service entity development based on grid mechanism

#### 5.2.1 Discussion on government entity development based on grid mechanism

First, we will build a unified public service administration organization to govern departments of different functions and levels. By collecting and allocating public service resources under the grid mechanism, we'll achieve the unification of both the "hardware and software" of the government entity. Second, we'll divide the public service of government into different grid cells, apply system coding to

these cells and build a space resource library. With this library, platform administrator could build special business departments to handle various public service problems. Finally, government should conduct overall planning on the platform to guide service suppliers to share and use public service resources effectively by certain norms.<sup>[7]</sup> Thus, we could give full play to the social benefits of public service resources, avoid the absence of government in providing public service and improve government's ability to deliver public services.

### **5.2.2 Discussion on market entity development based on grid mechanism**

Though China's public service marketization is relatively low, there are some "over-marketization" cases indeed. The main reason behind is the absence of government supervision and unmaturing market itself. Therefore, with market mechanism as the basis, we need to incubate various public service markets and focus on the public welfare of private suppliers. Due to the inherent defects of market mechanism, we cannot rely on market alone to allocate public service resources in a reasonable way. To build the public service grid of market entity, both government and market are required. With the cooperation of government and market, we'll continue to increase the supply of public service resources and introduce competition, through which, we could expand the grid coverage of public service resources so as to collect premium public service resources and offer more effective public services.

### **5.2.3 Discussion on voluntary sector entity development based on grid mechanism**

One of the major challenges to current voluntary entities development in China is the entanglement of government-voluntary entity relationship since voluntary entities are usually close attached to the government.<sup>[8]</sup> Not only do we need to push the top-down operation of voluntary entities but also emphasize government's guidance and supervision. Furthermore, the development of voluntary entities in China is extremely imbalanced, especially in different regions. Hence, we need to set up service entity in different regions according to the unique functions of voluntary associations and divide service regions by certain standards. According to the unique features of voluntary entities, we'll associate them with resources of different types and levels to better concentrate limited public service resources. With the cooperation and coordinative management of virtual regions and trans-functional entities, we will better harness the dispersed voluntary entities and form the effective resource coordination and allocation system for social voluntary entities.

## **6 Conclusions**

This paper conducts a detailed analysis of the grid mechanism for different public service entities based on the principle of "convergence, nodes, coordination and sharing". The four principles yield productive results in improving the efficiency and balance of public service entity development. A more in-depth probe into the basic norms of the four principles would enable the grid mechanism to better serve the public service entity development and diversification. Meanwhile, resource allocation and coordination system based on grid mechanism is conducive to the integration of dispersed resources and breach of the limits between different service entities both within and without so as to form a unified and close-knit public service entity system. Within the system, the power and responsibility for each entity will be clearly defined. In conclusion, public service entity system based on the "grid mechanism" would help realize the coordinated development of various entities and avoid decision failure, poor implementation, coordination failure and poor backup, etc. so as to improve service delivery efficiency of service entities to the greatest extent.

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# The Function Lag of Local Government and the Dilemma of Share Economic Development: A Case Study of Online Booking Car

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**Abstract** Since the reform and opening up and the following development of economy, and other aspects of society, the functions of government have also been properly changed. The idea of establishing a service-oriented government to people's satisfaction is put forward. However, the transformation of government functions is continuous and dynamic, which cannot be achieved overnight. Although many significant achievements have been achieved, government functions lag still exists. Today sharing economy is springing up like mushrooms, and the government (this paper mainly refers to the local government) which should have provided powerful guarantee for them still have not transformed in position. And government functions come into being, which severely restricts the sharing economy development. The author intends to do a research in government functions lag based on online booking car and make efforts to give some constructive advice on how to narrow the gap of the lag and to get the sharing economy out of the predicament.

**Key words** Government functions transformation, Government functions lag, Sharing economy, Online booking car

## 1 Introduction

In recent years, people's consumption patterns and the ways of thinking have also changed in a way due to the progress of Internet information technology and the popularity of big data application. The focus on things is gradually shifting from the "Ownership" to "Use". People no longer possess blindly, but realize they can satisfy their needs by sharing. So sharing economy, the new commercial pattern is created with the development of Internet technology such as the world-wide Coursera, Airbnb and Uber and Zhihu, Ele.me, Didi Taxi, OfO yellow car, etc. which are parts of the sharing economy.

Nevertheless, nothing newborn can go smoothly all the time. And so does sharing economy. On the one hand, it has hit some traditional industries and suffered from them (not mentioned in the thesis); on the other hand, the government (here mainly refers to the local government) is likely to take various measures, even local laws and policies to limit its growth due to the traditional thinking mode (or inertia thinking mode). China is now in the period of economic transition. The functions of government is powerful, whose negative behavior and policy will certainly harm the new things severely (here mainly it refers to share economy) and become the fetters of share economy development. In other words, the lag of local government functions will leave sharing economy development in dilemma. And so it becomes pretty important to explore theoretically how to eliminate or dissolve the lag of local government functions and fundamentally promote and make sharing economy healthily and sustainable.

## 2 The connotation of Government Functions Lag

### 2.1 The connotation of Government Function Lag

"Lag" means the gap just as its name suggests. The Government Functions Lag actually means the responsibilities and functions of the government are not in place yet and fall behind the real situation. The "Functions Lag" is derived from the concept of "Culture Lag". In 1923, an American sociologist, William Fielding Ogburn, first put forward the conception in his work, *Social Change: the Essence of Culture and Innateness*, to illustrate the problems produced in the process of social change, which are caused by the different speed all of different society aspects. Ogburn think, system and the changes of ideas tend to be more slow compared with material culture and science and technology, which leads to a delay phenomenon. The gap produced by the delay phenomenon is just "cultural lag" (Xie Qiu-shan, 2015<sup>[1]</sup>). The "Culture Lag" show itself in government is Government functions Lag,

that's to say, Function Lag is theoretically the gap of what the government should have done and what the government actually do (Ma Xiao-hu, 2016<sup>[2]</sup>). In the face of the continuing social development and progress, the functions of the government ought to include the basic functions such as economic adjustment, market supervision, social management and public service etc. and satisfy the demands of the Time to add the people-oriented idea, market service, establishing and perfecting the relevant laws and regulations, safeguarding the order of the modern market, encouraging market innovation. The truth of government functions is the result of government function lag, which is manifested as the outdated concept of governance, the offside of functions, the absence of functions, etc., which is named "government function lag".

## 2.2 The meaning of government expected function to sharing economy development

Sharing economy as an emerging economic form brings new changes to many aspects of social development. However, its growth and development cannot be separated from government support and supervision. If the government can fulfill its expected functions, it will not only realize the perfect transformation to build a service-oriented government, but also benefit the growth and development of sharing economy. We can see it in the following aspects: first, the ultimate service target of sharing economy is the consumer (people) and to create a more convenient life for consumers. If the government execute its expected functions including adhering to the people-oriented thought, slamming the absolute control consciousness, and set up the service concept and is content to be "the bartender," this will realize the win-win situation of sharing economy and consumers (people); second, sharing economy is rooted in the market. On the one hand, it gets fertile from market, on the other hand is also subject to market failure. If the government can execute its function to fulfill market rules and maintain market order and create a fair market competition environment, sharing economy is bound to avoid disadvantages and develop healthily and orderly; third, a good market is inseparable from a sound support and guarantee of laws and regulations, if the government can exert its expected function to make laws and regulations, this will bring sharing economy market a good environment and focused development, far away from illegal methods fourth, innovation is the driving force and source of the development of the market. If the government can fulfill its expected function to encourage market innovation, this will build an innovative atmosphere for sharing economy and benefits sharing economy further innovation.

As an important part of the sharing economy, online Booking Car has brought great convenience to our daily life. Compared with the traditional means of transportation, it is much more fast, flexible and convenient. It meets the diverse needs of outing, saves travel cost, creates a large number of jobs, improves the operational efficiency of the taxi industry, and also relieves urban public transport.

According to relevant data, in the first half of 2016, the number of online ride-hailing users was 159 million, accounting for 22.3% of the Internet users. The number of Internet users is 122 million, accounting for 17.2 percent of Internet users. According to relevant data, in 2020 about the car/limousine market potential of travel demand will increase to 110 million times/day, then the corresponding market size is about 1.1 trillion yuan/year (Tian Liu, 2017<sup>[3]</sup>). From July 2016, *Guidelines on Deepening Reform to Promote the Healthy Development of the Taxi Industry* "( referred to as the" guidelines "in the following text)issued by the General Office of the State Council , and *Interim Measures on the Network to Make an Appointment the Taxi Business Service Management*" (referred to as the "interim measures" in the following text) by the Ministry of Transport, legalize the identity of "Online Booking car". China has become the world's first country that legalize "Online Booking car". .

During this period, all kinds of network platform about car begin to flourish. Let's take Didi Taxi for example. In 2016 it not only purchased Uber's all assets in China, also successfully cooperated with Ofo in April 2017, which make it all get through from APP to business line. Recently, the Didi Taxi launched the official "Didi Taxi Enterprise Edition". Lenovo, LeJu, BESTSELLER has cooperated in business taxi. According to the statistics, more than 30000 companies are using the version in service for customers, employees and the company, and naturally the times of calling car increases rapidly. And in it "Didi Taxi Enterprise Platform" support enterprises in their own platform access Didi Taxi service, people don't have to switch back and forth in the application to call a car,

which greatly save the time and improve the overall performance of the company.

#### **4 The influence of local government function lag on the development of sharing economy**

In theory, the government's expected functions will bring sharing economy booming development, and promote the development of online booking car. However, government expected functions are far not operated well. The government function lag has lag limited the development of the ride-hailing service.

##### **4.1 The "Absence" of Government Function Lag**

The "Absence" of Government Functions Lag is manifested in the absence of management or even inaction of local governments, and the "real" status of its functions has not reached the "should" state. On the issue of the governance of the ride-hailing car, the performance is more prominent.

Terrible behavior for illegal profit such as ripping off, bypassing, premium, harassment, threats, and even killing passengers etc often appear Online Booking Car operation process. One of the most important reasons for these bad behaviors and even malignant events is that government administration is not in place or even inaction which is embodied in the following aspects: the lax regulation on the platform, the lack of effective driver information review, the lack of corresponding laws and regulations, and the inefficient punishment of illegal acts. The government functions lag has affected the development of the ride-hailing service. People are amazed: today's ride-hailing phenomenon is the return of taxi "chaos"!

##### **4.2 "Offside" of Government Function Lag**

"Offside" of Government Function Lag is actually the local government don't give the market freedom, and set foot in what they shouldn't have. The functions of "real" does more than "should". When it comes to the governance of the ride-hailing problem, it often falls into the control mentality and uses the power to intervene in the market.

###### **4.2.1 Over-strict control of vehicles**

The over-strict control of vehicles is first reflected in the control of quantity, and a number of local governments have introduced new policies to control the ride-hailing vehicles by citing the increasing transportation congestion. Taking Xi'an as an example, the online booking car is required to be a new car within two years, with a wheelbase of more than 2,700 mm and a vehicle size of 4850 mm × 1810 mm × 1450 mm, with a displacement of 2.0l or more than 1.8t or more than 3.0l. New rules also require the cars' color and appearance should be distinguished from cruising taxi (referred to as the "cruise" in the thesis). The internal section has to hang special dedicated online booking car signals, no dome light, the lamp or other cruise car dedicated facilities; provide customers with special invoices and other requirements for the supervision of the municipal tax department. These strict rules will filter out much of the vehicle and make real the car number drop sharply which goes backwards from sharing economic fragmentation and also can't meet the needs of residents' travel. Then the regulation will naturally rise the price up, and be against the market price rule.

###### **4.2.2 Review of drivers' conditions**

Many of new rules issued by the many local governments have requirements on the household registration (Shanghai, Beijing is so) of the drivers, reviewing of driver's body condition, any record of violent crime, and the household registration or residence permit. Xi'an's *Interim Measures* regulate the precondition of legally obtained the three taxi business certificate before put in use, Taxi Business Qualification Certificate, Vehicle Operation Certificate, Driver's Service Qualification Certificate. The driver must have the city register or residence permit. It is necessary to review criminal or illegal records, but the requirements for the ones with household registration or residence permits are somewhat harsh. The urban economic development will not be smooth without the migrants. They bring new vitality and new sources of growth. Too strict censorship for car drivers' registration or residence permit will certainly limit the migrant population to release the bonus opportunities, and restrict the further development of the sharing economy (online booking car).

## **5 Analysis of the reasons for local government functions lag**

### **5.1 Influence of the old-fashioned idea**

Although after 30 years of reform and opening up, our economy development level, people's material life level, democracy legal system has improved, but there still exist "Cultural Lag". One of the important reasons is the concept can't keep up with the other aspects of the development of society. Similarly, in the transformation of government functions, the impetus for transformation will be exhausted by the old conception of government personnel. Nowadays, the transformation of government functions has been developed from economic function to both economy and social affairs, and the construction of a service-oriented government is the requirement of the Time. But due to the inertia of traditional planned economy, local government control thinking is still entrenched. Its ethical values, work content and service attitude have not been fundamentally shifted, which will lead some local governments subconsciously put thinking of planned economy into market economy of the fast developed modern information society and the idea and the social demand of don't match. On the other hand, the feudal bureaucracy over one thousand years in our country has formed an old ideas of "Thinking of official position" has also prompted local administrative staff are reluctant to give up quite a lot of economic benefits brought by the means of control, and so do not cooperate to shift of government function fundamentally from management to service, but the block of shift of the process.

### **5.2 Rigid institutional mechanisms**

An American scholar, Osborne, said "we believe that these systems can change, release huge energy of officials, and improve their ability to serve the public." in his *Reform of the Government, the Spirit of Enterprise on How to Reform the Public Sector* when refer to the government. The development of anything can't ignore the factors of the environment, and neither does the transformation of government functions and where the government functions lag exists. China is in the process of social transformation. So the system has its advanced nature and also has certain delay. The advanced nature of the system determines the government's ability to effectively implement the existing functions, and its lagging effect influences the government's timely response to changes in social needs. On the financial system, the central and local governments share income, which gives some local government officials selfish reasons to strengthen expenditure competition and do extreme acts come out. That is to contrary of the purpose of the service-type government. "Isomorphic Responsibility" is also a disadvantages that exist in the system. The local government has fuzzy boundaries on the division of the hierarchical functions. Functions overlapping or too large management scope are often seen. Government reform often stops at the level of simplification and falls into a strange "circle" with ignoring the reasonable division of function scope. The degree of separation of powers is not enough. Local governments tend to pursue political system requirements. They take centralized power as a necessary means to perform their functions, thus their deeds deviate from the purpose function of matching with the needs of society to form functions lag. In terms of mechanism design, the local government performance evaluation mechanism and accountability mechanism is determined by GDP, which makes the government officials don't get a rational understanding of their "achievements", wrongly recognize the direction role of the functions, overlook the public service functions what they should have paid attention to. And another functions lag come into being.

### **5.3 Deficient corresponding laws and regulations**

The implementation of any policy requires the guarantee of law, which is the best guarantor and supervisor in the implementation of the policy. The lack of a supporting law for local government functions is like dispatching troops without just cause. In the process of the functional change of local government, lack of corresponding laws and regulations of the functional change of local government is blamed for all sorts of contradictions in the transformation process and result in offside and absence in the performance of government functions. On the one hand, local government functions may be arbitrarily expanded with the leadership's subjective will; on the other hand, the function of local government may be arbitrarily reduced with the subjective will of the leader, and thus ultimately influence the development of sharing economy.



#### **5.4 The missing multiple participation governance**

Although our social economic and cultural levels are constantly improving, but the “civil society” is not yet deeply rooted in the hearts of the people. This, together with the old view of local government, leads to relatively weak social public participation. We can see it here. In terms of public policy making, the public has not been involved in the major decisions of local governments, and cannot bear its own responsibility for the governance of public issues. In the implementation of public policies, the citizens’ participation channels are scarce, and the public seems to be passive. In terms of supervision, the form of supervision is very monotonous. It is basically superior supervision of the subordinate, seldom independent of the power of the government other social intermediary organizations apart from the government and enterprises, and the supervision of citizens and public opinion. Because of The Missing Multiple Participation Governance, the fall of local government functions is inevitable.

#### **5.5 The government motivated by self-interest**

The government’s self-interest is based on the individual self-interest and is expressed of the organization as a whole. Government is made up of real specific individuals, rather than the concept of the abstract individual in conception. (Chen Guo-quan and Ling Yuan-lin, 2004<sup>[4]</sup>) Therefore, the government self-interested shows itself through the government officials pursue for their own interests. Individuals are individuals who seek to maximize their own interests, and the government is composed of a large number of “self-interested” individuals. Driven by the self-interest, local government officials is constantly expanding rent-seeking space. The government decisions for the public interest have already been alienated, and directly leads to the actual function of the “absence” and “offside”. Embodied in the policy is not only the public interest but also the self-interested behavior of local government officials. During such a special period of transformation, it is exposed more incisively and vividly. Conflicts caused by the “absence” and “offside” are intertwined become obstacles of social transformation and functional transformation, also restricted the share of economic growth.

### **6 Policy suggestions**

#### **6.1 Update outdated concepts**

The society is progressing and the demand is changing rapidly, and the local government can no longer use the old ideas to manage the modern development model. It is no longer proper to regulate social affairs with regulation, but instead to replace it with a new concept of service and governance. Buchanan believes that, just as the market is flawed, and the government is flawed and not omnipotent, the government’s job is to serve the market economy.

Therefore, local governments must abandon past thinking and behavior of taking all things on, fully realize the necessity of simplifying administrative procedures and delegating powers to lower levels, believe that the power of marketing, the decentralize power for the market, build a clear boundary between the government and marketing. For the governments truly make it: for the government, there is no service authorization; for the market, there is no prohibition within laws.

Marketing owns the abilities of spontaneous order, repair, self-improvement, and self-management. Additional intervention will cause damage to the market mechanism. Excessive and inappropriate regulation will only slow down sharing economy’s rapid growth. It is only appropriate to decentralize power to marketing and release the relevant responsibilities to the platform company to promote the healthy development of the ride-hailing industry. The establishment of the entry threshold for the ride-hailing service cannot be totally controlled by the government. The focus of government regulation is not to restrict the development of the ride-hailing system (Guo Chuan-kai, 2017<sup>[5]</sup>). The government should take a tolerant attitude to Census register to the drivers.

If we are to limit this locality census register blindly or local residence permit, it will only limit the number of the cars and form a new monopoly and interfere with the price, which violates the marketing rule. These will block the development of online booking car and sharing economy.(Tae Hyup Roh, 2016<sup>[6]</sup>)

#### **6.2 Reform institutional mechanism**

The system has a significant impact on the proper implementation of government functions, and it

is also one of the influencing factors of government function lag. To reform the unsuitable system is the only way to minimize the lag of local government functions. For this purpose, something needs to be done. The first is to clarify the relationship between the government and the market, reduce unnecessary administrative centralization, and clarify the functional division between departments within the government and eliminate the phenomenon of “Isomorphic Responsibility”. Second, we will improve the mechanism of local government performance evaluation, pay more attention to its science in the actual assessment, and innovate new assessment ways with quantitative levels to obtain positive pressure for government officials. And make efforts to correct its one-sided GDP achievement appraisal mechanism. (Anne Gregory, 2016<sup>[7]</sup>) Third, strengthening government accountability mechanism, clear the accountability rights and responsibilities, adhere to the principle of transparency, limit the behavior of government officials and civil servants in law and responsibility within a reasonable range. Fourthly, we should improve the mechanism of sharing economic supervision and regulation, clarify the responsibilities and rights of the subject of supervision, and earnestly perform the supervisory functions. It also considers the specific business state of the sharing economy, and pays attention to the overall supervision of before the case, in the case, and after the case.

### **6.3 Improve relative laws and regulations**

We will make and improve the legal norms corresponding to the transformation of government functions and ensure the smooth completion of local government functions shift to narrow the lag. In formulating the legal norms, we need fully know the real cause of local government functions lag as well as the status quo, make reasonable and clear rules for the shifting whole process, complete the shift from the functional change of function evaluation and so on a series of corresponding law details, let the functional change of local government process standardized and measurable, do use the law to guide the transformation of government functions, to have all the aspects of changing get laws to depend on and evidence to rely on, arguably, and truly constrain and norm the government behavior to narrow the Lag. (Lars Böcker, 2016<sup>[8]</sup>)

### **6.4 Pay attention to multiple participation in governance**

The construction of service-oriented government is the urgent need of our society. Its core is the service, and pays more attention to the people-oriented idea. And the government must fulfill the function of serving the people. In the complex situation of social transformation and transformation of government functions, citizen participation is the most advantageous tool for the transformation, while also making “good governance” deeply popular. This requires local governments get close ties with the masses, listen to the people, have the citizens participate in public policy from making to supervision, awaken civil autonomy to use the policies better for the people. In the face of the new economy, the government can set up an advisory committee on sharing economic development to regulate and guide the actual development of the sharing economy, plan for the development of the sharing economy, and to be in a multi-party joint management. (Xiao Shan-xiang, 2016<sup>[9]</sup>) Committee members can consist of from the scholars and the public, sharing economy representatives together. This is beneficial to the masses and the service object of the common participation management to play the plural management power.

### **6.5 Constraint government self-interest**

The existence of the government self-interesting is objective and inevitable. And so, on the one hand, the governments need to face up to reality; on the other hand it's the constraints and restrictions. The core is to ensure that the balance of local government interests and public interests. It requires reasonable incentives and constraints to satisfy both the legitimate interests of local governments and officials and public interests. (Eyal Ert, 2016<sup>[10]</sup>) By incentivizing local governments to choose the best public interests between the public interest and their own interests, local governments will be constrained to limit their own interests through constraints. As the subject of law-making, the government has the responsibility for formulating corresponding incentive mechanism and punishment mechanism. Only the appropriate incentive mechanism can compensate the deficiency of self-interest, so that the local government can fulfill its function to realize the maximization of public interests and better serve the people. Reasonable penalty mechanism can restrict the local government self-interesting, eliminate the rent-seeking psychology, compress the rent-seeking space, make the

balance of interests to the interests of the public side, and finally realize the functional transformation and social transformation.

Facing the cake of interest of online booking car, the emergence of the government self-interesting is bound to affect its development. Only appropriate constraints to government self-interesting can make the cake good, through the market.

## 7 Conclusions

China is just in the social transition period, and the function of local government has not completely changed to the right place. There are still problems in many aspects, the government function lag still exists. That is why the nascent sharing economy, which was supposed to blossom in the spring breeze of the market economy, is struggling. However, the development of sharing economy cannot be stopped. In the face of the new-born things of sharing economy, local governments should change their ideas and give them more patience. The government should treat the function lag seriously and narrow it while normalize sharing economy so that the win-win situation of sharing economy development and transformation of government function.

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## Research on the Core Characteristics and Goal Setting of Smart City

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**Abstract** Smart city is the product of a new round of information technology reform and the further development of knowledge economy. It is a new form of urban development to optimize urban construction and benefit human life. From the theoretical point of view, based on the definition of the connotation of “smart city”, the core characteristics of smart city are analyzed: from a technical point of view, smart city should be a city with the features of comprehensive perception, ubiquitous connectivity, and efficient collaboration based on intelligent integration and application of modern information technology represented by Internet of things; in terms of value, the construction and development of smart city is based on the knowledge capital. It embodies the value of universal knowledge of the people, and the smart city embodies the interaction and combination of “wisdom” and “intelligence”. If we want to really realize urban intelligence, the primary goal of smart city construction is to realize the sustainable development of cities, and its ultimate goal should be returned to promote the all-round development of human beings. That is, recognizing the essence of smart cities and setting accurate goals are of positive significance for future urban development.

**Key words** Smart city, Core characteristics, Primary goal, Ultimate goal

### 1 Introduction

In recent years, with the expansion of population and the acceleration of urbanization, the city has been confronting with increasingly serious problems in aspects of planning layout, economic development mode, management and service mode, and ecological environment protection, while the rapid application and development of the new generation of information and communication technologies provide a new way of solving these problems. Smart city construction boom has detonated worldwide, which provides strong support for the city’s intelligent development. The “smart city” is essentially the product of a new round of information technology reform and the further development of knowledge economy. It is a new form and concept of urban development. Only recognizing the essence of the smart city, and completing the strategic objectives settings of smart city, can we realize the real city intelligence to benefit the broad masses of people.

### 2 Connotation of “smart city”

Construction and development of traditional cities are facing a series of “urban diseases” like employment tension, housing difficulties, traffic congestion and environmental pollution, its development model shows unavoidable drawbacks, meanwhile, global information technology is accelerating, and information technology is being developed and widely used, therefore, the concept of smart city comes into being. In November 2008, International Business Machines Corporation (IBM) proposed the concept of “intelligent earth”, and then it triggered a boom in smart city construction. In 2009, Sam Palmisano, chief executive officer of International Business Machines Corporation (IBM), put forward the concept of “intelligent earth”, and he recommended that the new government should invest in a new generation of intelligent infrastructure (Palmisano, 2009<sup>[1]</sup>). In 2010, he vision of “smart city” was officially put forward by IBM after its research, it was considered that the city is composed of six different types of networks, infrastructures and environmental core systems which are related to the main functions of the city, that is, organization (people), business/government, transportation, communications, water and energy (IBM, 2012<sup>[2]</sup>). These systems are interconnected and work together to form the urban macro system.

At present, there is no uniform standard for the definition of smart city in academic circles, and different scholars have different views. Zhang Yong-min proposed the concept of “smart city = digital city + Internet of things on combining features of digital city (Zhang Yong-min, 2010<sup>[3]</sup>).” Gu Dao-de, director of Ningbo Intelligent City Planning Research Institute, believed that “smart city should more

highlight the combination of artificial intelligence and human intelligence, it is necessary to assemble human intelligence and to endow things with intelligence” (Gu Dao-de, 2012<sup>[4]</sup>). Noebert A. Streitz, professor of Smart Feature Initiative, further proposed that the construction of smart city should “identify different users to meet the needs of different people” (Noebert, 2011<sup>[5]</sup>). In Guiding opinions on promoting the construction of smart cities released by 8 ministries and commissions including National Development and Reform Commission, smart city was defined as “smart city is a kind of innovative urban morphology to construct institutional environment and ecology which are beneficial to innovation emergence based on thorough perception, broadband ubiquitous interconnection, and application of intelligent fusion to achieve the people-oriented, sustainable innovation with the characteristics of user innovation, open innovation, mass innovation and collaborative innovation, and promote urban and regional sustainable development”.

To sum up, we can understand smart city from two aspects: first of all, smart city is a new type of urban development model aiming at the emergence of “urban diseases”, it should not only solve a series of problems in urban development, but also strive to realize reforms in people’s production and lifestyle, and raise the standard of living; secondly, smart city is bound to rely on the widespread application and development of modern information technologies to achieve urban comprehensive perception and interconnection to promote urban construction based on a series of core technologies, such as big data, Internet of things, cloud computing and cloud services. The importance of technology and knowledge is reflected in the interpretation of the connotation of “smart city”, smart city shall not only concern with artificial intelligence, but also combine the wisdom of human beings.

### **3 Core features of smart city**

#### **3.1 Feature 1: Intelligent integration and application of modern information technology represented by Internet of things**

On November 17, 2005, at World Summit on Information Society (WSIS) held in Tunisia, International Telecommunication Union published the *ITU Internet Report 2005: Internet of Things*, where the concept of the Internet of things was introduced (Zhang Yi and Tang Hong, 2011<sup>[6]</sup>). As early as 1999, China introduced relevant concepts and initiated relevant researches and development by the Chinese Academy of Sciences, which was called “sensing” at that time. As the name suggests, the Internet of things is the Internet connected with things. By means of communication technologies such as intelligent perception, identification technology and pervasive computing, things connection, messages exchange, comprehensive perception, intelligent control are realized. Internet of things is an important component of the new generation of information technology, it is based on three key technologies of sensor technology, RFID tag and embedded system technology, and it is a ubiquitous network built on the Internet, which is called the third wave of the development of the world information industry after computer and internet reforms. In the background of vigorously promoting the integration of industrialization and informatization by the country, Internet of things is a realistic breakthrough in the process of industrialization and informatization. The Internet of things can realize the interconnection between people and people, people and machines, machines and machines, and give full play to the advantages of human beings and machines, it has a wide range of applications at this stage, including smart home furnishing, smart medical service, intelligent transportation, smart campus, smart government, and so on (Li De-ren, Shao Zhen-feng and Yang Xiao-min, 2011<sup>[7]</sup>).

Smart city is a new concept and a new mode in urban development today, the aim is to realize the interconnection and coordination between urban infrastructure, social management and public service system to promote the transformation of government functions, enhance the level of social management innovation, and promote social development, therefore, the construction of a smart city should be based on scientific planning and urban development layout, which requires extensive use of modern communication technologies to provide the basis for scientific decision-making. So, from an indispensable technical point of view, the intelligent integration and application of modern information technology represented by Internet of things is one of the most distinctive features of smart city construction, and the author believes that this is mainly manifested in the following three aspects: firstly, total perception. Concretely, it is taking information collection technologies of RFID, infrared

sensor, global positioning system to achieve intelligent identification, location, tracking and monitoring of management objects by ways of video surveillance, network public opinion monitoring to realize the connection at any time, in any place or of any object to collect information about people or things that need to be perceived to form a broad source of information for smart city to provide perceptive capabilities for smart cities; secondly, efficient collaboration. The Internet of things provides massive data for smart cities, but it needs to rely on other technologies for information integration before it can be used scientifically. Therefore, it is firstly required to achieve real-time information transfer and interoperability to form a city map by integration of the Internet of things, the Internet, mobile communications networks and other information networks, then we should make full use of large amounts of data and cloud computing to integrate massive amounts of information, and strengthen the integration of resources and information sharing between industries and departments to enable smart city systems to collaborate efficiently finally; thirdly, intelligent decision. Smart city has a huge and complex information systems, this requires the use of cloud computing, data mining and other intelligent technologies to combine domain knowledge and model building to conduct intelligent processing and analysis of massive information resources and data to dig out valuable information, carry out trend prediction, and provide support for scientific decision making of smart city. In a word, smart cities need to rely on modern information technology represented by the Internet of things, to realize the comprehensive perception, ubiquitous interconnection, efficient collaboration and scientific decision making of cities.

### **3.2 Feature 2: Application and innovation of knowledge capital, focusing and tapping the value of human beings**

Smart city is based on modern information technology to build a precise and efficient urban intelligent system, but smart city is not equal to simple addition of technologies, which also requires the organic combination of science & technology and society & humanity. Wisdom is originally a description of people, the hope of constructing smart city is to enable it to have intelligence and spirituality, and achieve automatic and human nature management. The creator and builder of the wise city is man, and the ultimate object of service is also man, this requires us to pay attention to the key point of the city's wisdom - the application and innovation of intellectual capital.

First of all, technology oriented city is often called the city informatization, compared with the city informatization, smart city not just only stays at the information technology level, instead, it integrates technology into urbanization to focus on society and the environment, and upgrade fragmented mass of information into knowledge management and services by intelligent systems, and then develop into vision and wisdom to promote urban sustainable development. However, in the process of building a smart city, it is often mistaken for the widespread use of intelligent technology as a hallmark of a smart city, therefore, they regard smart city equivalent to city informatization or digital city. In fact, focusing on intelligence, innovation, social inclusion, and integrating them into ubiquitous network of human cells throughout the city to maximize the effectiveness of resources is just the focus of smart city construction.

Secondly, all the technological innovations and applications that make the city smart are from human knowledge, therefore, in essence, "smart city" is the high degree of intellectual performance. This is mainly manifested in two aspects: firstly, modern information technologies represented by Internet of things, big data and cloud computing are the crystallization of human wisdom, only the intensive study of numerous scientific research personnel, can sparks of wisdom, scientific research products with scientific research value and economic value be created; secondly, talent is the carrier of knowledge and the most important strategic resource for modern development. In the process of building a "smart city", only scientific research experts, intellectuals and institutions of higher learning can master and control the science and technologies applied, thus, the design of a series of paths required for the city's wisdom requires knowledge, application and innovation; thirdly, relying solely on a small number of scientific research personnel, technical experts can not accomplish the cause of smart city construction, in the process of urban wisdom, every individual should cater to the information age and the development trend of knowledge economy to constantly tap the potential and do the best to participate in urban construction, urban management, urban services.

In short, knowledge is power, that is, the source power of building a smart city, and talent is always the core construction force of a smart city. To make the city as spiritual as human beings, and to achieve self-management, the most important thing is to make the smart city have a smart brain, only man as a carrier of knowledge can play such an important role.

#### 4 Goal setting

The goal setting of smart city should embody the principle of “wisdom” and “intelligence” combination, “wisdom” means technical advance, which aims at making depth development and utilization of information resources, grasping the operation of the city dynamics, and achieving coordination and optimization of various systems; “intelligence” means giving city with human EQ, and attaching importance to human needs. Therefore, the “wisdom” and “intelligence” of smart city shall achieve synergism development, use technology to improve urban “IQ”, and are for human needs to improve the city “EQ” (Zhou Jia-jia and Ma Yong-jun, 2012<sup>[8]</sup>).

##### 4.1 Primary goal: To realize the sustainable development of city

Nowadays, the rapid development, extensive penetration and deepening application of information technology have adapted to the needs of urban development and transformation, and provided the best choice for solving the problems faced by urban development. For examples, Internet of things to promote the city’s precision management, rich interactive channels of mobile Internet to provide personalized service, big data to enhance scientific decision-making capabilities. Therefore, the primary goal of smart city development should be “wisdom”, and use advanced information technology to solve urban diseases and achieve sustainable urban development.

From a resource point of view, urban development is not only for the sake of contemporary people, but also for future generations. Global cities are now facing problems of shortage of natural resources, including water, electricity and land. A statistic quoted by *The Independent* showed, many rural areas and cities all over the world are facing water shortages. In an increasingly short supply of resources, in the process of building a smart city, we should use the Internet of things, cloud computing and other information technologies to fully perceive the city’s stock of resources to provide the basis for scientific decisions for rational use of resources to seek a friendly process of use, so as to improve the efficiency of use, and achieve natural potential of cities.

From the environmental point of view, urban sustainable development is the process that the public continuously strive to improve their awareness of environmental protection and contribute to the improvement of urban natural and human environments. With the expansion of urban scale and the increase of population, air pollution, water pollution and waste pollution are becoming more and more serious. The urban natural environment is deteriorating day by day, which seriously affects the life and health of urban residents. Therefore, to urban environmental problems, we should the road of sustainable development, and change the modes of social production and life, and no longer sacrifice good environment in exchange for economic benefits, and resolutely abandon the the old road of “pollution first, control next.”

From an economic point of view, the development of the city can not be separated from the development of the economic industry, while the extensive economic development model of most cities expands production scale and achieves economic growth by increasing the input of production factors. This kind of economic development mode has high cost and low benefit, and has not been able to meet the requirement of urban sustainable development. Economic development of smart cities shall take green and intensive ways, give full play to its potential, pursue high benefit social and economic output, achieve economic health and sustainable growth, to maintain social stability.

From the perspective of social management, problems of traffic congestion and housing difficulties caused by poor urban planning and spatial layout need urgent solution, this poses a great challenge to the government’s urban management and service capabilities. Building smart cities is the use of modern information technology to solve such thorny problems to achieve sustainable development. As one of the core technologies of smart cities construction, Internet of things contains great potential for industry growth and innovation, it will form a new production mode with accurate management and personalized service to effectively improve the efficiency of government

management and social infrastructure construction, and realize intellectualization of social public services.

#### **4.2 Ultimate goal: To achieve development of human beings**

People orientation is the central idea of smart city, the ultimate goal of smart city construction is to promote human development and achieve individual self-improvement, this requires both to better meet various needs of people and achieve a high degree of knowledge of citizens to improve their comprehensive quality.

The value of smart cities is: smarter cities, better life. It can be seen that smart city needs to deeply explore the social value of information technology, clarify the concept of intelligent service orientation of people, and comprehensively improve the quality of public services to better meet the growing material and cultural needs of urban residents. Smart city will work to build ubiquitous urban services for the public, and integrate intelligence into urban residential, traffic travel, health, health, safety and entertainment services and other urban elements to enable the public to obtain relevant information and get ubiquitous urban services at any time and at any place, this can not only improve the efficiency of the use of time, but also improve the freedom of working life of citizens. In short, the development of smart city should focus on the use of advanced science and technologies to increase public well-being, and truly let the public share the fruits of smart city, and benefit all the people truly.

American professor Joseph Nai put forward the concept of “soft power”, it refers to the factors of culture, values and social system influence a city’s development potential and appeal, and it is an important index to reflect the overall strength of a city and a country, and also a concentrated expression of the level of urban public service, spiritual outlook, quality of talents and image of honor (Joseph, 2013<sup>[9]</sup>). Therefore, people’s wisdom, the integration of mass power will play an important role in promoting urban economic development and improving urban competitiveness. First of all, the construction of smart city needs to arouse people’s initiative, enthusiasm and creativity, and promote the overall perception and interaction between people and the city to continuously improve the citizens’ ability to access and utilize information, improve the participation of citizens in urban construction, urban development and urban management, and create a new model for collective promotion and rational solution to problems(Liu Li-yuan, 2011<sup>[9]</sup>). Secondly, the construction of smart city needs not only the contribution of scientific experts, technical backbones, intellectual leaders, but also effective coordination and active participation of the masses, therefore, improving the overall quality of the people, promoting people’s knowledge and realizing self-development is the ultimate goal for the development of smart city. In turn, only by improving the comprehensive quality of the whole people, achieving universal knowledge, and enhancing the city’s cultural soft power, can we effectively promote the construction of smart city, and provide an endless stream of innovative power for the development of smart cities.

In addition, the goal of smart city can not be separated from the focus of urban strategic development and the city’s own characteristics, it must be based on the comprehensive strength of the city’s financial resources, resources and talents, as well as the basic strategic plan for economic and social development to identify goals for urban construction. It is worth noting that the goal setting of smart city shall serve the people, businesses and the governments, at the same time, after goal setting, it can be done once and for all, it must focus both on current and urgent issues as well as on long-term development.

## **5 Conclusions**

Smart city is a comprehensive manifestation of urban development in the information age, and it is a new stage of urban informatization. From a technical perspective, smart city is a smarter city that has characteristics of comprehensive perception, changing on demand; However, it is not just the technology, but also the humanistic connotation throughout it; from the perspective of value, the wisdom city is a new concept of the city with knowledge capital as its “brain of wisdom” and mining the value of people, it not only pursues artificial intelligence, but also combines human wisdom. The construction of smart city is a process of renewing concepts and innovating system, on the one hand, it is the pursuit of continuous improvement of urban management level, to achieve sustainable urban



development; on the other hand, it is the pursuit of letting people share the fruits of wisdom to improve their comprehensive quality and realize self-development. Therefore, we believe that we will certainly usher in a green, people benefiting and harmonious city by the combination of “wisdom” and “intelligence”.

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## Review of Equalization of Basic Public Employment Services in China \*

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**Abstract** Realizing the equalization of basic public service is the important policy objective of current society development in China, in which employment service is also faced with the requirement for equalization as an important content in basic livelihood service. As discovered by continuously-deepening research on equalization problem of basic public employment service by the academic circle, the research results mainly focus on the five aspects including connotation research on basic public employment service equalization, status research on no equalization of Chinese basic public employment service, cause analysis on unequal of Chinese basic public employment service, introduction and reference of international experience on basic public employment service equalization and routine research on realizing basic public employment service equalization. According to rearrangement of existing literature, there are deficiencies in research on equalization problem of basic public employment service. For instance, the academic circle fails to provide a clear answer to the measuring methods of basic public employment service equalization and the standards for measuring basic public employment service equalization; the research focuses on basic theoretical research like connotation and principles of basic public employment service equalization, lacking empirical research and analysis, which results in weaker ability to combine theory with practice and weaker theoretical persuasiveness.

**Key words** Basic public employment service, Equalization, Research overview, Financial investment

### 1 Introduction

The employment problem in China is always a hot topic. In the 17th National Congress of the Communist Party of China it is clearly proposed that we should ensure equitable access to basic public services, since then employment service has naturally attracted the extensive attention of the academy circle as employment service plays an important role in the equalization of basic public employment services. Employment is the foundation of people's livelihood, the basic approach for the public to support life, as well as a police to maintain national stability, which is of great significance to maintaining social stability and sustainable development. Though urban-rural binary economic structure and labor employment system in China have had profound impact on the employment problem in China, the equalization of civil employment rights and employment opportunities must be realized for the sake of equity and justice.

### 2 Concept definition of equalization of basic public employment services

Since public employment service is an essential component in the equalization of basic public services of China, on which scholars have performed numerous researches and obtained fruitful academic results. However, there are less research results on employment, a single aspect of basic public services equalization. Thus, a unified view about the concept of basic public employment services equalization fails to be formed up to now. Combined with existing research results, as for connotation research on basic public employment service equalization, scholars mainly conduct research with combination of basic public employment service and equalization. Based on the major principles of connotation of basic public employment service equalization including opportunity

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equalization, process equalization and rough result equalization, some scholars define basic public employment service equalization as: the government provides basic public employment service that is roughly the same to all members in the society according to the actual level of economic and social development so that all members in the society can equally enjoy the right to basic public employment service. It is mainly reflected in the following aspects: firstly, basic public employment service system supply should be unified and perfect; secondly, the employment service opportunities that all member in the society enjoy should be equal so that the results of acquired basic public employment service are roughly equal; thirdly, the differences in basic public employment service should be controlled within the range that the society can shoulder and control; fourthly, guarantee of vulnerable groups in employment can acquire the service including effective employment aid and employment assistance<sup>[1]</sup>. As for the first and the third points, there are scholars concluding as: the equalization of supply ability. In other words, as for basic public employment service, there are basically no differences in resource allocation (equalization of public resource investment<sup>[2]</sup>), organizational institution and system construction. Meanwhile, basic public employment service can control the service differences within an appropriate range that the society can shoulder; as for the fourth point, there are scholars concluding as: the preference based on most-favored-nation treatment. In other words, it refers to the fact that groups with difficulty in employment are provided with key support and assistance while all the laborers enjoy the most fundamental basic public employment service<sup>[3]</sup>. Apart from the points above, there are also scholars proposing idea and concept equalization. That is, the whole society forms the awareness of equal employment and the government adheres to the concept of equalization, which is proposed from the spiritual aspect. There are also scholars proposing that residents from different regions, urban and rural regions and different groups should enjoy equal opportunities and roughly the same results with certain free option right to basic public employment service<sup>[4]</sup>. The necessity for free option right in basic public employment service results from diversified current employment situations and social members' different employment requirement. Therefore, as for social member, free option right is essential<sup>[5]</sup>. There are also scholars simply concluding basic public employment service equalization as: the public employment products and public service that is provided by the government to each civil are equal. Its essence refers to the fact that the employment right to equal competition is realized through basic public employment service provided by the government so as to compensate for the unequal employment opportunities brought by factors including urban and rural differences, laborers themselves, labor market system and imperfect rules<sup>[6]</sup>.

### **3 Research status of unequal of Chinese basic public employment services**

As urban-rural binary economic structure and labor employment system have been implemented for long in China, equalization of basic public employment services in China demonstrates inter-regional difference, rural-urban difference and inter-group difference consequently. Therefore, the academy circle usually performs research on the unequal status of basic public employment services from these three aspects.

#### **3.1 Analysis between regions**

As for inter-regional analysis or targeted analysis on a certain region, it can be indicated that the basic public employment services in China demonstrates unequal current status through comparison among eastern, middle and western regions or analysis on one certain region or one specific province or city. For instance, there are scholars demonstrating the differences among basic public employment service of eastern, middle and western regions from the two detailed indexes including career introduction number and staff number of career introduction institutions per one hundred thousand employees<sup>[7]</sup>. Or, as measured by some scholars, inter-region basic public employment service in China that is divided into eastern, middle and western regions appears to be unequal in financial investment through calculating the social security and employment per capita financial expenditure of 31 provinces in China from 2003 to 2008<sup>[8]</sup>. There are also scholars analyzing aiming at the unequal level of basic public employment service of one certain province or city in one region. For instance, some scholars, with application of financial expenditure, demonstrate that regional financial ability remains in unequal status through level of city and county economic development of Guangdong province,

which further indicates that unequal degree of basic public employment service is relatively high<sup>[9]</sup>.

### 3.2 Analysis between urban and rural areas

As for analysis between urban and rural areas, the academy circle's research on unequal status between urban and rural areas of basic public employment service is mainly expressed as: as for analysis between urban and rural areas, if there are scholars conducting empirical research analysis on the four aspects including job-seeking methods, policy satisfaction, employment training and entrepreneurship loans of urban and rural residents in Gansu province so as to further conclude that urban and rural basic public employment service in Gansu province appear to be unequal from the perspective of basic public employment service<sup>[10]</sup>. Or, there are also scholars demonstrating the differences in urban and rural public employment service unequal are apparent through comparison in aspects like rural and urban public employment service's service staff number in institutions and expenditure investment<sup>[11]</sup>. There are also scholars conducting analysis on the countryside of one certain province. For instance, through analysis on actual situations of covering size of rural public employment service in Hebei Province and rural labor security service stations, it can be indicated that the availability of rural public employment service is worse and the service efficiency of rural public employment service is low, which indirectly reflects the unequal status of rural basic public employment service in Hebei Province<sup>[12]</sup>.

### 3.3 Analysis between different groups

At present, the groups of basic public employment services are divided into following groups according to scholars: the university student group, the migrant worker group and the disabled group. As for research on the university student group's public employment unequal, some scholars demonstrate the unequal of employment service that university students enjoy through researching on two aspects including social security system and social capital<sup>[13]</sup>. There are also scholars demonstrating that the migrant worker group fails to enjoy the great equalization service in the aspect of basic public employment service starting from the career guidance and career training service that the government provides to the public<sup>[14]</sup>.

Undoubtedly, basic public employment services in China present unequal conditions. Generally speaking, the unequal level of basic public employment services in China is relatively low. The equalization level of basic public employment services in eastern region is higher than that of western region wholly speaking, indicating relatively large development differences. The large difference regarding number of employment service institutions in urban and rural areas, service staff quality and number largely results in the unequal of urban-rural basic public employment services, leading to dominant unequal of urban-rural basic public employment services. In terms of causes for unequal of inter-group basic public employment services, the characteristic that each group owns determines that they enjoy different employment services. Besides, when the nation conducts universal employment policy on the social public, the special properties of different groups should be considered and different employment policy should be formulated according to practical situations.

## 4 Reason analysis on unequal of Chinese basic public employment services

According to scholars, the causes for the unequal of basic public employment services can be divided into two categories: finance, on the one hand<sup>[15]</sup>, including the government's different financial expenditure in employment and different inter-regional government financial or economic ability that lead to apparent unequal degree of Chinese basic public employment service. Differences between regions, urban and rural areas and different groups are expressed while urban and rural differences are the most obvious ones. Since the proposal of solution to the employment problem in China, it is targeted at urban residents without considering the remaining labor force in rural areas. Later, in the continuous development process, the employment problem of remaining labor force in rural areas is put on the solution agenda. Certainly, there are also historical and system factors that lead to quite large differences in equalization of basic public service of urban and rural employment. For instance, there are scholars pointing out that the differences in economic development level of each place are large. For example, the economy in the eastern region is developed so the government departments of each province of the eastern region will increase the financial support force in employment. Otherwise, the

middle and western regions are opposite. Due to undeveloped or backward economy, though the government attaches importance to the ideology field, the local finance is not sufficient enough to support its action, which leads to unequal financial investment in employment by each local government<sup>[16]</sup>.

On the other hand, employment administration by government<sup>[17]</sup>, which is mainly, expressed in imperfect labor force market development, defective operation institutions of government public employment service, unscientific design of the central government's transferred payment system and other aspects. As indicated by scholars, the construction of labor force market lacks fund support. Due to continuous change of employment status, employment service staff is incapable of employment service work and the existence of large-size mobile employment population and the employment population's statistical methods' incapacity to coordination<sup>[18]</sup>. There are also scholars pointing out that when the government's public employment service is providing employment training service, employment guidance service and employment consulting services, the detailed function definitions of each function department are not clear, resulting in prevarication situations and even incompatibility between service staff and positions<sup>[19]</sup>. There are also scholars pointing out that according the method of transferred payment, the larger the audited gap of financial revenue and expenditure of one certain local government is, the larger the amount that the region should transfer to pay from the central government is. The problem is that the current fund scale for intergovernmental financial transfer by Chinese central government is too small. Thus, the government plays a quite small role in public employment service. The annual transferred payment amount depends on the financial status of central government with larger elasticity and stronger randomness. The differences between demands and actual transferred payment are large. Especially when tax distribution system is conducted, local financial resources are quite limited. Meanwhile, the increase rate of local financial expenditure is too large. Without reasonable transferred payment system, the unequal phenomenon continuously expands<sup>[20]</sup>.

## **5 International experience introduction and reference of equalization of basic public employment services**

Existing research on experience of western developed countries usually focuses on introducing the detailed experience of one country and the general condition of employment service of one country. The experience in these researches refers to the implementation schemes that have achieved great effects in one or some countries<sup>[21]</sup>. For instance: as one of the countries that implement equalization in the world, Canada is also one of the acknowledged and typical countries that implement equalization policy in the world. Furthermore, equalization has been added into Constitution in Canada. Canada's thought on public employment service equalization is to realize "the accessibility of similar public projects" under the condition of similar taxation. In other words, laborers' welfare equality, opportunity equality and accessibility of basic public employment service are realized through financial equalization<sup>[22]</sup>. For another example, the public employment service mode in Germany refers to the decentralized operation mode between the central and the local, which is realized through three financial transferred payments including the vertical financial grant between the federal government and states, the horizontal financial grant between states and the unconditional grant from the federal government to local states<sup>[23]</sup>. The public employment service equalization in Britain refers to the equalization in finance because public employment service in Britain is mainly realized through the government's setting of "special employment service and unemployment benefits center". On one hand, its operation mode can ensure the employment situation of the disadvantaged group; on the other hand, all the funds for public employment service originate from government finance, according to which the equalization degree is quite high<sup>[24]</sup>.

Additionally, the public employment service equalization practices in countries like America, Australia and Japan have also achieved great effects<sup>[25]</sup>. According to scholars' experience introduction to these countries' public employment service equalization, the realization of Chinese basic public employment service equalization should be commenced from perspectives including legislation, government's financial grant and system management based on China's national conditions and actual

development<sup>[26]</sup>.

## **6 Research on equalization routine of realizing basic public employment services**

According to the existing research results, scholars usually investigate the causes for the unequal of basic public employment services in China and introducing mature experience of western developed countries for reference so as to realize equalization of basic public employment services in China. In regard to approaches to realize the aforementioned targets, increasing government's financial investment and perfecting employment management system are proposed.

### **6.1 Increasing government's financial investment**

China's employment service funds originate from each local government's financial transferred payment so the economic development level and ability of each local government determine the financial support that each local government can provide to basic public employment service equalization<sup>[27]</sup>. While each government is increasing government financial investment, there are scholars pointing out that the central government and local governments of each level are stepping up efforts to financial transferred payment with special focus on poverty regions such as rural regions and remote regions. Meanwhile, as for employment disadvantaged groups including the migrant workers, the disabled, special financial transferred payment is provided to them so as to help them to realize employment. Furthermore, unemployment insurance should be prepared. Through increasing unemployment insurance, the employment expenditure is promoted<sup>[28]</sup>. Furthermore, the government also should adjust and optimize the national financial expenditure structure. In regard to the general public service expenditure, it can be decreased appropriately, then the part saved can be invested to the public service fields with more urgent requirement in addition to corresponding perfect financial system where financial rights match well power of administration<sup>[29]</sup>.

### **6.2 Perfecting employment management system**

Some scholars point out that the following points can be proceeded to perfect employment management system: firstly, the providers of employment public service in unpublicized fields should be increased firstly so as to realize the diversification of providers of employment basic public service and to transfer more government's employment basic public service functions to the market and the third department. As indicated by research on public management theories<sup>[30]</sup>, dysfunction phenomena can occur to the government and market. However, both of them can realize mutual compensation in various aspects. When both of them are in dysfunction, the third department can realize in-time compensation. Secondly, the labor force market should be perfected to realize national unity of labor force market and free flow of labor force. Urban and rural public service systems are perfected and planned as a whole; the urban and rural binary structure is broken; employment right inequality resulting from different household registrations is eliminated. Thirdly, a national labor force information management system and a performance management system are established. The former is used for managing labor force's employment and unemployment situations, the distribution situation of unemployment insurance benefits, career training, profile management and other employment public service. The latter is used for performance measurement of labor force's satisfaction degree of various employment public services. It is a kind of supervision of providers and a kind of method to improve service provider efficiency. As for law systems, the legislation work of employment public service is enhanced and equal employment of laborers and regulated employment of employing units are realized. As for infrastructure construction and comprehensive service level, the differences in infrastructure construction of urban and rural employment public service are relatively large. Through establishing employment service institutions with broader covering range, rural laborer can equally enjoy the employment basic public service based on career training and unemployment benefits. The quantity and quality of internal staff of employment service institutions are improved; the professional quality relationship of the staff and reemployment success rate of unemployed persons are improved; career training provides more professional career skills to unemployed persons. Therefore, reemployment can be smoothly realized<sup>[31]</sup>.

## 7 Conclusions

Domestic scholars' research aiming at basic public employment service equalization started later but has achieved results worthy of affirmation. There are scholars' theoretical research results on aspects from the connotation of basic public employment service equalization to the status, causes and routines of basic public employment service unequal, which further provides beneficial reference for the government to formulate policy on basic public employment service equalization. As for achieved theoretical results, there are following points: firstly, there has been a universal consensus on basic public employment service equalization. In other words, equalization is not equivalent to absolute averaging, but is determined by actual implementation situations with division of regions, urban and rural areas and groups. Furthermore, equalization is fundamentally implemented for benefiting groups of larger range; secondly, certain consensus is achieved in principles that should be adhered to in basic public employment service equalization, including the three major principles of opportunity equalization, process equalization and result equalization. Thirdly, scholars have proposed a number of feasible schemes on how to realize basic public employment service equalization, among which the scheme that the central government and governments of each local level should gradually increase the financial transferred payment for basic public employment service equalization and perfect the system of basic public employment service is proposed the most frequently.

A number of achievements have been obtained, but there are still some deficiencies. For instance, as for basic public employment service equalization, scholars fail to provide a clear answer to how to measure basic public employment service equalization and the standard for measuring basic public employment service equalization. The research focuses more on the connotation and principles of basic public employment service equalization; as for research methods, theoretical analysis is applied more and empirical research is lacking, which leads to weaker persuasiveness of theories.

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## A Study on Ecological Responsibility of Government in the Process of Urbanization in China

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**Abstract** Urbanization is a dynamic process of the increasing urban population, the increasing proportion of urban land area, and the increasing proportion of the secondary and tertiary industry. Population agglomeration and industry development are accompanied by urban diseases such as resource shortage, environment pollution and ecological damage which are caused by resource consumption, domestic waste and three representational castoffs from industry. As the organ of public power, the government is the urbanization leader, as well as a core power to solve the ecological problems in the process of urbanization. According to the rational planning of urban development path, the supply of ecological system, and utility products, government can effectively handle the ecological environment issues in the process of urbanization, make sure the urban ecological environment quality, and build an ecologically livable town.

**Key words** Urbanization, Ecological environment, Government responsibility

### 1 Introduction

Urbanization is the process of transforming traditional rural society which takes primary industry as the main factor into modern society which takes secondary and tertiary industry as the main factor. It is the inevitable choice when local economy develops into a certain stage, which plays a vital role on promoting social economic development and raising people's living standards. However, urbanization development is accompanied by the increasing population and cars, the land occupation, industry development, resource consumption and the increasing waste, which has caused the emergence of urban diseases such as resource shortage, environment pollution and ecological damage to a great degree, and has showed a spreading trend to the surrounding suburbs and rural areas. The Eighteen major Chinese Community Party emphasized: new urbanization is the mission of modernization in China, and the ecological civil development is related to the sustainable development of the Chinese nation. (Hu Jin-tao, 2012<sup>[1]</sup>) From here we can see that we must take the road of sustainable development on the future town development in China, and the ecological environment will be the vital issue in the process of urbanization. In the process of urbanization, Chinese government is not only the leader and planner of urbanization development, but also the unique supplier of formal system, playing a decisive role on the direction and manner of town development as the public power department.

### 2 The prominence of ecological problems in the process of urbanization

With the accumulation of various factors, a series of related problems then came out: the unclear property right of part of the land causes the serious land waste in the conversion of agricultural land into non-agricultural land; when agricultural land converts to industry and commercial land, etc, the different ROI among different industries causes the serious loss of economic interests of land users; the supporting measures for infrastructure construction in industry agglomeration area is not in place, especially the faultiness of pollution treatment measures causing the produce waste—the emission amount of effluent, exhaust gas and solid refuse increase badly, which causes the serious pollution of soil, air and river; (Law of the people's Republic of China on the prevention and control of environmental pollution by solid waste, 2005<sup>[2]</sup>). As for the population agglomeration, because of the lifestyle differences between urban and rural residents caused by production mode differences and the income gap between urban and rural areas, the contradictory origin between people in the new town emerges; population agglomeration and industry agglomeration cause the inharmonious problems between human beings and nature, etc.

### **2.1 Population agglomeration brings resource consumption and increasing waste**

In the process of urbanization, the population is pouring the town constantly, which brings not only affluent labor forces, but also a series of ecological environment problems. The gathering and living of population on the town and the popularization of urban lifestyle increase the resource consumption and waste emission in people's daily life.

Firstly, the population agglomeration to the town brings tremendous resource and energy consumption. Objectively, people gathering and living in the town consume more resource than living in rural area. All the clothing, food, shelter, transportation, and use needed by people in urban life are accompanied by a great deal of resource consumption. The increasing town population causes the increasing traffic volume, housing construction area and heating demand. These all tremendously increased the consumption of water resource, timber resource, coal and oil resource and energy. Moreover, after the rural population gathering in the town, their life habits and lifestyles will change greatly. They need more life necessities and higher quality of life than living in rural area, which will bring more resource consumption. What's more, people gather and live in the town, and produce a mass of domestic wastes. Resource consumption is positively correlated with waste emission. Accompanied with resource consumption, the migration and flow of population into the town will inevitably bring a mass of waste emission and sharply increase the municipal solid waste in the town. Municipal solid waste refers to the solid waste produced in daily life or in the activity that serves daily life, and the solids considered as domestic waste in accordance with the provisions of laws and the administrative regulations. It is the main constituent part of solid wastes. (Du Wu-peng, Gao Qing-xian, Zhang En-shen, 2006<sup>[3]</sup>)

### **2.2 The serious waste of land resource in the process of land agglomeration**

Land is a kind of non-renewable and scarce resource. The acquisition of land resources means the acquisition of primitive accumulation of capital rights. However, in the process of urbanization, there is serious waste in the utilization of land resources, which are mainly manifested as: Firstly, some lands are ineffectively idled after land expropriation. By the end of 2015, 2648 cases of idle land were found in the country, covering an area of 11944 hectares. If these lands were transformed into actual commercial housing supply, more than 2700000 sets of residential will be increased, and the housing problem of about 8000000 people will be solved according to thirty square meters per capital calculation. (Liu Cheng-jun, Sun Yu-hong, 2015<sup>[7]</sup>) Secondly, there is some wanton waste phenomena existing in the process of urbanization. In the process of urban infrastructure construction, there are such phenomena such as building big squares and luxurious office buildings, providing luxurious villas for a small number of rich people. The serious land waste, on one hand, is disadvantageous for the rational utilization of the limited land resource; on the other hand, is prone to form the disharmonious minds caused by the wealth possession differences among different social classes. Meanwhile, in the process of land expropriation, because of the unclear property right of part of the land, there are serious violations of the legitimate rights and interests of land contractors to some degree because the legal rights and interests of land contractors are not guaranteed. (Chen Liu-qin, 2003<sup>[4]</sup>)

### **2.3 The prominent three representative waste problem in the process of industry development**

In the long term, the urbanization in China has serious problems such as irrational industry structure and industry pollution. In the industry structure of Chinese towns, the tertiary industry which has low energy consumption and low emission obviously lags behind the secondary industry which has high energy consumption and high emission. Lots of urban enterprises and the rural township enterprises still use the outdated equipment and backward technology, which then produce a mass of industry sewage, waste gas and waste residues, etc. At present, in the energy structure of China's secondary industry, coal occupies more percentages than seventy percent, however, coal is the one of the main causes of town air pollution such as suspended particulates, sulfur dioxide and acid rain, etc. What's more, China discharges more than 100 million T of industrial sewage every day, of which more than 80% are discharged into the water without any treatment, resulting in pollution of rivers, lakes and reservoirs and declining water quality. (Chen Yu-mei, Lv Ping, 2014<sup>[5]</sup>)

### **3 Government is the leading power in solving ecological problem in the process of urbanization**

In the process of urbanization, ecological environment issue is combined with the economic, political and social issue of future town, which is especially complex, influencing or even deciding the development perspective of the town. The ecological environment issue has strong externality, which cannot be reflected by market price. Therefore, when solving the ecological environment problem in the process of urbanization, only the public and authoritative government can be taken as the leading force. Government is the principal undertaker of the ecological responsibility in the process of urbanization, which is mainly embodied in planning town development, formulating correlated urban ecological system, and providing urban ecological public products.

#### **3.1 Government is the planner of urban development**

The plan of town development is the essential premises and foundations in solving the ecological problem in the process of urbanization, relating to the future of urban development. According to making urban development plan, we can identify the key tasks for future cities and towns, optimize town layout, guide urban construction, estimate the amount of urban resources and energy use and establish urban ecological goals. With comprehensiveness, totality and protracted nature, town planning involves economic, political, social, cultural and ecological aspects, directly determining the quality of urban ecological environment in the future, providing an important means to realize the sustainable development of towns.

In the planning of urban development, in order to overcome its externality, the government has to be the leading power of town planning as the public power department. When making the town development planning, local government and central government are established on the bases of dual nature of local interests (consistency and relative independence). The basic interests of the local and central areas are consistent, both for economic development, for the sustainable development of towns, for improving the quality of the living environment and promoting social improvement. Standing on the strategy height, the central government can overall grasp the development regulation of domestic and international towns, and co-ordinate urban economic and social development, the harmonious development of man and nature, and development of towns in the immediate and long-term interests, and develop scientific, macroscopic, prospective, and global constraints of urban development planning. According to natural endowments, geographical location and economic development in different regions, the local government can decide the development goal of the town and explore the concrete development approaches of the town according to local conditions. In accordance with the local concrete conditions, local governments can complete the plans issued by the central government, assisting the central government in realizing its development strategy, guiding the urbanization stepping on the road of ecological civilization, achieving the sustainable development of towns.

#### **3.2 Government is the supplier of ecological system**

The urbanization process in China is extremely compressed in time and space dimensions, geographically concentrating on the eastern regions, so the ecological environment problems in the process of urbanization show characteristics such as high frequency, intensity, type diversity, mutual correlation, diffusion resistance. Therefore, the stable and effective solving of the ecological environment problems in the process of urbanization needs the regulation and adjustment of system or even the complete institutional system. System construction can seriously constraint the pursuit of economic entities to maximize their own interests in the scale of urban ecological environment carrying capacity, restraining the opportunistic behavior such as waste resource and pollute environment under the temptation of interest, supervising and urging economic subjects to undertake the compensate cost which is caused by its economic activities, creating conditions for the harmonious development of human and nature in the process of urbanization construction.

Government is the major component of state apparatus. It has class nature and sociality, and possesses the authority and organ of violence. As a special social organization, government is at an objective position, playing the role of "Arbiter" and "Game rule setter". These roles make him establish a regulation which not only acts between the ruling class and the ruled class, but also acts on the different interest groups in the ruling class and the different interest groups in the ruled class. It acts

on the entire community of citizens. This kind of role has real “publicity”, the “partiality” of any social organization, group and individual has to comply with the publicity of the overall situation, even if the ruling class and its members have no exception whatsoever. Therefore, the ecological environment system of the urbanization process and the related institutional system can only be made by government.

### **3.3 Government is the supplier of ecological public goods**

Ecological public goods include ecological infrastructure and ecological public service. The ecological public goods of the town can maintain the natural processes and adjust the living environment quality. Maintaining the natural process includes species conservation, water and soil conservation and maintain the self-purification capacity of water body, etc; adjusting living environment quality includes: easing traffic pollution and noise pollution, purifying the air, reducing heat island effect, increasing urban greening, promoting social and economic development, guiding and restricting urban expansion. Ecological public goods has publicity and identity of universal sharing. Through the supply of ecological public products, they can benefit every urban resident and effectively guarantee the sustainable development of towns. The ecological public goods of the town has strong externality, non-excludability and non-competitive utility, and indivisibility of utility. It cannot be provided by enterprises or individuals, however, it can only be provided by the government, or government oriented.(Chen Shou-peng, 2008<sup>[6]</sup>)

Firstly, ecological service has no technical divisibility due to its characteristics such as fluidity and regional coherence. Under certain ecological carrying capacity, the ecological public goods are equal to social individual, and everyone has the same opportunity and right to consume them. Just because of this, the value ecological public goods are easily ignored by people, its non-excludability makes “Hitchhike” consumption common, resulting in the cost of ecological public products have no one to bear. Secondly, the property right definition of ecological public goods is difficult. From the perspective of property right subject, ecological resources environment is shared by all citizens. If we consider intergenerational issues, we must include the future generations, then it will be difficult to define the property rights of environmental resources. What’s more, from the perspective of the developer or destroyer of ecological resources environment, in some conditions, the developing subject and the destroying subject is unclear, thus, government has to undertake the responsibility of ecological resources environment. For instance, as for the pollution domestic garbage and sanitary water put into rivers, it is possible that most of the town’s residents have been dumped into the river garbage and sewage, it is difficult to define who is the main destroyer. At this time, government has to be the main power to harness the river environment. Thirdly, from the perspective of beneficiaries of ecological services, the beneficiaries of ecological public goods produced by the protection and rehab of ecological resource are all members of the society, and the scale and degree of the beneficiaries cannot be concretely classified and precisely measured.

Therefore, to solve the resources environment problem in the process of urbanization and to increase the supply of ecological public goods in towns, we should not leave government, and we should promote the leading and dominating effects of government. Moreover, government is the main promoter and introducer of ecological science and technology in the process of urbanization, the main collector and claimer of environment information, the main popularizer of ecological environment protection awareness and the main distributor of taxes and finances, etc. Government has multiple important identities. Therefore, in the process of urbanization, government is the main undertaker of ecological responsibility.( Liu Cheng-jun, Sun Yu-hong, 2015<sup>[7]</sup>)

## **4 The method for government to perform ecological duties in the process of urbanization**

### **4.1 Scientifically planning the development path of the towns is the basic method for government to perform ecological responsibility**

Making scientific and rational urban development path and guiding the healthy, rational and sustainable development are the basic methods and contents for government to perform the ecological responsibility in the process of urbanization. Only make clear the method, path and direction of future

urban development, we can make clear the possible urban ecological environment problem in the future, and even avoid appearing ecological problems in the process of urbanization. Government's planning on urban development mainly include rationally occupying and utilizing land, rationally planning population migration and urban industry development.

#### **4.2 Strengthening the construction and innovation of urban ecological system is the core power for government to perform ecological responsibility**

The ecological environment problems of the towns is perplexing and closely related to urban economy, polity and culture aspects. Therefore, government should positively promote the establishment and perfection of relevant systems and build complete urban ecological institutional system, in order to make solutions of various of problems with the system as a guarantee. Government should formulate various ecological systems, and pay attention to the soundness and perfection of them. Moreover, government should make institutional innovation at the right time and condition. With the promotion of urbanization and the changing urban ecological problems, the urban ecological system has to keep up with the times.

#### **4.3 Perfecting the ecological public goods of the towns is the important guarantee for government to perform ecological responsibility**

By providing basic ecological public goods, government can rectify the negative externalities of market failure in the process of urbanization, establishing good external environment and social order, promoting the harmoniousness between human and nature, raising the living quality of residents, and increasing the welfare of all people. (Fan Ji-da, 2013<sup>[8]</sup>) Firstly, all levels of governments have to clarify their own ecological responsibilities. Ecological public goods has obvious externalities, but local governments have insufficient motive power to provide this product. Therefore, when providing ecological public goods, central government must fully consider the interests of local governments, in order to avoiding to be passively response or even boycott by the local governments. Secondly, governments should increase their capital investment and begin a new round of financial right reform. We should appropriately increase the proportion of local finance in ecological environment protection, increasing government investment in the public services of ecological infrastructure, and ensuring the financial resources needed for the establishment and development of ecological public goods. Thirdly, we should establish and perfect the platform for various subjects to universally attend and negotiate. Government should effectively integrate the different interest demands of all parties, and adopt various of opinions to make sure the comprehensive efficiency of the policies.

## **5 Conclusions**

As a dynamic process of population agglomeration, increasing urban land area, and industry development, urbanization is accompanied by a series of ecological environment problems. Due to the dual factors such as externalities of ecological environment problems and the public power government possessed, government becomes the main undertaker of ecological responsibility in the process of urbanization. As the planner of urban development, the supplier of ecological system and the provider of ecological public goods, government performs ecological responsibility, solving the ecological environment problems in the process of urbanization, and guiding towns' healthy and sustaining development by planning urban development, making and innovating urban ecological system and providing urban ecological infrastructure and public services. In the future development process of urbanization, government should pay attention to the change of urban ecological environment problems, and positively explore the solution to the urban ecological problems, in order to greatly perform the ecological responsibility in the process of urbanization.

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## The Turn of Activism in the Study of Public Policy Tools

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**Abstract** The modernization of China's governance system and capacity needs a scientific and overall apprehension of the public governance concept. Public policy tools, which contain multi-level rational thinking, such as instrumental rationality, value rationality, and institutional rationality, have become a powerful perspective, from which we know the public governance concept clearly and correct some of public governance practices. However, the public governance concept, which is constructed by the logic of institutionalism currently, has been failure in the society featuring high complexity and uncertainty. The superficial causes of the problem is fuzzy value rational analysis, insufficient instrumental rational cognition, and poor institutional rational control during the selection of policy tools; the root causes of the problem is the failure of the institutional governance path attached to the "center-periphery" social structure and the guided social governance solution. We need to seek a new social governance model and nowadays activism is promising in social governance with multi-subject. Focusing on actions rather than institutions will aim to realize governance modernization by reasonable choice of policy tools.

**Key words** Public policy tools, Institutionalism, Activism, Cooperative governance, Service-oriented government

Public policy tools mainly study the methods and means adopted by the state (government) which is one of the social governance actors in the process of using the public power conferred by the people to achieve good social governance. They are important elements of social governance. Largely, they reflect the social governance model and the whole situation during the governance operation. At the same time, the changes of social governance models will bring theoretical changes and practical reforms of public policy tools. Based on the investigation to the history about the public life arising, the separation of the civil society and state ushers the era of nationalism. Namely, the state and the civil society have become ruling and being ruled. Civil society has become a system for "special needs" and delivered the "universal needs" feature to the state, which leads to the state's monopoly governance of citizens and marginalization of civil society (Zhang Kang-zhi and Zhang Qian-you, 2010<sup>[1]</sup>). What the modern society presents is still a social governance model of nationalism, mainly featuring the state-society separation and the sovereign-actor separation. The society acting as sovereign is subject to the state acting as actor. As the state develops into an "administrative state", public policy gradually emerges, shapes the social governance model and path by using public policy tools, and becomes a crucial carrier for the state and government action.

### 1 Problems: Research status and practice failure of public policy tools

Viewed from the theoretical research and practical found of public policy of countries, the policy tool study is a trend, taking the lead in the innovation of public policy and social governance. In a great extent, as a new field of public administration and public policy research, the study on meanings and extensions, characteristics, and classifications of public policy tools all ultimately serves to study the choice of policy tools. Grasping the basic knowledge of policy tools more comprehensively and profoundly helps to identify or find out the best policy instrument in the specific implement of public policy, which will continue to innovate upon governance and cultivate a collective action mechanism that condenses the greatest public benefits.

#### 1.1 Traditional paradigm for the study of public policy tools

Since Thomas Samuel Kuhn put forward the concept of 'paradigm' in the book *The Structure of Scientific Revolution*, the paradigm has provided academic research with a parsing channel that aims to unify the thinking structures for the scientific community. It guides people to explore the nature,

function and application of scientific objects by establishing “conceptual schema”. It is cognitive guidance, playing an instrumental role. A mature research is often characterized by a distinct paradigm. For the public policy tool study, the tool research paradigm will always determine the nature of policy tools. The path and paradigm of the public policy tool study will directly reflect the overall social governance model. At the same time, the social governance reform can also be realized through the adjustment of public policy tools.

According to the investigation, the initial research on public policy tools is instrumentalism-oriented. The term “instrumentalism” originated from John Dewey, an American pragmatic philosopher. In the contemporary era, abstract technical rationality has extended to the general structure of society and become the governing principle of organization. Non-personification management and manipulation have spread in the entire social system, not only in the specific goals of technical applications, but also in the origin of technology. The emergence of automation technology rationality is a unique rule form (Chen Zhen-ming, 1996). Under this background, instrumentalism becomes the main path of the policy tool study. The instrumentalism advocates that understanding a specific policy instrument is to understand its inherent function. The instrument performance has been proved or had very high credibility. We expect that it will be effective in the most predictable environment. Effective policy tools can turn policy failure into success. The study of the policy instrument features and characteristics should aim to determine, revise and expand a set of “universal” tool, so that it can achieve the best performance under different constraints. The policy proposals of instrumentalism are show as follows: first, the key element of a policy instrument is its static nature, which determines the performance of the tool. Second, tools are value-neutral so there is no relationship between policy environments and policy tools. Finally, the policy instrument research should focus on the features and characteristics of tools to identify and refine a handful of universal tools so that decision makers can easily select tools from “tool kit”. The characteristics about the research path of instrumentalism are concluded as follows: first, policy tools are professional. Second, the policy tool operation is instrumental. Third, policy tools are value-neutral. Fourth, the performance evaluation of policy tools is static. Finally, the using scope of policy tools is universal. This view expends the function and connotation of tools unilaterally, ignores the important role that the time, environment and value factors play in the policy process, and confuses policies with policy tools. It is simple and advocates mechanical instrument supremacy (Zhang Xin-wen and Du Chun-lin, 2014<sup>[2]</sup>).

### **1.2 Critique, deconstruction, and construction on the paradigm of instrumentalism**

Reality is constructed by the society, so the real society not only has one version or one truth. Reality always has the potential to be criticized and deconstructed over time, and based on deconstruction to construct reality reasonably is the responsibility of the theory development. “Construction is an attempt to establish a theoretical framework for the formation of these understandings by providing a set of concepts” (Quan Zhong-xie, 2008<sup>[3]</sup>). After 1990s, scholars began to explore the new path for the development of public policy tools. *Public Policy Instruments Evaluating the Tools of Public Administration* (B.Guy Peters Frans K. M. van Nispen, 2007<sup>[4]</sup>) is a symposium of the outcome of academic seminar on policy tools held in 1992, which is edited by B. Guy Peters and Frans K.M. van Nispen. Things have changed for more than a decade. The academic thinking full of systematic thinking still provides the study of current public policy tools with instructive value, which especially includes the critique of the instrumentalism path and the discuss on changes of other paths in the policy instrument study since 1980s. Through the criticism and deconstruction of the research path of instrumentalism, the book puts forward a new path of policy tool construction from different perspectives, such as time, environment, value, and many other variables. The book mainly concludes three new paths of policy tools based on the three perspectives. The first path is the process path based on the time factor, which only considers policy tools as by-products in the actual process. The policy tools are understood as a dynamic part in the political process. The second is the contingency path based on the environmental factor, which considers that the policy tools should “be adapted to” the policy problems that includes the environment factor. The performance of policy tools depends on the policy environment. The last one is the path of constructivism based on the value factor, which considers that the meaning of policy tools is to seek the self-assessment value



assessment and opinion evaluation. Meaning sometimes is the result of negotiation. The negotiation is a prerequisite for that any policy tools and policy issues match each other.

### **1.3 Theoretical construction and practical confusion of public policy tools**

No doubt the three new paths of public policy tools realize reasonable critique and deconstruction of the traditional instrumentalism path. The current public policy tool in practice focuses on its time, environment, and value dimensions. However, based on the survey about the research status and progress of the current public policy tools, we find that the public policy tools are gradually failed in practice in the society featuring high complexity and high uncertainty. As public policy issues continue to spring up, the feedback based on ‘rationality’ is no longer perfect, and the design of action mechanism is gradually out of the preset orbit. The failure of public policy tools has become the new normal.

## **2 The discovery of the institutional thinking in the study of public policy tools**

The public policy tools are operated in trouble. It is found that the research and operation of public policy tools in practice have been within straitjacket-like thinking of the traditional institutionalism model, which is the root of the failure of public policy tools. Although the deconstruction and construction of the instrumentalism described before have progressive significance, they are still not completely out of the instrumental kernel and still focuses on policy. It can be said that the research and practice logic about the current public policy tools is an institutional thinking model based on the instrumental perspective, that is, as Max Weber said, “instrumental rationality” with quantification, calculation and prediction functions (Max Weber, 1997<sup>[5]</sup>).

First, viewed from the relational schema of acting subjects in the public policy tools, the governance pattern constructed on the “center-periphery” structure violates the trend of the multi-subject development of the social governance. It can be seen whether it is a mandatory policy tool, a composite policy tool, or a voluntary policy tool, which embodies the institutional design process with government centered. It strictly confines institution provider and receivers within the center and the periphery of the public policy instrument practice. Thus, the government dominates the whole process of design, selection, application, and evaluation of public policy tools. Certainly, from some sense, composite and voluntary policy tools accept social organizations and markets to join in from different degrees, such as public service privatization, service outsourcing and other public policy tools, which are visible and can really improve the effectiveness of the public governance. However, it is carried out in the subject and object structure, which strictly distinguishes government from society. The government is always above the society, which firstly provides the society with institution. Policy tools are all implemented in the framework of the institution. From the perspective of social governance, no matter how well the policy tools are packaged in accordance with the spirit of “people sovereignty” in the theoretical sense, the policy tools featuring “center-periphery” structure of the social governance are still a form of democracy with sovereignty belonging to people and being governed by the government. It is, in essence, a kind of “heteronomy” model, which ultimately contradicts the value rationality contained in the public policy tools.

Secondly, viewed from the rational process of evolution and degree of integration hosted by the public policy tools, institutional dilemmas emerge, such as the abuse of instrumental rationality, fuzzy value rationality, and rigid institutional rationality. “Reason is a great achievement in the processes of industrialization and urbanization” (Zhang Kang-zhi, 2016<sup>[6]</sup>). However, recent social governance one-sidedly pursues the instrumental rationality and technological rationality, and the value rationality is castrated. People use analytical thinking well to analyze policy tools based on “cost-benefit” analysis. At the same time, they enable the “scientific” program designed by technical experts in the governance practice based on the premise that analytic demonstration is feasible. Once they have problems in the practice, they will organize a new round of technical demonstration to eliminate the uncertainty problem. As a result, under the action of the technology-based instrumental rationality repeatedly, people analyze public interest simply and crudely. The public policy tools begin to be regarded simply as tools for economic promotion and technological progress, without focusing on people’s lives and their values. When the social justice value is neglected, the governance that excludes value to pursue

certainty will not be accepted and understood, and will be disrupted everywhere. Public policy tools thus fail.

Finally, from the thinking model of public policy tools, the linear thinking model of policy tools leads to the lack of flexibility in policy implementation and seriously lags behind the practical needs of social governance. In the practice of public policy tools, the linear thinking model shows a causal relationship program having control force reached by analyzing and deducing. When a policy instrument is selected, it becomes a schema having a deterministic meaning. All the actors strictly follow the policy tool process and try to locate by following up a clue in the action plan. Once the demands about “speed” and “flexibility” appear, which is caused by the governance environment’s complexity and variability, the force of policy tools will be greatly reduced. Because the function that achieves by the control method is no longer effective or becomes negative, and a set of governing equations consisting of abstract single variable is totally unable explain social governance demands in the high complexity and high uncertainty conditions, let alone to deal with the modification and debugging tools.

Accompanied with the pace of post-industrialization, the limitation of institutional theory is gradually prominent in terms of social governance significance, and its rationality can only be supported by history. In the new period, the challenges and bottleneck that analysis paradigm of institutionalism constantly faces prove that the paradigm on the relevant space of the social governance tends to be weak. The reason is that institutionalism pursues the uniformity of society by the universal setting, and it faces the contradictions not only between identity and difference, but also between the universality and particularity. When contradictions are irreconcilable, institutionalism also fails.

### **3 Seeking for the path of activism: A contemporary approach selected by public policy tools**

In the late twentieth century, humankind opened the process of post-industrialization. New social factors are added to the human society and some new organization forms and social movements are generated in the field of public governance, such as “public participation” and “new social movement”. These new factors show a strong tendency of activism, which are different from the traditional organizations and actions. At the same time, at the end of the twentieth century, the new theory of social governance constructed by the theories of governance and public choice challenges the traditional theoretical paradigm of nationalism and institutionalism. This is also true for the public policy tool that achieves the unity of the values, methods, and mechanisms of public governance. We need the courage and boldness to get rid of constraints from the traditional policy tool theory, to break through the practice path, and to explore the modern governance path.

#### **3.1 Theory justification of activism**

The modern state is a country that emphasizes democracy. The governance model of nationalism is a universal feature that modern society owns, that is, “sovereignty belonging to people and governance by the state” (Zhang Qian-you, 2016<sup>[7]</sup>). The emergence and expansion of administrative states, penetrating into each aspect of society, seriously damage the autonomy and independence of the society. The growth of social action will and capacity has been suppressed for a long time and gradually lost the role of actors. Until 1970s, with the rise of “the new citizen movement”, he, who “votes with his feet”, does not satisfy the real identity. Requiring access to the substance of democracy through autonomous action bring serious challenges to the administrative states. When the attempts and efforts to participate in governance are identified with history, the civil society that is reborn requires once again being equal with the government as an actor. Thus, the practice of democracy has been sublimated through the qualitative flow of sovereignty and governance. Until now, this liquidity is still not accomplished, showing an uncertainty. The roots of its uncertainty are the following two aspects. The first is the development trend of the multi-subject governance, which is characterized by the new civil society, that is, diversification and heterogeneity of actors. The second one is the diversity diffusion of action modes. That is, uncertainty space is increased, which is caused by the game between the normative action of the government meta-governance role and the differential behavior of multi-subjects in the society. The root is still the limitation of the institutionalism theory. It cannot exist

in the changing governance space by relying on the government to accept the abstract public interests solely, eliminate the uncertainty factors, and use constraints of the legal rules. In the highly complex and uncertain governance space, the government faces great challenges not only from the effective supply of public goods and services, but also from the maintenance of social order. The era calls for a governance model that conforms to the democracy will and the development trend. The theory and conception model of activism came into being in such an era.

### **3.2 Theoretical combination of the path of activism and demands for the public policy tool development**

Through the constructive analysis about the history of human society governance evolution and the theory of activism, professor Zhang Kang-zhi points out in his book *Activism in Public Administration* (Zhang Kang-zhi, 2014<sup>[8]</sup>) that the trend from social governance to cooperative governance is inevitable, which is a main clue of the book. This book argues that concerns about real actions exceed the compliance with the formalization degree, and calls for a decentralized network governance structure to replace the “center-periphery” social governance structure. The book advocates using flexible action to end an institution walking the chalk, and carrying out the cooperative governance based on the interaction of multiple actions, rather than the management model that distinguishes between the subject and the object. Finally, the book demonstrates the necessity and urgency to construct a service-oriented government from the point of action. The analysis and evidence of all these theories would rather be a conception than be a discovery based on practical reason.

Public policy tools play the role in the social governance reform is like that soldiers in the battlefield. In order to “make each policy tool to be identified with distinguishing features” (L.Salamon, 2002<sup>[9]</sup>), the public policy tools in academic circles are divided into three types, namely, mandatory type, combined type and voluntary type according to the degree of government participation. No matter what the army types are, (he or she) they have only one purpose: to help win every reform campaign. No matter what the public types are, once they are chosen to act in public governance practices, they have the freedom of rational choice based on practice. Therefore, mandatory policy tools no longer make their public opinion impossible because of the dominant role of the government, voluntary policy tools no longer lead to governance disorder because of their lack of social autonomy, and the mixed policy tools will not have the centralized mechanism because of multi-governance subjects performing together. In a word, the public policy instrument, like a soldier in the social governance reform, is based on the idea of justice and symbiosis for development. In this sense, the development of public policy tools has the possibility of generating an activism path, and we are looking forward to the realization of such a goal.

### **3.3 Government action in the selection of public policy tools**

At last, viewed from the government actions in the selection of public policy tools, the model of public policy tools under the activism path is cooperation, which firstly is required to break the government’s restrictive thinking model based on the institution. The government should objectively recognize and actively face the change that conforms to the trend of times, and take the role of meta-governance as its own guidance and service function, so that it can be a member of the actors to promote the social governance reform and turn itself into service-oriented government. The selection practices for public policy tools are shown as follows in specific. Firstly, the role cognition of government changes from a dominant role into an actor role. That is, in the selection, application, and evaluation of policy tools, it always joins as equal actors, and all actors have no status. Secondly, the governance function of government changes from control into service. “When a single governance body undertakes the function of social governance alone, what it shows is the pursuit of ubiquitous control. However, under the condition that multisubjects of governance govern cooperatively, each element that enters the cooperative governance system must have service orientation relative to other elements of the system” (Zhang Kang-zhi, 2013<sup>[10]</sup>). Finally, the government’s behavior models change from limitation to promotion. Governments at each level should be good at observing the action intentions and abilities of public policy actors. They should cultivate and encourage more social organizations or market subjects who can undertake the production function of public services better through a series of reforms that aim to empower social organizations, rather than just institutional

regulations.

#### 4 Conclusions

In the end, although we tried to imagine that the activism is a good choice, it is not a complete denial of institutionalism, but stressed that all the institutions should only be security factors in the new period and serve the multi-governance action to be carried smoothly and orderly. It can be expected that the public policy instrument will realize the transcendence of institutionalism and the practice of the activism path in the sublation of institutionalism.

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## Transformation of China's Food Safety Risk Communication Mode in the Context of "Internet +" \*<sup>1</sup>

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**Abstract** Based on the participation of diversified subjects, the food safety risk communication is regarded as the interactive communication pattern, focusing on the two-way communication. The openness and interaction in terms of communication between people are becoming increasingly prominent in the context of "Internet +". Because of the relatively hysteretic recognition of food safety risk communication, the traditional unitary information release mode in the context of "Internet +" is facing great difficulty, such as the inactive subject participation, the limited communication field, the rigid operation mechanism. Therefore, in light of the successful experience of foreign countries, the China's food safety risk communication ought to attain transformation by diversifying the subjects, broadening the communication field and creating the two-way communication mode. Meanwhile, it is supposed to promote the perfection of the system, the construction of the operation mechanism and the enhancement of the supporting measures, with the purpose to guarantee the effectiveness of the operation of the mode.

**Key words** Internet +, Food safety, Risk communication, Mode transformation

### 1 Introduction

Food safety risk communication refers to the communication and interaction of the scientific food safety information among the government, academia, corporations, media and consumers(Mao Qiong-an, 2013<sup>[1]</sup>), which occupies an indispensable position in food safety risk management. Successful food safety risk communication not only enhance the awareness of risk of target groups, but also change the behavior and attitude of target groups towards risk, which will reduce the impact of risk and achieve the understanding and cooperation during the process of risk decision-making. (Frewer L J, Fischer A R H, Brennan M, Bánáti D, Lion R, Meertens R M, Rowe G, Siegrist M, Verbeke W, Vereijken C M J L, 2016<sup>[2]</sup>) With the profusion of "Internet +"<sup>1</sup>, the convergence of Internet technology and food safety risk communication will generally change the operating environment of the previous food safety risk communication mode. On the one hand, food safety information flows freely without the shackle of time and space, accelerating the realization of communication. Various social subjects are able to obtain food safety information through the Internet platform. On the other hand, not only does the Internet promote the rapid transmission of information, but it also creates opportunities for a variety of food safety rumors. Local food safety issues are likely to be affected by the rumors, causing a nationwide public fear of food safety. The traditional governmental unitary information release mode is bound to face the challenges, such as the information asymmetry between the enterprise and the public, the distrust of public on the government information, the more far-reaching impact of food safety rumors on public. Thus, unitary information release mode has no choice but to transform. How to promote the integration of "Internet +" with government information?

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<sup>1</sup>"Internet +": Premier Li Ke-qiang proposed "Internet +" plan for the first time in the government work report on March 5th, 2015 at the third session of the Twelfth National People's Congress to promote the combination of mobile Internet, cloud computing, big data, Internet of things and modern manufacturing. It specifically refers to "Internet + all traditional industries", instead of a simple addition, making use of information and communication technology and the Internet platform to deeply integrate the Internet and the traditional industry and create new development ecology.

How to eliminate the information barriers in food safety supervision at all levels? How to speed up the construction of information communication platform and enhance the integration and analysis of data? The above-mentioned problems must be taken into account in the transformation of food safety risk communication mode.

## **2 The deficiency and reason of unitary information release mode in the context of “Internet +”**

### **2.1 Status of the unitary information release mode**

China's unitary information release mode is a kind of government-controlled one-way information notification mode. The subject of the mode, the food safety management authority, determines the way of publicity and the degree of food safety risk information. Other subjects other than the government are the participants of the risk communication activities, and passively accept the information conveyed by the government. As a one-way mode of information dissemination, the unitary information release mode is a top-down information transmission process. It can be seen that China's food safety risk communication mode is characterized with unitary subject, manipulated content and one-way operation.

#### **(1) The effectiveness of the unitary information release mode**

China's unitary information release mode, under the guidance and constraint of relevant legal norms, has achieved some accomplishments. First of all, the public awareness has improved. According to the statistics of the survey conducted by Chinese Association of Science and Technology, 6.20% of Chinese citizens in 2015 is blessed with scientific quality, with nearly 1 time increase compared with 3.27% in 2010.(Xinhua News, 2015<sup>[3]</sup>) It shows that, haunted by the government's food safety knowledge and information, the public acquire some certain awareness of food safety. Secondly, the construction of government information dissemination platform has been accelerated, with the central government and the provincial government-related regulatory agencies according to their respective functions establishing corresponding platforms for food safety information disclosure. The platforms set up a special food safety information disclosure section in their portals or food safety Information disclosure network, focusing on the release of relevant information. Third, within the unitary mode, the local departments of food safety supervision are forbidden to publish the food safety information they collected at random on their own.

#### **(2) The deficiency the unitary information release mode**

First of all, the subjects are inactive in participation. Basically, the government takes charge of everything from macro level to micro level, such as the framework of the policy formulation, the implementation and the supervision of the policy. The public are regarded as the “student” accepting the food safety education and receiver receiving the food safety information, and passively participate in the communication of food safety risk information. Experts are employed by the government, providing legitimate basis and guidance to the government decision-making. The mainstream media affiliated to the government provide a platform for the government to publish information and educate the public. The non-mainstream media with a wider contact with the public, on the contrary, are subject to government exclusion, whose voices are difficult to produce an essential impact on the decision-making of risk management. More often than not, enterprises are not willing to release their own food safety information to the public out of their individual interests. Judging from the above-mentioned facts, China's food safety risk communication is concerned with only a small number of people.

Secondly, the content of communication is limited. With the guidance of China's unitary information release mode, food safety risk communication is mainly related to the national food safety situation, food safety risk warning information, major food safety accidents and the investigation and result of the accidents, and other unified information that controlled and released by the State Council. The relevant law does not make specific provisions on the specific contents and the external manifestations of the information. The government determines the criteria on whether it is appropriate to release the information. The public participation is scarce and the public interest directly related to the information is rather rare. Information released by the government on food safety usually depends

on the severity of the issues, and information dissemination is not normalized.

Thirdly, the government-oriented system of food safety risk communication mode will result to rigid operational mechanism. The government publishes food safety information and educates the public about food safety in order to promote the public awareness of the food safety risk, understand the decisions made by the government and obey the governmental risk management. The whole process relies on the government decision-making and lacks external force to promote the long-term operation.

## **2.2 The cause of the deficiency of unitary information release mode**

First of all, the legal position of the subjects is not clear, resulting in the lack of the legal guidance to the participation of the subjects. Article 23 of the newly-revised Food Safety Law stipulates the subjects of food safety risk communication, but does not stipulate the status of these subjects in risk communication. From the point view of government administration, the law endows the relevant organizations or individuals with the right of supervision to the public and the social organization, but how to achieve the rights are not involved, which is regarded as the reflection of engaging in the communication. In terms of experts, Article 17 embodies the status of risk assessment experts as government subsidiary. However, the identity of experts as providers of relevant food safety risk information is ignored by the law. In terms of enterprises, the law stipulates the corporate production responsibility including controlling the food safety standards, complying with the provisions of food safety production, the implementation of the food recall system. It is obvious that the enterprise is the subject of being supervised rather than the one participating in the communication.

In addition, due to the lack of the ability of public participation, the public is rather difficult to participate in the communication. The deficiency of public participation ability is reflected as follows. On the one hand, the general public is lacking in professional quality, especially the scientific awareness of food safety and they judge food safety issues merely depending on perceptual knowledge and previous experience, which is totally different from government and experts. Besides of the insufficient scientific awareness, the general public's emotions can easily be ignited by food safety incidents and they are vulnerable to the exaggerated reports by the social media. On the other hand, the general public are unconscious in participation resulting from the traditional Chinese "official standard" administrative culture and "government regulation" administrative ecology. Thus, the general public have accustomed to the passive acceptance of government regulation and the scarcity of public spirit.(Sun Bai-liang, 2010<sup>[4]</sup>) It is difficult for the general public to realize the leading role in the food safety risk communication. The social organizations are dependent on the governmental support in terms of staffing recruitment, resource allocation. Their functional performance is the demonstration of government power. The lack of independence is the main reason why Chinese social organizations are difficult to achieve substantial participation.

Finally, the intensity of the government informationalization construction is not enough achieve two-way communication. In general, the government does not take enough efforts in information platform construction. First of all, information platform mainly focused on information dissemination, without substantive information feedback channels. For example, public information websites founded by some governmental food safety regulators provide invalid links, without connecting the government with the public. Second, the government does not make the best use of the new media. Following the pace of newspapers, television, radio, books and other traditional media and characterized by digital, Internet technology, new media has become the primary means of public information. The government has begun to exert these information tools, but simply releases some food safety news, without the awareness of guiding public opinion in virtue of new media.

## **2.3 The necessity of the transformation of China's food safety risk communication mode in the context of "Internet +"**

First of all, the mode transformation is the inevitable choice to conform to the reform of the government system. China conducted reform on food safety supervision system in 2013 and established the State Food and Drug Administration,(Wu Ling-hai, Xu Ling-ling, Yin Shi-jiu, 2015<sup>[5]</sup>) and the State Council established the risk communication responsibilities of the State Food and Drug Administration.(Yin Quan, 2015<sup>[6]</sup>) The State Food and Drug Administration is specifically responsible

for China's food safety risk communication, no longer relying on government information release and becoming a special government work.

Secondly, the mode transformation is necessary for the practice of legal system. Article 3 of the newly-revised Food Safety Law of China proposes the concept of collaborative governance. The collaborative governance of diversified subjects is not the simple cooperation between government and social organizations, but the game and cooperation between government and government, between government and market subjects. To achieve the collaborative governance of diversified subjects, a two-way communication mechanism is an indispensable cornerstone. The new Food Safety Law extends the subject of food safety risk communication to risk assessment experts, production operators, the third parties, relevant associations and news media out the range of the government. The communication of risk information is no longer the government-oriented one-way information release but the joint participation of experts, media, industry associations and social organizations. Obviously, China's food safety risk communication mode needs to be adjusted because of its current deficiency.

Finally, the mode transformation is a necessary condition for achieving public participation. The awakening of the public awareness and the increasing concerns on the food safety will raise a higher demand for food safety risk communication. The public participation in food safety risk communication not only demonstrates the public impact but also serves as an approach to realize public rights. Previously, food safety risk communication is dominated by the government and other non-governmental subjects can only passively accept the government arrangements. The public cannot fully understand the related food safety information and cannot publish their views and thoughts on food safety. The food safety risk communication internally formed the shackles of public participation and the only way to break the shackles is through mode transformation.

### 3 Reference to the foreign food safety risk communication mode

In the context of global blossom of the Internet, the integration of Internet technology and food safety risk is not unique to China. (Barbara Pfetsch, Daniel Maier, Peter Miltner, Annie Waldherr, 2016<sup>[7]</sup>) Therefore, it is meaningful to explore foreign advanced food safety risk communication mode in the context of "Internet +". Foreign food safety risk communication boasts a long history in development and practice of the policy, forming a more advanced mode of operation. "Knowledge deficit mode"<sup>1</sup>, "democratic evaluation mode"<sup>2</sup> and "education" + "participation" mode<sup>3</sup>, (Zhang En-dian, 2015<sup>[8]</sup>) represent food safety risk communication modes in the United States, the European Union and Japan respectively. The communication modes of these countries or regions and the changes that have taken place in China will produce a beneficial and positive reference for China's innovation in food safety risk communication mode.

#### 3.1 America's food safety risk communication mode: Knowledge deficiency mode

America's knowledge deficit mode emphasizes the public science and reason and all the work are carried out to improve public rationality. The US Food and Drug Administration (FDA) takes specific responsibility for the US food safety risk communication mode, proposing results-oriented risk communication and emphasizing its guiding role as the subject of risk communication. With the

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1 "Knowledge deficit mode": Literally, the word "knowledge" reflects that it advocates scientificity. Knowledge is the top priority in the conduct of risk communication. Obviously, the "deficit pattern" proposed by the sociologist Professor Brian Wen is a concept cited from scientific sociology and later sociologists applied the concept to the public understanding of science, which is established on the gap between public understanding and the scientific basis. It is generally believed that the publicity of universal science by experts can improve the public's scientific awareness. In general, the knowledge deficit mode believes that science is an objective truth external to society and the objective truth is mastered by the experts.

2 "Democratic evaluation mode" is the integration of the theory of communication behavior and the theory of negotiated democratic concept proposed by Habermas. In light of democratic evaluation mode, the risk communication is a comprehensive activity engaging risk managers, experts, stakeholders, the general public and other groups and it is a rational decision-making process to control the risks through negotiations and judgments.

3 The "education" + "participation" mode adopts the scientificity of the knowledge deficit mode and the acceptability of the democratic evaluation mode forming a comprehensive mode.



purpose to promote the openness and transparency of risk communication and ensure that the public make correct choices and judgments on the basis of the government decision-making, the FDA in the United States will publish the information on laws and regulations and related industry standards to the whole society and will arrange experts to explain to the public. The FDA emphasizes the development of risk communication plan, investigating and analyzing acceptance and perception of risk to different communication objects. On the basis of deep understanding of public preference and demand for risk communication, the FDA makes the risk information in accordance with different communication objects. In addition to the Food and Drug Administration, the US Center for Disease Control and Prevention attaches great importance to the usage of Internet technology in risk communication. If an emergency food safety incident occurs, the US CDC establishes “gov” and “emergency” and other accounts on Twitter in order to enable people to realize the risks, shortening the incident information into microblog information to achieve the timely dissemination among the crowds. Meanwhile the US CDC creates the direct dialogue and communication with the audience. “Facebook” social network site of US CDC publishes the latest health information and establishes an active participatory network to interact with friends through the release of articles, web links, sharing, message, and other ways. Mobile information platform will send text messages to the subscribers per week so that the public can timely understand of food safety knowledge, emergency treatment and other knowledge. (She Shuo, 2017<sup>[9]</sup>)

### **3.2 EU’s food safety risk communication mode: Democratic evaluation mode**

The EU attaches great importance to the direct participation of the public in the risk communication and focuses on the social organizations’ bridge role between risk managers and the public on the basis of joint engagement in the risk communication, such as risk regulation agencies, technical experts, stakeholders and the general public. The EU food safety risk communication is centered on the European Food Safety Authority (EFSA). EFSA includes consulting forums, management committees, scientific committees and panels.(Ma Renlei, 2013<sup>[10]</sup>) The main function of these agencies is to provide scientific advice and define communication views on the food safety incidents in order to ensure that risk management is carried out in a timely and effective way. Additionally, they, directly or indirectly, are able to disseminate related food safety information to the public through various means to maximize the disclosure and transparency of food safety information. The relevant external groups are risk assessors, managers, risk policy makers, stakeholders (Including environmental organizations, consumers, health organizations and other non-governmental organizations, industrial organizations), and media and other related groups or organizations related to food safety issues. In general, according to different audiences, the EFSA will choose the relevant interest groups and organizations as an intermediary when communicating with consumers indirectly. However, the EFSA has direct communication with consumers mainly through the websites, newspapers, hotline and other forms.(JD Mcevoy, 2016<sup>[11]</sup>) In order to enhance the “interaction” in food safety risk communication and ensure that food safety information can really help the public to make scientific and rational decision in the field of food safety, the EFSA makes use of the Internet technology to build a stakeholders’ advisory platform, through which the EFSA can receive timely feedback from stakeholders and carry out hearings on important scientific issues, achieving face to face information communication and ensuring that food safety information promote the public to make scientific and rational choice.

### **3.3 Japan’s food safety risk communication mode: “education” + “participation” mode**

Japan’s “education” + “participation” mode, adopts the scientificity of the knowledge deficit mode and the acceptability of the democratic evaluation mode. The Food Safety Committee, as a neutral third party, is responsible for the food safety risk communication and does not represent the interests of any subject in Japan, which is directly affiliated to the Cabinet. (Wang Fang, Chen Song, Qian Yong-zhong, 2008<sup>[12]</sup>) It assesses the risks of food safety and provides food safety information for relevant audiences and government agencies in risk communication. The Food Safety Committee includes an expert committee on risk communication and a secretariat, which are responsible for the food safety risk communication with the public. The public provide feedback and suggestions to the FSC through websites, hotline and so on. In terms of the food safety risk communication mechanism,

Japan sets up view exchanging meeting, stakeholders' information exchanging meeting, the official website, consulting hotline and other information communication platform, which make great contribution to the realization of two-way communication. Internet technology has provided effective support for the construction of these platforms. Japanese people can immediately understand the current situation of food safety and government supervision through the website. For the difficult technical terms and food safety standards, consumer department will specify through the official website. (Wang Yi, Sun Zong-yu, 2015<sup>[13]</sup>) With a strong technical form of food safety risk information, Japan attaches great importance to the development of public risk quality. Japan has launched "Basic Plan for Food Promotion" for people at all levels in accordance with the Basic Law on Food. Besides, the Food Safety Committee also conducts professional crisis training for the media, and convenes journalists for professional knowledge training through conversations and learning sessions.

The US knowledge deficiency mode, the EU democratic evaluation mode and the Japanese "education" + "participation" mode all demonstrate strong scientificity and superiority in the real operation. First of all, they emphasize on diversified subjects participation and risk communication. Food safety problem in any country is a major social problem. It is difficult to achieve the true success of the risk communication by the government alone. Therefore, the diversified subjects should strengthen the mutual communication and cooperation. Secondly, they establish mechanism to promote the operation of the risk communication. The government information to the public can raise public awareness of food safety, and public information feedback can deepen the government recognition of food safety situation, so as to improve the effectiveness of food safety risk communication. Therefore, in addition to sending information to the public, the public information feedback should be paid attention to, creating a two-way communication mechanism. Because of the cognitive differences between the experts, scholars and ordinary people, ordinary people tend to show their disbelief or misunderstanding to the food safety information. The establishment of risk quality raising mechanism can promote the operation of risk communication more effectively. Finally, they integrate Internet technology into food safety risk communication. Safety risk communication becomes more scientific and convenient with the strong technical support.

#### **4 China's selection of the mode for food safety risk communication in the context of "Internet +"**

In the era of "Internet +", China should choose a mode for food safety risk communication to achieve the exchange of information on food safety on the basis of the characteristics of the Internet economy. Under the guidance of the idea of collaborative governance, the government keeps improving the food safety supervision and its governance ability. The cultivation of public reason must be valued due to the generally low-level public perception of food safety. In addition, social organizations are imperfect and have a strong dependency on the government. The above characteristics show that China is more suitable for Japan's mode of "education" + "participation".

##### **4.1 Components of the new mode**

The first component is diversified subjects. The new mode for food safety risk communication should be the communication mode with the participation of food and drug supervision and administration departments, food safety risk assessment experts, food producers and marketers, third-party institutions and social organizations. Those subjects can be divided into operating subjects and participants according to different roles of different subjects. The operating subjects refer to the institutions that organize and guide other subject to carry out risk communication in the mode for food safety risk communication. Compared with other organizations, China's government has outstanding advantages in power and information. The operating subjects should be the food and drug supervision and administration departments. Experts, the media, the industry association, producers and marketers should actively participate in risk communication and exert an effect on food safety governance decisions under the guidance of food and drug supervision and administration departments. Experts provide the risk knowledge and information on food safety and clearly explain relevant knowledge. (Qi Jian-gang, 2011<sup>[14]</sup>) Major functions of relevant industry associations are providing information consultation, technical training and other services for organization members, providing industry data

and statistical analysis for the introduction of government's public policies, publishing industry information and others. (Li Jing, 2016<sup>[15]</sup>) The media mainly publicizes and reports some relevant information and laws and regulations on food safety. Food producers and marketers publish relevant information regularly or irregularly and provide true information on food safety for effective communication with customers. (Lv Ji-bin, 2016<sup>[16]</sup>) The second component is extensive communication content. Information on food safety should be closely related to relevant interest subjects and should not be separated from relevant subjects to be manipulated by the government. From the information scope, information on food safety should include the information involved in the communication within the supervision system and between government departments, between the government and enterprises, between the government and the public, and between the government and social organizations. From the information content, besides the information obtained from the assessment, supervision and management of food safety, the information on food safety laws and regulations and policies, food safety standards and the government's risk monitoring should be involved. The third component is multi-dimensional two-way communication. The risk communication with the participation of diversified subjects includes the interactive communication between the government and the public, between the government and other social subjects (scientists, social organizations, the news media and others), between the public and other social subjects (scientists, social organizations, the news media and others), forming multiple dimensions. Those dimensions center on the dimension of the government and the public to realize the goal of improving the reason of the public.

#### **4.2 Reasonable basis of the new mode**

The new mode interprets the connotation of the concept of collaborative governance. The word "collaborative" reflects the participation of social subjects and the exertion of social subjects' responsibility consciousness. The wide scope of subjects of the new mode includes both the government and the public and other social organizations, which is reflected in the participation of social subjects in the mode for food safety risk communication. The phrase "collaborative governance" reflects the equality between subjects and the process where the diversified subjects adopt collective actions after game and negotiation. The premise of communication in the new mode is the equal status between subjects and the control of another subject by any subject cannot realize true communication. The goal of communication is to make decisions conforming to collective views. Actually, the new mode is the specific operations under the guidance of the idea of collaborative governance. In addition, the new mode reflects the essence of socialist democracy, that is, people being the masters of their own country and their roles in administering state affairs being stressed. In the new mode, the public can participate in food safety supervision and put forward advice on the government's food safety supervision work and express views on food safety issues. In addition, those advice and views will exert a certain influence on the decisions of food safety governance. Therefore, the whole process of food safety risk communication in the new mode reflects people's exertion of national rights and the public's master status in the field of food safety.

#### **4.3 Operation guarantee of the new mode**

##### **(1) Strengthen the system construction of the mode for food safety risk communication**

Firstly, improve the legal systems on risk communication. Now, the newly revised Food Safety Law with only one regulation on food safety risk that mainly involves the subject and content of risk communication needs to be improved for it has difficulty guiding the operation of the new mode. Therefore, the generalized provisions on food safety risk communication in the newly revised Food Safety Law are refined by relevant implementation rules. The subject participating in the comprehensive review mode that is dominated by the government should be identified clearly and the object of risk communication should be refined and interpreted. Secondly, improve the release system for information on food safety. On the one hand, the subject of information release should be improved to ensure that the information released by relevant subjects can be joined together instead of stipulating the grading rule of the government's information release. Media reports and experts' scientific explanation in social practice remain to be regulated. On the other hand, the release procedure of information on risk communication should be perfected to exert the leading role of the government in daily food safety risk communication and strengthen the release of daily information on food safety.

Thirdly, establish a risk communication supervision system. The government's decisions need to be supervised. In addition, the government's organization and guidance of food safety risk communication needs to be restricted and supervised by relevant systems. Otherwise, relevant government departments will be prone to muddle with their work or some departments even deliberately hidden information.

(2) Establish an effective operating mechanism for food safety risk communication mode

The mechanism of benefit coordination is the mechanism for the internal integration of the subjects of food safety risk communication to ensure the participation of diversified subjects of interests. The risk communication under the new mode does not refer to separate speaking among subjects, but means that all social parts mutually exchange true information through the communication platform by focusing on their positions and put forward their views and ideas on problems on the basis of common interests. The realization of the above situation needs to be guided by the mechanism of benefit coordination. The mechanism of quality cultivation on risk is a means of internal reinforcement to ensure the orderly communication among subjects under the rational guidance. Both the government as the operating subject and the social organizations and individuals as the participants should have a certain quality or the strong technicality of the form of food safety risk communication. The government's grassroots units should especially pay attention to the quality cultivation on food safety and strengthen the training of information on risk communication to ensure the professional quality of grassroots staff, improve their efficiency in the completion of risk communication tasks, and create a better environment for the development of China's food safety at the same time. (Wu Shuai, 2015<sup>[17]</sup>) Due to the knowledge level of the public (namely, the public's knowledge of food safety) will influence the effect of food safety risk communication, more propaganda campaigns on popular science should be carried out by relevant staff. Moreover, we should pay attention to improve the media's ability to respond to crises and increase the media's related professional knowledge.

(3) Enhance the support for the supporting measures of the mode for food safety risk communication

Firstly, increase suggestion channels for food safety risk communication. The government should increase its investment and perfect the contact channels between departments to realize information sharing between departments because the increase of suggestion channels can increase the flow of information between departments. The government should enhance the propaganda of information on food safety and risk to achieve the spread channel of multiple forms. Secondly, improve the construction of food safety information platforms. With the rapid development of the Internet, the exchange and communication of food safety information among subjects needs unified and open platforms for food safety risk communication. Otherwise, the food safety risk communication will become inefficient and relevant information cannot be received. The construction of information exchange platforms is one of the main tasks of the government to carry out food safety risk communication. The information platforms between relevant departments should be reorganized and integrated for resource sharing and improved resource utilization. Thirdly, strengthen the support for social organizations. Social organizations are both the subjects that directly participate in the communication and the intermediary between the government and the public. Government organs should strengthen industrial self-discipline and social supervision for the support in the aspect of organization operation. The government should reduce its political interference in social organizations to ensure the independence and autonomy of social organizations. Besides the policy of nonintervention, the government can provide financial subsidies for social organizations because the operation of social organization needs financial support.

## 5 Conclusions

In the era of "Internet +", more convenient information transmission and the increased amount of information received by the public propose greater demands on food safety risk communication. Realizing the transformation of China's mode for transformation is an important decision to adapt to China's national conditions in the era of "Internet +". With the help of the transmission mode of new forms in the era of "Internet +", China should promote the explicit supply of food safety information with the public's participation and realize the safe, orderly, virtuous and interactive risk information

communication. Moreover, the government should increase the investment in fundamental researches on risk communication, accelerate discipline construction, and pay attention to the improvement of the public's risk identification ability and the training of risk communication skills to media practitioners, to increase the effectiveness of risk communication.

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## Research on the Information Security Collaborative Governance in New Smart Cities under the Big Data Environment \*

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**Abstract** Under the information-guided, network-supported, data-oriented and service-based network information system in new smart cities, information security is not only a technical management problem but also a collaborative governance one. The top design of information security management should be improved to break the information “silo” and achieve information inter-connectivity; a unified platform for big data operations in cities should be built to achieve real integration and sharing of big data cross industries and effectively exploit the role of big data in “performing good governance, benefiting people, and promoting business”; an information security collaborative governance model for new smart cities that is led by the government and participated collaboratively by businesses, technology developers, and the public. The deep integration and iterative evolution of the new generation of information technology and urban modernization should be promoted to achieve the building of new smart cities characterized by more modern governance, more intelligent operation, more secure development, and more beneficial information.

**Key words** Big data environment, New smart city, Information security, Collaborative governance

### 1 Introduction

In November 2008, IBM introduced the idea of “Smarter Planet” at the Foreign Relations Council held in New York, leading to a boom of building smart cities. The “innovative, coordinated, green, open and sharing” development concepts put forward at the Fifth Plenary Session of the 18th Central Committee of the CPC in 2015 gave a new meaning to cities, and new requirements on the construction of smart cities were raised. In December 2015, Fan You-shan, General Manager of China Electronics Technology Group Corporation (CETGC), introduced the concept of new smart city in the industry for the first time at the Second World Internet Conference. At the NPC and the CPPCC in March, 2017, as a national strategy, “new smart city” once again became the focus of many representatives. Liu Wei, a deputy to the NPC, wrote in his proposal that “A core concept of the new smart city is the top design, which is generally problematic in China. Government departments do not share their data and there is no way to achieve information exchange in the whole community. This is an institutional problem.”

In the process of building a new smart city, there are many types of multi-level and multi-dimensional information security risks, especially the hidden dangers from uncontrollable technology, network attacks and information leaks that are hard to prevent. In recent years, with the expanding pilot range of “new smart city” technology and standard, “the coverage of mobile Internet and portable storage devices is expanding and are widely used in buildings, outdoor spaces, public spaces and private spaces<sup>[1]</sup>.” The widespread use of information and communication technologies is also a direct or indirect threat to the infrastructure security in cities, personal information and privacy. For example, the raging of “Extortioner virus” render the computers of many government agencies and enterprises paralyzed; the “Dark Cloud Trojan Variant” put the information security of many computer users under threat. In the future, the chain reaction caused by the threat of information security will spread to all walks of life and exert widespread impact in a sudden and destructive manner. Therefore, “the planning, construction and operation of new smart city are confronted with problems like information security threat and information security governance<sup>[2]</sup>.” For the information security governance in the construction process of new smart city, Liu Yuan-qiong said, “The existing policies and regulations of

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information security focus on confidentiality protection by isolating and segmenting a variety of information resources, which hinders the information integration, sharing and in-depth development in new smart cities<sup>[3]</sup>. Fan Yuan shared a similar view and pointed out that “For the construction of new smart city, the information security goal is not defined; the information security policies and regulations are lagging behind; the information security evaluation system has not yet been established; the information security responsibility sharing and the coordination mechanism are complex; there is no information security governance system; the information security literacy is poor<sup>[4]</sup>.” Guo Hua et al. argued that “The information security of new smart city should be approached from the top perspective to re-understand the changes in the information security management environment, analyze the challenges in information security governance, and establish the information security governance model for new smart city to adapt to and protect the construction and development of new smart city<sup>[5]</sup>.”

In summary, an information security governance model based on the collaborative governance theory should be built through the combing and summary of literature and in-depth analysis of typical cases. The model should be led by the government with collaborative participation of multiple parties, so that it can work and function collaboratively in diversified environments of new smart cities to adapt to and protect their construction and development. At the same time, the security construction idea of new smart city should be transformed from simultaneous construction to safety first; the relationship between new smart city and information security development should be correctly handled; the introduction and innovation of key technologies in new smart city should be encouraged to provide institutional and technical support for the building of “smarter” and “safer” new smart cities.

## **2 Environmental analysis for the information security governance of new smart city**

According to Guo Hua and Su Xin-ning, “Smart city is not only a carrier of new technology, it is also a unique urban form developed through the comprehensive use of information and communication technologies<sup>[6]</sup>.” In fact, compared to the traditional smart city, the new smart city is information-based and higher as it pays more attention to the happiness and satisfaction of people. The major shift from the focus on technology to the sharing of various types of information and people orientation gives the information security governance of new smart city new environmental characteristics.

### **2.1 Significantly increasing frequency of network use**

The significant increase in the frequency of network use is a major context for the information security governance of new smart city. 4G network has been fully rolled out and the new 5G era is coming soon. According to Fan Hui-wen from the Research Institute of Electronic Information Industry Development in China, “5G creates a ubiquitous and all-connected high-speed broadband wireless network environment where massive information is uploaded from all kinds of sensors and information systems to a data center and is then shared and applied to various types of clients, thus forming a network space to support the precise operation of smart city<sup>[7]</sup>.” According to the prediction of Microsoft, the number of people who have access to the Internet will reach 4 billion in 2020. The latest data from Machina Research, a market research company, showed that the number of connections to the Internet of Things is expected to increase to 27 billion by 2025 worldwide<sup>[8]</sup>. According to CNNIC, the 38<sup>th</sup> China Internet Development Statistics Report in 2016 indicated that there had been 710 million Chinese Internet users in June 2016. In other words, in the construction of new smart city, major information systems related to people’s livelihood and smart business such as “personal financial settlement”, “smart government affairs”, “smart traffic”, “smart car”, and “smart water affairs” connect networks that were isolated. However, information security issues also ensure and pose great challenges on the information security governance.

### **2.2 Accelerating cross-integration of multiple information**

With the rapid development of mobile Internet, information data in the virtual world rise quickly. How does the expansion of information such as the money, equipment and rewards received by “online celebrities” and “game characters” impact real data? Does the resulting information security issues require co-governance? How should we collaborate and govern? In addition, how are the massive documents, pictures, videos, e-mails, web pages, microblogging and other different types of data stored

safely? Can relevant stakeholders ensure security governance over structured data and unstructured data and make them recoverable through collaborative development of cloud computing, big data and cloud data? Li Yong argued that “Smart city construction is confronted with multiple information security risks, but due to the uncertainty of the technology itself and changes in information security needs, it is impossible to pre-assess the existing risks and their consequences<sup>[9]</sup>.” Therefore, another change in the information security governance environment of new smart city information is the cross-integration of multiple information.

### **2.3 Booming new smart business**

In order to better serve the people, the information system of new smart city is expanding in both number and scale. CETGC, Huawei, ZTE and many other manufacturers have been engaged in the construction of new smart cities. CETGC initiated a business alliance for “New Smart City” with 19 domestic and foreign enterprises and 3 colleges and universities. Huawei built “One Cloud Two Networks Three Platforms” and built a smart city ecosystem with iSoftStone and Taiji Computer Company. ZTE put forward the concept of Smart City 3.0 in which the operation of big data is the core. “Smart government affairs”, “smart industry”, and “smart livelihood services” have sprung up. The construction of new smart city takes on a diversified and vigorous development trend, while information security dynamic trust and trust boundary issues emerge.

## **3 Analysis of problems in information security governance of new smart city**

In China, there is a boom of constructing new smart cities. However, concerning the effect, many people do not feel the “smartness” or “benefits” that comes along. Instead, they are disturbed by “new troubles while the old ones are left unfixed”. Traffic congestion, air pollution, and urban inland inundation are not addressed, while new problems like lagging institutional mechanism, pilot management or cooperation of different administration branches, a lack of standard regulatory system, and information security hit frantically. In particular, the impact of information media, security technology, management system, policies and regulations, and citizenship quality on the information security of new smart city will be grim.

### **3.1 Lagging top design of information security**

Song Ying-chang thought that “The smart city governance is fruitful as a number of new technologies have been applied, some urban management ills are being resolved, and smart governance modes of different characteristics are taking shape<sup>[10]</sup>.” More typical examples include: “Chengdu: the Innovative All-process Medical Platform of West China Second University Hospital on WeChat”, “Beijing: Smart Transportation Services to Meet Needs”, “Shanghai: Library Borrowing Services with Unique Local Characteristics”; “Guangdong: Smart Livelihood at Fingertips”, and “Qingdao: Construction A Livelihood Service Hall in Mobile Phone”. It is worth noting that amid the relevant achievements are the exposed lack of top design and overall planning in the process of building smart cities, which is the root cause for the frequent occurrence of information security risks. The information ownership is fuzzy; the information system boundary remains uncertain; the information governance stages are disconnected; there is a lack of overall goal; the management system mechanism can not keep up with the development demand of new smart city. Due to poor management or cooperation of different administration branches and failed data docking and sharing of construction system, “information islands” still exist and information security problems appear one after another.

### **3.2 Imperfect information security emergency governance mechanism**

New smart cities are overwhelming; the information about smart city construction is highly centralized and puts forward higher requirements for information security. Sensing, communication transmission, application services, intelligent analysis and processing and many other aspects of new smart city are under increasingly serious security risks and vulnerabilities, which poses serious security threats on the sustainable development of new smart cities. In China, a set of mature emergency management mechanism has been formed. However, the relevant system is still not perfect enough to address information security emergencies arising from the construction of new smart cities. New smart city is the result of the deep integration between modern information technology and city, and it needs to break the information “silo” to realize information interconnection and real integration and sharing



of cross-industry big data. Some scholars believe that “Frequent, diverse, cross-border information exchange puts forward higher requirements on information security protection. However, the understanding of and the approach to the threats of information security vary greatly with countries and cities, and there is a lack of collaborative emergency management method to respond to the attacks launched from abroad<sup>[11]</sup>”. In addition, with the rapid development of Internet Plus, all kinds of virtual information and reality information are closely integrated, and information security has the characteristics of diversity and no boundaries. Moreover, the externality of information security investment overshadows the investment willingness of the government, enterprises, the public and other investors in cities. This is a great challenge to the early warning, collaborative processing and collaborative recovery of information security.

### **3.3 Serious poor information security literacy**

The new smart city is new in its space, life and governance. Instead of starting from “information technology” as in the past, it puts “people” at the most fundamental starting point and the foothold. Do we have to pay water, electricity and gas bills at bank? Do we still need to wait with stools for registering at hospital early in the morning? Will we be helpless if we forget to take money with us in cities? All these questions show that the construction of new smart cities will ultimately serve the masses. According to the relevant survey report, “Poor information security literacy is the biggest information security risk. Many information security experts have pointed out that a large number of employees who are not well-trained in information security are the biggest and most difficult loopholes to mend when preventing hacking breakout<sup>[12]</sup>.” Indeed, the decision makers and builders of new smart cities will be the ultimate beneficiaries. However, it now seems that some decision makers and managers do not develop good information security literacy and lack the concept of putting information security first. The absence of specialized information security system also exacerbates the information security risks.

## **4 Collaborative governance of multiple parties for information security of new smart city**

The information security of new smart city is no longer the responsibility of the government, business or a single party only; it is related to the happy life of the public. According to Jing Xiandong, “The new smart cities should make life better and save the trouble of waiting in line to consult a doctor, traveling with money, leaving home to pay bills, and borrowing books with cards. They need to truly benefit the people<sup>[13]</sup>.” To achieve this vision, it is imperative to build an information security collaborative model of new smart city that is led by the government and involves multiple parties including enterprises, technology developers, and the public. As Jane Jacobs puts it, “Only when everyone is involved in the information security governance, will new smart cities provide smarter and safer environments for all<sup>[14]</sup>.”

### **4.1 Collaborative optimization of the top design for information security governance**

The information security of new smart city requires scientific planning, connection, multi-linkage, and a standard and complete set of strategically advantageous program that adapts to local conditions. It should connect cross-sectoral service processes horizontally and cross-level service systems vertically. Enterprises are encouraged to research and develop projects similar to the “safe and controllable top design of new smart city” by Jinpeng Group. As the main body of new smart city planning and sometimes the main body of the construction and operation, the administrative organs should promote the development of smart environment in all fields and at all levels, plan and build service platforms with common features, and construct a supporting security management platform so that the information security mechanism can be quickly identified among different subjects<sup>[15]</sup>. In addition, the legislature should also introduce relevant laws and regulations to protect the information security of the state, businesses, and people when appropriate. At the same time, a special information security supervision and management department should be established to define the virtual and realistic information rights and better deal with diversified and cross-border information security risks.

### **4.2 Collaborative innovation of the emergency mechanism for information security governance**

Intensive basic resources are highly shared; a great deal of intelligent terminal equipment and

sensors are connected to the integrated networks of new smart cities; under the combined effect of big data aggregation and use and a variety of security factors, the traditional local defense and application-level information security has been unable to meet the requirement on the security protection of new smart cities. Therefore, an information security emergency governance mechanism that is led by the government and involved multiple parties should be innovated; the emergency plan exercise and handling mechanism should be improved; an information security emergency command, management, processing and service system composed of the network security data exchange platform, the big data threat analysis and processing center, and the network security emergency platform of smart city should be established.

First of all, the network security data exchange platform can process data from complex sources in a standardized way and can be used to connect different application nodes of new smart city and the data hub of network security emergency platform. Secondly, the big data threat analysis and processing center can process various types of data and information from the data exchange platform in a standardized way. Finally, “The network security emergency platform of smart city analyzes and processes the city information security data, track information security incidents and potential risks in real-time, assist in decision-making and command, and process security incidents and potential risks in conjunction with the emergency response system in real-time<sup>[16]</sup>”. Information security is the primary issue of the new smart city construction, and a perfect and sound information security emergency governance mechanism can protect the sustainable development of new smart city.

#### **4.3 Collaborative construction of a multi-level information security literacy cultivation system**

“The evaluation of new smart city is from bottom to top and people-centered; to evaluate a city from the resident’s perspective, the most basic standard is that the city should be perceivable, reliable and available,” said Zhang Xiao-feng, initiator of “Internet Plus” Committee of 100. It is safe to conclude that people play an essential role in new smart cities. Therefore, no single security company can manage to solve the increasingly fierce information security issues. The government, education departments, research institutes and other cultural suppliers should collaborate to create an information security culture and promote it through a variety of channels, both online and offline, with an integrated core. The decision makers, administrators, builders, technology developers and the general public involved in the construction of new smart cities may spend their “fragmented” time learning and cultivating an information security culture in the community to adapt to the new information security environment characterized by the significantly increasing frequency of network use, faster cross-integration of multiple information, and rapid increase of new smartness. The building-up of a universal information security culture is clearly the most solid firewall for the construction of new smart city.

## **5 Conclusions**

Obviously, a big new smart city can not be built by a party only, and information security is the responsibility of more than one subject but related to government departments, providers of smart city application, integrators, smart city service operators, third-party security assessment agencies, smart city standard research and evaluation agencies, planning and design advisory agencies, and the general public. An information security closed-loop system should be established, with the cloud data center as core; information security policies and regulations, system standards, and technical guidelines as guidance; the information security operation mechanism as protection; and information security technologies, products, systems and platforms as support. An information security collaborative model of new smart city that is led by the government and involves multiple parties including enterprises, technology developers, and the public should be built. An innovative information security emergency governance mechanism should be established. An information security cultural training system should be set up. Finally, a new “truly” smart city that is more open, more secure, more convenient and more modern, with such characteristics as universal participation, diversification, collaborative sharing, green and sustainable development, should be developed.

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# Study on “Electronic Information + ‘One University, One Belt’ ”<sup>1</sup> Strategy for Developing Regional Innovation and Entrepreneurship Center in Chengdu\*

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**Abstract** Nowadays, with the new round of global technological revolution and the accelerating industrial revolution, innovation driving has become the core in country’s sustainable development, and the construction of international influence and competitive regional innovation and entrepreneurship center has become one of the critical path to promote regional sustainable development. This paper based on the “Triple Helix Theory” and from the perspective of collaborative innovation government-industry-university-research-user, with the “One University, One Belt” strategy proposed by the University of Electronic Science and Technology of China as the background, the “Electronic Information +” strategy as the breakthrough point, with the depth of cross and integration of this two strategy to promote the construction of regional innovation and entrepreneurship center as the research object. First, we illuminate the concept of the strategies, the regional innovation and entrepreneurship center and the mechanism of this two strategies’ integration. And then, combined with the 2017 “National 17 Cities Innovation and Entrepreneurship Index Ranking”, we analyzed the construction situation of the regional innovation and entrepreneurship center with the following three aspects: technological achievements’ transformation, innovative resource’s collection and the cultivation of the innovative environment, and put forward some strategies and proposal. At last, we hope to use the “Electronic Information+ ‘One University, One Belt’ ” strategy to promote the construction and development of international competitive regional innovation and entrepreneurship center.

**Key words** “Electronic Information +” strategy, “One University, One Belt” strategy, Innovation and entrepreneurship index, Regional innovation and entrepreneurship center

## 1 Introduction

With the rapid development of the integration of world economy, science and technology, a new round of scientific and technological and industrial revolution has accelerated in the world. Technological innovation has become the critical breakthrough point and growth point to enhance competitiveness and the sustainable development for every city and country. In china, the 18th National Congress of the Communist Party of China proposed the implementation of innovation driven development strategy, then issued “on deepening the reform of mechanism of system to accelerate the implementation of innovation driven development strategy of opinions”, “national innovation driven development strategy outline” and other policies and regulations to accelerate its implementation, and put forward the completion in 2050 of world science and technology innovation powerhouse “three steps” strategic objectives. Meanwhile, various provinces and municipalities promulgated policies and regulations and implemented them in depth. Chengdu as the key city of constructing national innovation comprehensive reform pilot area in Sichuan province, through the “Communist Party of China Chengdu Municipal Committee on promoting the overall innovation system reform to speed up

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1 “One University, One Belt” strategy: In September 2015, University of Electronic Science and Technology of China and Chengdu High-Tech Zone Administrative Committee signed a cooperation agreement to build “Chinese Silicon Valley” and national independent innovation area in Chengdu Hi-Tech Zone.

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the construction of international influence of the regional innovation and entrepreneurship center” at the Sixth Plenary of the 12th Session of the Municipal Party Committee, and issued the “Chengdu innovative city construction 2025 planning” in 2016, put forward the target of “building Chengdu as an international competitive regional innovation and entrepreneurship center”, that means initially built Chengdu as the national innovation oriented city in 2017, as international innovation oriented city in 2020 and as the international competitive regional innovation and entrepreneurship center in 2025.

Under this background, this paper based on the based on the “Triple Helix Theory” and from “the perspective of collaborative innovation government-industry-university-research-user”, with the University of Electronic Science and Technology of China of “One University, One Belt” strategy as the background, the “Electronic Information +” strategy as the breakthrough point, with the depth of cross and integration of this two theory to promote the construction of regional innovation and entrepreneurship center as the research object. First, we analyzed the relevant contents, and then put forward related innovative and feasible proposals to promote the construction and development of Chengdu as the international competitive regional innovation and entrepreneurship center.

## 2 Basic conception and theoretical basis

### 2.1 Basic conception

#### 2.1.1 “Electronic Information +” strategy

Based on the “Internet+”, in 2017, according to the needs of the times and the characteristics of the school, University of Electronic Science and Technology of China put forward the “Electronic Information +” development strategy, namely, the cross fusion of electronic information technology and various fields. Li Yan-rong indicate that electronic information is a synthesis technique to realize the obtainment, transmission, storage, process and display of the information, and it takes the electronic production, transmission and function as its physical characteristics, take signal, circuit and field as its technical characteristics. “Electronic Information +” is not limited to the cross fusion of an electronic information technology and other industries, but stressed that the entire electronic information industry in all aspects of convergence with all walks of life<sup>[1]</sup>. Zhao Ji-dong consider that the aspect which is used to unite with the electronic information is industry and region, that means “One University, One Belt” is a part of “Electronic Information+ region”. “Electronic Information +” is the biggest opportunity and resource we are facing, and constantly exploring the direction and path will be the key to innovation and sustainable development.

#### 2.1.2 “One University, One Belt” strategy

In September 2015, the Chengdu Hi-Tech Zone Administrative Committee and University of Electronic Science and Technology of China signed the “framework agreement of comprehensive strategic cooperation”, to vigorously implement the construction of “One University, One Belt” project which takes “Internet+” as its core and innovation ecosystem as the goal. The two sides will jointly build the innovation demonstration area which based on the integrative development of University of Electronic Science and Technology of China(One University) and the university’s achievement transformation zone(One Belt) in Chengdu Hi-Tech Zone (that is, to build a Hi-Tech Zone of Chengdu National Innovation Demonstration Zone)—“Chinese Silicon Valley”, to promote the common development of both sides; at the same time, based on the core: “Internet+”, in the surroundings of Qingshui River Campus of University of Electronic Science and Technology of China, the two sides will jointly create an innovative ecosystem which contains the following functions: education and training, incubation and transformation, accelerate the development and so on<sup>[2]</sup>. Among them, “Comprehensive” means that the field of cooperation is comprehensive, covering all aspects of innovation and entrepreneurship of the electronic information industry. “Strategy” refers to the regional future development and the endogenous development of the electronic information industry<sup>[3]</sup>. The strategy of “One University, One Belt” is the concrete practice of the cooperative mode of “Industry, University and Research”, and is an important mode of school land cooperation to promote the innovation of science and technology and the sustainable development of regional economy.

#### 2.1.3 Regional innovation and entrepreneurship center

Nowadays, in the academic circle, there is not a direct and uniform definition for the concept

“regional innovation and entrepreneurship center”. Related concepts such as the Global science and technology Innovation Center, has been proposed by the United States “Online” magazine in 2000, and it was considered that it includes at least the following elements: The ability of local universities and research institutions to develop new workers or develop technology skills; providing professional technology and bring enterprises and multinational companies with stable economic; people have the enthusiasm of building enterprise risk and the market risk capital availability that make good ideas to successfully enter the market<sup>[4]</sup>. Du De-bin thinks that the essence of Global S&T Innovation Center is a city or an area which has intensive global science and technology resource, concentrated technological innovation activity, abundant technological innovation strength and innovative achievements of a wide range of radiation, and thus the city or area could play a significant value-added function in the global value grid and occupy a position of leadership<sup>[5]</sup>. Chen Bo thinks that the evaluation index system of Global S&T Innovation Center consists of eight levels, namely: innovation resources, innovation industrial, innovation input, innovation carrier, innovation achievements, innovation culture, innovation and entrepreneurship and innovation influence<sup>[6]</sup>.

Based on the above concept, combined with the purpose of building Chengdu as a international competitive regional innovation and entrepreneurship center in 2025. In this paper, we think that the regional innovation and entrepreneurship center refers to a region based on the regional advantages and characteristics, to create a number of innovative “engine” with international influence and competitiveness, and form high-end industrial enterprises cluster, innovation resources and the gathering place of high-end talent. Meanwhile, there are a series of integrated facilities and wholesome public service system, the innovative ecosystem and culture of the whole region embed into every aspect deeply.

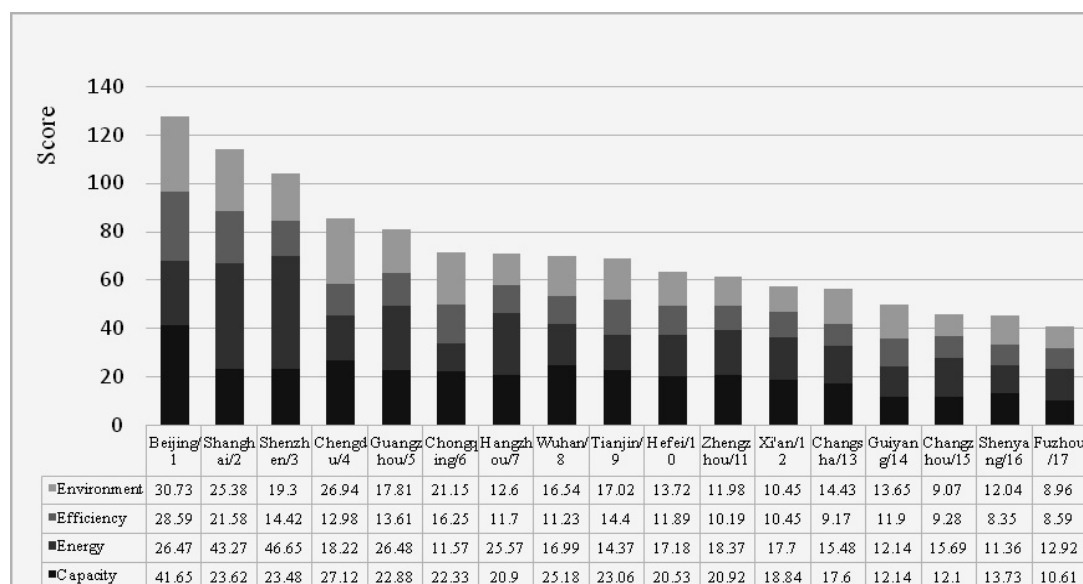
## 2.2 Theoretical basis

As a new paradigm in the research fields of innovation, Triple Helix Theory was proposed by the American scholar Henry ErtzKovacs and Loet Leydesdorff. They think that the critical point of improving the innovation activities is the interaction between university, industry and government base on knowledge, among them, the main innovation part is not fixed, the three parts “overlapping” and interact with each other, only in this way, can it promotes innovation spiral<sup>[7]</sup>. This paper based on the “Triple Helix Theory and from the perspective of collaborative innovation government-industry-university-research-user”, take the “Electronic Information +” strategy as an important breakthrough of promoting “One University, One Belt” strategy, and “One University, One Belt” strategy as an important starting point of “Electronic Information +” strategy, namely “Electronic Information + area” mode, through the development of innovative electronic industry “One University, One Belt” to promote regional economic sustainable development, through the “One University, One Belt” area to promote the economic development of the “Electronic Information +” strategy, and on the basis of spiral, continuously create new knowledge, develop new products, new resources, and at last we can promote the construction of Chengdu regional innovation and entrepreneurship center by using this mode.

## 3 Current situation and existing problems

In September 14, 2017, YOUEDATA Guoxin Ltd, a subsidiary to the State Information Center and the “National Business Daily” jointly issued the 2017 “National 17 Cities Innovation and Entrepreneurship Index Ranking”(Figure 1). As we say from the list, Chengdu as the “new first-tier cities” beat Guangzhou ranked the fourth in the total index list, is next only to Beijing, Shanghai and Shenzhen, also ranked first in the Midwest of china, while the sub index in innovation and entrepreneurship of capacity and environment index only after Beijing. At present, Chengdu has become a benchmarking city for its innovation center in China, the innovative and entrepreneurship of ecology also has reached the first-level, and innovation has been the city’s spirit. The purpose of first step in “Three Steps” strategy: preliminary building national innovative city in 2017 has been realized, and building the international influence regional innovation and entrepreneurship center is in process and it will become an important goal and the focal point of the municipal government. However, according to the innovation and entrepreneurship index rankings, Chengdu’ performance is not very well in the innovation and entrepreneurship of energy and effectiveness. What’s more, in the construction process, there are so many characteristics and advantages, but the problems of congenital

deficiency and poor postnatal development are also exist and hindering its smooth and rapid completion and development.



**Figure 1 2017 “National 17 Cities Innovation and Entrepreneurship Index Ranking and the fractional distribution”**

**Data Sources: 2017 “National 17 Cities Innovation and Entrepreneurship Index Ranking”**

### 3.1 The lack of synergy between the three main bodies, the low efficiency of knowledge creation and achievement transformation

In essence, the regional innovation and entrepreneurship center is a collaborative innovation system which is consisted by the interaction and overlapping composition of the multi factor in this regional, enterprises, universities and government is the main factor, and have their own unique features and advantages; however, to realize the innovation of the spiral, every main part needs to clear their own role in the foundation and play its unique function on the construction of interaction and finally the collaborative innovation model can achieve its optimal effect. But according to the 2017 “National 17 Cities Innovation and Entrepreneurship Index Ranking”, Chengdu’s performance is not very well in the innovation and entrepreneurship of efficiency, which means that Chengdu failed to achieve economic and social benefits well in the innovation process, the reasons caused this phenomenon are as follow, poor communication of information and lack of collaborative innovation which exist in the collaborative innovation process of the three main part’s interaction, and thus resulting in the insufficient of new ideas and knowledge’s breakthrough and new achievements’ transformation. Although the government issued a lot of policies and laws, and invested resources to encourage the innovation knowledge and achievements’ transformation. There are still some problems such as uneven distribution of resources, waste of resources and so on. What’s more, enterprises also have its own problems like their scientific research power is weak, insufficient understanding and transformation of universities’ research achievements, university also have not sufficient communications which reduce the research achievements not match the market demanding very well.

### 3.2 Lack of industrial clusters and intellectual resources, and the deficiency of motivation for innovation and entrepreneurship

Under the current upsurge of innovation and entrepreneurship, the number of new enterprises, SMEs and the agglomeration of industries is the most suitable way to reflect the vitality of innovation and entrepreneurship in a city, what’s more, high quality innovative talents is the only performer of innovation and entrepreneurship, and runs through the whole process of innovation and entrepreneurship activities, It is the core and key of the construction of regional innovation and entrepreneurship center. The continuous innovation of the center’s great achievements, efficient

transformation and continuous upgrading of the industry are inseparable from the top quality talents. At the end of 2016, Hi-Tech Zone have different kind of talents which amount to 269 thousands, including four new introduced Nobel prize talent team, “The Recruitment Program of Global Experts” 108 people in the nation and 281 in the province. The Hi-Tech Zone also successfully created Fourth National Offshore overseas talent innovation and entrepreneurship base, Seventh National Human Resources Service Industrial Park, and established offshore fund overseas talent innovation and entrepreneurship which includes 200 million Yuan investment. However, according to the innovation and entrepreneurship index rankings, compare with Beijing, Shanghai and Shenzhen in the aspect of innovation and entrepreneurship vitality, the number of new enterprises, industrial agglomeration and high-end innovative talents in Chengdu is lacking. In addition, to become a regional innovation and entrepreneurship center with international influence, the lack of industrial clusters and intellectual resources in the region will restricts the vitality and impetus of the construction and development of innovation and entrepreneurship centers in the region.

### **3.3 The inadequate cultivation of innovation ecological environment, and the supporting facilities and service system are not perfect**

The innovation ecological environment mainly refers to the provision of material, spirit and the necessary institutional guarantee for the normal operation of the components of innovation ecosystem, its contents include social system, legal system, social customs and culture, social network and other soft factors, and also include infrastructure, technology and economic factors such as rigid stock<sup>[8]</sup>. The institutional environment for innovation and entrepreneurship and the corresponding supporting facilities and service system are important support and key factors for regional agglomeration of industrial technology innovation elements, high-end scientific and technological talents, and stimulating innovation and entrepreneurial vitality. In the aspect of innovation and entrepreneurship environment, Chengdu ranked the second only after Beijing in 17 cities and its environmental policy ranked the first. This shows that Chengdu’s efforts to guide and support innovation and entrepreneurship are strong, and the construction of entrepreneurial service institutions is in good condition, and the society pays high attention to innovation and entrepreneurship. On the one hand, the quality of innovation environment is an important basis and guarantee for other innovation indicators. On the other hand, compared with the global, such as Silicon Valley, Zhongguancun and other S&T innovation center construction, Chengdu’s concentration and activation of industrial innovation, entrepreneurship, talent and resources supporting facilities and service system is not perfect. For example, some policies facilities and service system such as the incentive policies of introducing overseas talents, the legal system of protecting scientific and technological achievements, in-depth thinking innovation and entrepreneurial culture, life and work supporting the financing, accounting, law firms and so on is not perfect.

## **4 Countermeasures and suggestions**

### **4.1 Deepen the mode of University-Enterprise Cooperation and Industry Alliance, increase the motive force of innovation, and promote the transformation of achievements**

The main function of the three innovation subjects: government, enterprises, colleges and universities respectively are knowledge creation, wealth production and policy coordination, to further improve the efficiency of collaborative innovation, based on clearing and playing their own traditional functions, the three innovation subjects need to breakthrough their inherent functions by strengthening communication and cooperation, and then derive a series of new jobs. Specifically it’s necessary to deepen the University-Enterprise Cooperation and Industry Alliance mode, which combines the advantages of university based scientific research and technological achievements transformation and application of enterprise advantage, furthermore, deepen the implementation of Collaborative Innovation Center, laboratory and other forms of university-enterprise cooperation innovation platform, and on this basis to establish service platform which take institutions of colleges and universities as the main research, the research of market and industry as its orientation. The three main part also need to take specific research project as their orientation to strengthen the matching between universities’ research institution and market demanding, and realize the purpose of technology output and the



commercialization of achievements through the build team, cost sharing and risk sharing, talent and achievements. In the meantime, during this process, the government should actively play the macro management and coordination role, on the one hand, the government should actively develop industry development goals to make a good orientation for the cooperation of universities and enterprises, and they need to build a platform or an institution for the communication between universities and enterprises, so as to promote the smooth docking of both sides cooperation.

#### **4.2 Make efforts to build “engine” enterprises, accelerate industrial agglomeration and talent training and introduction**

The “engine” enterprise based on the existence of small and medium-sized enterprises could collaborate the most investment and production, promote industrial chain upstream and downstream enterprises and related supporting industries, lead the development of regional industrial clusters, the “engine” enterprise can be seen as the engine of the entire city of science and technology, and also has the driving and organization functions in innovation activities<sup>[9]</sup>. Therefore, we should make full use of University of Electronic Science and Technology of China in the field of electronic information research, to carry out comprehensive cooperation innovation of electronic information industry in the area of development, and strive to build the “engine” enterprises within the region of the electronic information industry. In addition, the supply of human resources is the source of scientific and technological innovation, and the three traditional cornerstones of the innovation system of public policy are education system, vocational training system and immigration policy<sup>[10]</sup>. Therefore, on the one hand, we need to strengthen the enterprise and university personnel training in the two-way communication, training and learning, match the universities’ talents and market demanding well, and match enterprises’ talents and universities’ research well, so as to strengthen the cultivation of innovative talents in the region. On the other hand, the government should continue to deepen the implementation of the talent policy, and through the improvement and the introduction of talent housing and other public service system related to attract overseas high-end talent, so as to achieve the condition of industrial agglomerate talent and talent lead the industry.

#### **4.3 Building “Butler + Expert” service system, deepening innovation and ecological environment cultivation**

“Suitable residential” is the prerequisite for Suitable business, a high quality living environment which can attract high-level talent, is an important condition for the formation of regional innovation and entrepreneurship center. At the same time, innovation and entrepreneurship cannot do without the relevant professional services and support mechanism, which can not only provide the necessary material conditions for the innovation of science and technology, but also through the effect of talents to promote the formation and development of science and technology innovation center<sup>[11]</sup>. So, on the one hand, the government should constantly improve the urban public service system, beautify the urban environment, and foster a pluralistic, open and inclusive urban culture, and create a livable urban environment. On the other hand, we can learn from the Tianjin Binhai New District of practice, namely to build a cross-border investment and financing service platform, construct a complete service chain of finance, credit, investment, management and other fields, namely the “Butler + Expert” service system. That’s to say, the government plays the main part in constructing the service team, in the meantime, introducing a number of high-tech industries and related laws, accounting, trade associations and other professional service agencies, and through the government purchase services, issue the “innovation and entrepreneurship of red envelope”, to provide “Universality + Personalized” service for the enterprise. At the same time, the government also need to deepen the “innovation and entrepreneurship” service platform, convenient branch personnel at anytime and anywhere with docking for all kinds of service items, so as to constantly deepen the cultivation and stimulate innovation and entrepreneurial activities which can facilitate the innovative ecological environment.

## **5 Conclusions**

Chengdu Hi-Tech Zone as the innovation driven engine in Sichuan province, need to seize the “Electronic Information +” development opportunities, deepen the “One University, One Belt” action plan, open up the collaboration and innovation channels of politics, production, learning, study and

utility, continuously explore collaborative innovation mode, give full play to the integration of abundant industry base. Chengdu Hi-Tech Zone also need to perfect the innovation and entrepreneurship system, and improve University of Electronic Science and Technology of China in the field of electronic information science and technology resources, strong innovation strength and other advantages to achieve the deep collaboration of talent, technology, capital and market, so as to inject Ever found driving force for regional electronic information industry development, and promote regional innovation and entrepreneurship, and economic sustainable development. The purpose of building Chengdu as a international competitive regional innovation and entrepreneurship center is very important, and need more exploration and endeavor in the future.

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# Research on the Relationship between Entrepreneurial Intention and Trust of Residents in Tourist Destinations in Government Institutions from the Perspective of Social Exchange Theory \*

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**Abstract** Trust exists as the core element in the process of social exchange. Based on social exchange theory, the author presents the influence of entrepreneurs' trust in government institutions in tourism entrepreneurship. Taking Lugu Lake Scenic Spot in Sichuan Province as a research case, this paper researches on the relationship between entrepreneurship intention and trust of residents in tourist destinations in government institutions through statistical analysis methods such as questionnaire, regression analysis, etc. The findings show that entrepreneurs' trust has a positive effect on the intention of tourism entrepreneurship and on the perception of interest in the process of entrepreneurship, while it has a negative impact on cost perception.

**Key words** Social exchange theory, Trust, Tourism entrepreneurship, Lugu Lake of China

## 1 Introduction

Social exchange, as a complicated interaction, is a process of exchange that follows the principles of fairness and reciprocity, which is accompanied by inexplicit obligations and trust. The social exchange between entrepreneurs and local governments presents itself as entrepreneurial partnership which is formed by voluntary resource transitions and the mutual exchange of interests (Cook, 1977) <sup>[1]</sup>. During the process which governments motivate people to start the business, the entrepreneur's trust in the government shares equal importance with the tangible exchange of interests (Holmes, 1981) <sup>[2]</sup>.

In the tourism entrepreneurship activities, the local government departments are responsible for formulating legalities and regulations on tourism, maintaining the tourism market norms and constructing tourism infrastructures, thus facilitating the tourism entrepreneurship activities. At the same time, with various entrepreneurship activities, the governments are able to attract tourists, drive and develop local tourism markets. A typical social exchange relationship is thereby reflected by the entrepreneurial partnership between the entrepreneurs and governments.

## 2 Literature review

Human society is essentially a network among people which is established on the basis of mutual trust and cooperation. Trust and cooperation have a profound internal relationship. According to social exchange theory, trust is generated through the exchange of interests between the two sides, or through the interaction of individual emotions, attitudes and values (Jones & George, 1998) <sup>[3]</sup>. In the late 1980s, social exchange theory began to be applied in the field of tourism research. Gursoy (2002) <sup>[4]</sup> and other scholars believe that social exchange theory can be used in the study of local residents' tourism participation and attitude to explore the relationship among expected benefits, costs, impacts and other factors. Kayat (2002) <sup>[5]</sup> points out that the comprehensive use of social exchange theory and power theory can help us better understand the impact of tourism perception; and that residents' values, their dependence on tourism industry, personal ability and the desire to adapt to tourism industry have a more direct impact on residents' tourism perception.

Tourism entrepreneurs' trust in government-related institutions is a trust in the system, which refers to their confidence in political institutions for no abuse of power in the process of entrepreneurship (Lühiste, 2006) <sup>[6]</sup>. Previous studies show that the development of tourism has a strong

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relationship with residents' trust in the system. The government plays a vital role in the political process of tourism development (Nunkoo & Ramkissoon, 2012)<sup>[7]</sup>. For example, inequality in the development of tourism will lead to people's distrust in the government; and if the residents do not trust the government and the relevant tourism agencies, they will resist the development of tourism, or even hinder the development of social tourism industry (Nunkoo, 2015)<sup>[8]</sup>. However, if the policies formulated by the government promote fairness in the development of tourism, the residents will show their trust and support. At the same time, if the government and groups with privileged interests have a powerful impact on the development of tourism, the public interest will be marginalized. If the Legislative Council of the Government is questioned, it will in turn affect public trust.

### 3 Research hypotheses

Previous studies show that trust has a direct positive correlation with community satisfaction and support, and that trust promotes residents' support for the development of community tourism and enhances their own satisfaction. At the same time, the previous literature proves that residents' trust in tourism-related governmental institutions has a direct positive correlation with the interest perception in the development of tourism and a negative correlation with tourism cost perception. When residents have the perception that the cost of tourism development is greater than its benefits, they will generally take a negative attitude or even resist the development of tourism. However, when they perceive that the development of tourism brings greater benefits, they will actively participate in tourism development (Nunkoo & Ramkissoon, 2012)<sup>[9]</sup>. This research puts forward the hypothesis that there is an influence relationship between the entrepreneurs' trust in government institutions' support for entrepreneurship and their entrepreneurial intentions.

Hypothesis a: Trust in Entrepreneurship has a positive impact on entrepreneurial interest perception.

Hypothesis b: Trust in Entrepreneurship has a negative impact on perceived cost perception.

Hypothesis c: Trust in Entrepreneurship has a positive impact on entrepreneurial intentions.

### 4 Data analyses

The questionnaire scale includes four dimensions: the entrepreneurs' confidence scale for government institutions, the entrepreneurial interest perception scale, the entrepreneurial cost perception scale and the entrepreneurial intention scale. (1) The scale of entrepreneurs' trust in government agencies includes five items, which are residents' trust in tourism-related management departments of tourist attractions, environmental protection departments, housing and land management departments, town government departments, village committees or neighborhood committees and other organizations. (2) The perception of entrepreneurial interests includes four aspects, i.e. emotional value, economic value, social value and self-actualization value; entrepreneurial cost perception includes both economic and non-economic costs. (3) The entrepreneurial intention scale includes goal intentions and implementation intentions (Gollwitzer, 1999)<sup>[10]</sup>.

In Lugu Lake Scenic Spot in Sichuan Province, the destination of this research case, the author adopted a combination of phased random sampling and quota sampling, which was completed in late November to the end of December, 2016. In this research, a total of 1,000 questionnaires were distributed and 816 were actually recovered. After eliminating the invalid questionnaires, the total number of valid questionnaires was 700. The basic characteristics of the samples are shown in Table 1.

Trust in entrepreneurial support refers to respondents' trust in the overall environment and whether they believe that government departments can provide necessary assistance to their tourism entrepreneurship. This research investigates respondents' perception of tourism (scenic spots) management departments, environmental protection department, housing and land department, town government and village committee/neighborhood committees in terms of their support for tourism management.

Seeing from Table 2, from the perspective of frequency and average, the respondents' trust in the town government and the village committee/neighborhood committee is much higher than their trust in tourism (scenic spots) management departments, environmental protection department and housing

and land department. To seek out the reason, respondents often come into contact with the town government and the village committee/neighborhood committee, but they are not closely related to the latter departments. However, as departments that are closely linked with the tourism management, they are supposed to pay more attention to their own image in the face of tourism operators and better serve the masses.

**Table 1 Sampled demographic statistics**

Variables	Attribute	Frequency	Percentage	Variables	Attribute	Frequency	Percentage	
Gender	Male	415	59.286%	Education	Primary school	10	1.429%	
	Female	285	40.714%		Junior high school	94	13.429%	
Age	Under 25	36	5.143%		Senior high school/technical secondary school	413	59%	
	26-30	42	6%		Bachelor degree and above	183	26.143%	
	31-35	218	31.142%		Origin of residents	Local	410	58.571%
	36-40	243	34.714%			Nonlocal	290	41.429%
	41-50	129	18.429%		Cadres relatives	Yes	396	56.572%
Above 51	32	4.571%	No			304	43.428%	
Household labor force	1	22	3.142%	Family income and living standard	Bad	62	8.857%	
	2	193	27.571%		Below medium	138	19.714%	
	3	270	38.571%		Medium	379	54.142%	
	4	67	9.571%		Above medium	101	14.428%	
	5 and more	148	21.142%		Good	20	2.857%	

**Table 2 Descriptive analysis of trust in entrepreneurial support**

Attribute variables	Average	Standard deviation	Variance	Sorting
Trust the town government	4.14	1.161	1.349	1
Trust the village committee/neighborhood committee	3.92	1.088	1.183	2
Trust the environmental protection department	3.12	1.382	1.909	3
Trust housing and land sector	3.10	1.386	1.921	4
Trust the tourism management department	3.05	1.361	1.853	5

It can be seen in Table 3 that the average of emotional value in the entrepreneurial interest perception (4.3296) is higher than other indicators; the average of variables in entrepreneurial intention and entrepreneurial cost perception show moderate differences. Seeing from the ensemble average, the indicator of entrepreneurial interest perception (3.5615) is the highest in terms of the influence on respondents' tourism entrepreneurship, followed by trust in entrepreneurial support (3.4657); entrepreneurial intentions (2.9288) and entrepreneurial cost perception (2.7943) are the lowest.

**Table 3 Analysis of the general situation of influencing factors of entrepreneurial intention**

Attribute variables		Average	Standard deviation	Variance	Grand mean	Total standard deviation	Total variance	Sorting
Entrepreneurial interest perception	Emotional value	4.3296	.98640	.973	3.5615	.49513	.245	1
	Economic value	3.7418	.66112	.437				
	Social value	3.1132	.66106	.437				
	Self-actualization value	2.8948	.94712	.897				
Trust in governments' entrepreneurship support					3.4657	.70561	.498	2
Entrepreneurial intentions	Goal intention	2.9231	.89364	.799	2.9288	.80876	.654	3
	Implementation intention	2.9345	.88329	.780				
Entrepreneurial cost perception	Economic cost	2.7700	1.33175	1.774	2.7943	1.11591	1.245	4
	Non-economic cost	2.8186	.99585	.992				

#### 4.1 Analysis of entrepreneurial intention of entrepreneurs

Entrepreneurial intentions are mainly investigated from the goal intention and implementation intention in the survey. Seeing from the averages in Table 4, in terms of goal intention, there are 3 aspects of respondents that differ from other sub-variables, i.e. respondents with short-term goals of stating business in tourism industry, wanting to be bosses in tourism management and being fully prepared for tourism management, indicating that respondents are not as goal-oriented as they are supposed to be.

**Table 4 Descriptive analyses of entrepreneurial intentions**

Attribute variables	Average	Standard deviation	Variance	Sorting
Going all out	2.98	1.457	2.123	1
Good development prospects	2.98	1.429	2.042	2
Continuing even failing	2.97	1.415	2.002	3
Real interest	2.96	1.383	1.912	4
Starting business with helpers	2.94	1.406	1.978	5
Starting business with fund	2.94	1.385	1.918	6
Starting business with preferential policies	2.93	1.380	1.905	7
Starting business with technology	2.91	1.452	2.109	8
Putting effort without giving up	2.91	1.412	1.993	9
With short-term goals	2.89	1.436	2.063	10
Wanting to be a boss	2.88	1.401	1.963	11
Being fully prepared	2.85	1.397	1.951	12

#### 4.2 Regression analysis

The questionnaire data is used for regression analysis of principal components in the samples. Firstly, the author carries out the principal component analysis of five factors, and linearly combines the corresponding items of the factors. Afterwards, the results of the principal component analysis are used for the regression analysis of residents' goal intention and implementation intention in tourist destinations.

(1) The principal component expression of entrepreneurial trust  $F_1$  is:

$$F_1 = 0.4545X_1 + 0.5127X_2 + 0.4651X_3 + 0.3362X_4 + 0.4486X_5 \quad (1)$$

(2) Analysis of the principal component of entrepreneurial interest perception  $F_2$  is:

$$F_2 = 0.3350X_1 + 0.3630X_2 + 0.4351X_3 + 0.1995X_4 + 0.3698X_5 + 0.3951X_6 + 0.3440X_7 + 0.3400X_8 \quad (2)$$

(3) The principal component analysis of entrepreneurial cost perception  $F_3$  is:

$$F_3 = 0.2621X_1 + 0.2986X_2 + 0.2651X_3 + 0.3515X_4 + 0.4641X_5 + 0.4415X_6 + 0.3624X_7 + 0.3337X_8 \quad (3)$$

(4) The principal component analysis of entrepreneurship goal intention  $F_4$  is:

$$F_4 = 0.1378X_1 + 0.2703X_2 + 0.5235X_3 + 0.4414X_4 + 0.4580X_5 + 0.4788X_6 \quad (4)$$

(5) The principal component analysis of entrepreneurship implementation intention  $F_5$  is:

$$F_5 = 0.4436X_1 + 0.5245X_2 + 0.2555X_3 + 0.4018X_4 + 0.3797X_5 + 0.3964X_6 \quad (5)$$

Based on the results of principal component analysis, linear regression analysis is carried out on the entrepreneurship goal intention and implementation intention in the tourist destinations. The weighted least squares method is used to estimate the parameters in the model and enhance the robustness of the fitting. It can be seen from the regression results that the linear relationship among entrepreneurship goal intention  $F_4$ , governments' entrepreneurship support  $F_1$ , entrepreneurial interest perception  $F_2$  and entrepreneurial cost perception  $F_3$  is:

$$F_4 = 4.1642 + 0.2536F_1 + 0.1991F_2 - 0.1537F_3 \quad (6)$$

Significance test is carried out on the regression line, the result of which shows that the p value is less than 0.01; therefore, we can see that the linear regression is significant. Governments' entrepreneurship support  $F_1$ , entrepreneurial interest perception  $F_2$  and entrepreneurship goal intention

are positively correlated, while entrepreneurial cost perception  $F_3$  and entrepreneurship goal intention are negatively correlated.

The linear relationship among entrepreneurial implementation intention  $F_5$ , governments' entrepreneurship support  $F_1$ , entrepreneurial interest perception  $F_2$  and entrepreneurial cost perception  $F_3$  is:

$$F_5 = 4.5903 + 0.2967F_1 + 0.2378F_2 - 0.1149F_3 \quad (7)$$

Significance test is carried out on the regression line, the result of which shows that the p value is less than 0.01; therefore, it can be inferred that the linear regression is significant. Governments' entrepreneurship support  $F_1$ , entrepreneurial interest perception  $F_2$  and entrepreneurship implementation intention are positively correlated, while entrepreneurial cost perception  $F_3$  and entrepreneurship implementation intention are negatively correlated.

## 5 Conclusions

The results of the empirical research show that the trust of residents in tourist destinations in government institutions' support for entrepreneurship affects the strength of the entrepreneurship intention to a large extent. The results also confirm the research conclusion of Bronfman (2009)<sup>[11]</sup>, Kwon & Arenius (2010)<sup>[12]</sup> that the higher the trust degree, the greater the likelihood that residents perceive the entrepreneurial opportunities. The reasons are that the higher the trust of residents in tourist destinations in governments' support for entrepreneurship, the greater the interests are perceived in tourism entrepreneurship, and the smaller the risk perceived in tourism entrepreneurship, thus the stronger the entrepreneurial activity. In the process of social exchange of tourism entrepreneurship, if the residents in tourist destinations have a trust in the relevant local government institutions, entrepreneurial interests will be greater than the entrepreneurial cost in the exchange. Under such circumstance, residents have positive perception and strong entrepreneurial intentions, thus starting to take actions for businesses. However, once the residents have a low degree of trust or distrust in the government institutions, they will perceive that the cost in the entrepreneurship process is greater than the entrepreneurial interests, then they will stop the exchange and wait and see the entrepreneurship circumstances or even stop their independent entrepreneurship activities.

If community residents have a high degree of trust in government institutions' support for entrepreneurship, it is easier for them to believe in the cooperation and reciprocity with the government institutions; with clearer entrepreneurial goals, they will have higher expectations of entrepreneurship and are more willing to complete the social exchange process with government institutions in independent entrepreneurship, which will form stronger entrepreneurial intentions. Seeing from the case of the actual investigation of Lugu Lake, the housing and land management departments have the authority of housing construction and land approval, which greatly affects the places for entrepreneurship. The town government, with important enterprise management right, directly manages every link in the process of business operation. Local neighborhood committees (village committees) have an important impact on the microenvironment of entrepreneurship and play a decisive role in the business environment necessary for everyday operations. Local government institutions should focus on strengthening residents' trust in three types of institutions, i.e. local housing and land department, local town government and local neighborhood committees (village committees). Although local government has introduced a large number of policies to encourage and support independent entrepreneurship, but due to some shortcomings in the process of implementation, especially the frequent changes in policies and the differences in residential construction demolition standards, community residents in Lugu Lake area do not have enough trust in government institutions' support for residents in the development of entrepreneurship. Thus, a large number of community residents are still in a "wait and see" state; some residents have a very low degree of trust in government institutions in that they do not believe government institutions can truly support the residents in their entrepreneurship. To this end, local government institutions are supposed to support the formulation, advocacy and implementation of relevant entrepreneurship policies in an effort to win the trust of residents, and show enough entrepreneurial support to enhance the trust of community residents.

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# Opportunities, Challenges and Strategies of Government's Intelligent Governance in the Era of Big Data

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**Abstract** The arrival of big data era has changed people's lifestyle, and also brings opportunities for government's governance innovation. Big data, as new strategic resources and technological momentum, can promote the transformation of government's governance ideas and enhance its governance capacity and reshape the government image. In addition to the provision of unlimited development space, big data also put forward new requirements for reform in government governance. Cognitive bias, concept introduction obstacles, personal privacy protection and information security threats, lack of technical personnel and imperfect infrastructure construction and other issues are current challenges that need to be faced. Therefore, we need to seize the opportunity and face the challenges, to seek countermeasures by actively introducing the big data awareness, optimizing the superstructure design and innovating upon governance pattern and making up for technical defects. With assistance of big data technology, "good governance" can be driven, so as to strive to achieve government's intelligent governance.

**Key words** Big data, Government governance, Opportunities, Challenges

## 1 Introduction

The advent of the era of big data has brought endless possibilities for the progress of all areas of society. At present, all countries in the world are vigorously excavating the value of big data and attach great importance to the use of big data technology. Both the Fifth Plenary Session of the 18th National Congress of the Communist Party of China and the outline of the 13th Five-Year Plan have made clear deployment for the implementation of the national big data strategy. In August 2015, the State Council promulgated the strategic and programmatic document "Action Plan for Promotion of Big Data Development" (Xu Gui-qing, 2015<sup>[1]</sup>) for the country to comprehensively promote the development of big data, so that the application of big data has reached a level about strategy for national strength enhancement.

In the field of public management, "big data" and government governance, national governance and other hot issues are closely "bound" together. Under the background of promoting the modernization of the State's governance system and governance ability, due to the rapid development of information technology and increasingly complicated social and economic environment, the previous traditional government governance has been unable to deal with the complicated problems brought by the times. Therefore, in the modernization of the government, new technologies, new methods and new means must be used for reform and intelligent governance. Big data, as a new kind of strategic resources and technical impetus, can provide a new way of thinking for the government's intelligent governance, and can make the government's decision-making more scientific and democratic, so as to form a more open, transparent and responsible government (Chen Zhen-ming, 2015<sup>[2]</sup>). Based on this, this paper analyzes the opportunities and challenges facing the government in its governance in the era of big data, and discusses the corresponding countermeasures and ideas to further promote the realization of government's intelligent governance.

## 2 Opportunities brought by the big data era to government's intelligent governance

The advent of big data era has made big data technology penetrated in government governance. The advantages of its technical characteristics fit well with the requirements of government's intelligent governance, it can promote the transformation of government's governance thinking, enhance the ability of government governance and reshape the government image.

### **2.1 Promote thinking integration, innovate upon the government's governance philosophy**

Big data refers to the automatically collected and stored complex data via digital acquisition means, it possesses 4V characteristics: high velocity, many varieties, large volume, hypodense value. In addition, the big data also has another characteristics of always online, which is the biggest difference with the traditional data and is also the characteristics of the rapid development of the Internet. Big data and the Internet came into being together, the Internet spirits of sharing, high speed, equality and collaboration have also gradually penetrated into the government governance in era of big data.

Based on this, by integrating big data characteristics, the spirit of the Internet and the modernization demand of government governance, new thinking on government governance in big data era can be derived: service, timeliness, sharing and open thinking. High efficiency and the intelligence of Internet and big data technology have made the public demand increased, thereby putting forward higher requirements on government and forcing the government to improve service awareness and establish a service-oriented thinking; Internet has a characteristic that people can get rid of a lot of time and space constraints, so citizens can express their demands anywhere, the government must respond to the public in a timely manner in order to avoid public discontent. At the same time, the government's emergency management also needs to deal with the big data in a high-speed manner. Therefore, the timeliness thinking has gradually gained popular support. The integration of government data and resources requires the cooperation improvement among government departments and governments at all levels for information sharing, so as to gradually establish a thinking of sharing. In addition, the openness of the Internet and big data also determines the openness of government governance that the government will disclose all the data that does not involve state secrets to the community, so that the whole community can tap the value of the application of data together, it requires the government should be establish a thinking of openness.

In the past, traditional government management was in a one-dimensional pattern and lacked public participation and mutual cooperation, reflecting the government "power-based" and "omnipotent" management philosophy. In the era of big data, government governance requires to be reflected in data, and the government needs to understand public opinion and situation in a variety of data, and to implement emergency management or issue an early warning through data analysis, instead of making a decision "in a hurry". Through the data analysis, reasonable decisions can be made to solve the problems, which produced a new concept of governance, that is, "governing according to data." At the same time, in the era of big data government governance requires the strengthening of citizen participation, because the government no longer just makes its decision by its own will but stresses the participation of the various subjects in the society, which makes the government gradually develops toward the "democratic governance" direction. And this kind of government-led "good governance" pattern with the involvement of society, enterprises and individual forces is also the embodiment of "collaborative governance" concept of the government.

### **2.2 Contribute to the establishment of intelligent government, enhance the government's governance capacity**

By using the tool of big data, it will promote the new normal of government governance (Xu Zheng-zhong, 2016<sup>[3]</sup>). At present, the government governance presents a new normal state, namely, the quaternity of "comprehensiveness, democracy, transparency and governing by law". Domestic and foreign governments have gradually used big data technology in the overall government practice, for instance, after "9.11 attacks", the US government began to vigorously promote cross-sectoral electronic data sharing. Data co-ordination and the application of other big data technologies mean that the horizontal barriers between sectors can be broken, to achieve resource sharing and affairs collaboration, and promote the establishment of a comprehensive government. The democratic government is an extension of the government's comprehensive co-governance, emphasizing its external synergy. Former US President Jefferson said: "As money to the economy, so is information to democracy". The era of big data will bring valuable information resources for government governance, these resources can not be excessively owned by the government, and the government also has no ability to independently process them. This requires the government to strengthen its cooperation with

the community, and to take other's technical talent advantage and other advantages to achieve collaborative governance via Internet, so as to promote the construction of democratic government. In addition, big data will help build a transparent government. The essence of establishment of transparent government in big data era is actually to disclose the government information (Su Yun and Ren Yuan-yuan, 2016<sup>[4]</sup>). The government information is required to be disclosed under the "public supervision" and the "black box" of official power should be opened, so as to effectively curb corruption, protect citizens' right to know, promote citizens' participation in politics, so that the government's decision-making can be transparent, and it will be subject to the supervision of the people to improve the level of government administration. At the same time, the data information disclosure has broken the previous phenomenon of government information monopoly, the information disclosure will force to promote the data legalization and power standardization, so that the concept of "managing state affairs according to law" can be more deeply rooted and the establishment of government which runs according to law can be promoted.

The establishment of intelligent government in big data era has provided new technical support for government governance and has made the government's organizational mechanism more rational, their services more democratic, their decision-making more transparent, their approaches to govern more scientific; it also led to saving administrative resources when dealing with administrative affairs, improving the administrative efficiency and public service level; the big data has driven the government to strengthen its cooperation with various social subjects, and re-straightened out the relationship between government, society and market. All of which played an important role in improving the government's ability to govern and realizing the modernization of its governance capability.

### **2.3 Enhance citizens' trust, reshape the government image**

"The government can help the public understand the government's decision-making and promote economic development and enhancing its image by disclosing its data source to the society." said Michael Meyer Schoenberg. In the era of rapid development of the Internet information, the Internet public opinion flows into the every corner of the community like the flood, once the public opinion did not get the government's response in a timely manner or social conflict events have not been resolved in time, it will make the image of the government greatly compromised in the hearts of citizens. The use of big data, Internet of Things and other technologies can converge on the Internet public opinion for timely and effective analysis on the data, so that the government can respond to social crisis in a timely manner and improve its early warning capacity. The disclosure of information to the public can make citizens have a higher sense of trust toward the government and get a better understanding of the work status and decisions of the government, so as to strengthen the effective communication between government and citizens, and citizens can really feel the government's services, which will be beneficial to reshaping the government image.

## **3 Challenges facing government's intelligent governance in the big data era**

### **3.1 There is a bias in the cognition and an obstacle for change in concepts**

Big data brings a new thinking and new governance ideas for the government's intelligent governance, but because of the lack of standard definition for the big data, the traditional concept of government governance and the constraints of traditional system and other reasons, the government personnel's cognition for big data deviation has bias, the correct big data thinking can not be established and the change in concepts also have an obstacle.

Government departments' understandings on big data are chaotic, many people consider that big data is equivalent to open data, shared data or massive data, these three misunderstandings will affect the data acquisition and use (Yu Shi-yang, Wang Jian-dong and Tong Nan-nan, 2016<sup>[5]</sup>). Due to the lack of standard definition, some people may think open data is equivalent to big data, but in fact open data does not have the basic characteristics of big data; or in some cases, the use of government's big data is only limited to the data sharing between government departments, ignoring the other useful multi-source data for government governance, the integration of external resources is lacked; moreover, many people blindly concerned about the "big" feature of big data and only paid great attention to the

accumulation of massive data, but ignored the analysis and use of data, as a result the value of big data is hampered.

In addition, there is a gap between the traditional governance concept and that of “governing according by data” (Dou Zheng-bin and Dong Wen-wei, 2016<sup>[6]</sup>), for instance, the existence of repressive thinking that “the more the disclosed information is, the more difficult the processing of affairs is” has made some government departments emotionally negative in the public service data disclosure (Yang Dai-ping, Gu Xiao-hua and Ouyang Bin, 2015<sup>[7]</sup>). Due to the long-term planned economy in China’s history, the power-based and omnipotent governing concept of government has not yet been completely abandoned. Some officials still have “power worship” concept, inside, they do not accept the concept of governance of “relying on big data, democracy and coordination”, their ability to use information technology is poor or even unwilling to use the information technology. Moreover, due to sectoral segregation and the separatism of local interests, the phenomenon of information isolation still exists, the power and responsibility of the governments at all levels are unclear, as a result, the concept of government governance is difficult to be changed, and the progress of intelligent governance is slow.

### **3.2 Personal privacy protection and serious data security issues**

Esther Dyson, chairman of ED Venture Holding, points out that personalization of big data is contrary to fairness, it will trigger social and political problems (Esther Dyson, 2013<sup>[8]</sup>). The widespread use of the Internet allows us to live in an ever-recorded environment where our website browsing histories can be reviewed, shopping preferences can be tracked because big data tools are collecting everyone’s information. Once the information is leaked, citizens’ right to know and privacy will be violated. These seemingly innocuous and fragmented information makes personal privacy can be easily accessed, if it is used properly, it may bring risks to the personal safety of citizens, for instance, “Wei Ze-xi event” has aroused widespread concern in society. At the same time, due to the instability and high risk of the Internet world, data security is more urgent than traditional national security issues. After data processing and storage, if it is not effectively protected, it will be vulnerable to network hacker attacks, and even national confidential information may also be subject to a huge threat. For example, the recent “extortion virus” incident has let the netizens around the world shocked, it not only affected the individual’s daily life, but also hindered the normal operation of enterprises, or even triggered the world’s governments’ concerns for data security.

### **3.3 Insufficient technical personnel, imperfect infrastructure**

Government’s intelligent governance not only needs innovative ideas and methods, but also needs strong scientific and technological skills, a steady stream of personnel and perfect infrastructure construction. At present, under the implementation of the big data strategy, China’s big data technology has reached a rapid development, but compared to the Western developed countries it still has a gap. In the aspects of core technology, it still relies on the introduction from foreign countries. Due to the lack of technical personnel, data mining and other works also showed development bottlenecks. For example, big data applications for government governance are still dominated by structured data, while semi-structured and unstructured real-time dynamic data are seldom analyzed. These ignored but massive amounts of data, in fact, may contain great value and higher gold content, it is a pity that their values are not being excavated. At the same time, infrastructures for big data are still imperfect. For example, many local governments have built a big data platform, but they only focused on the integration of information within the department, ignoring the external data sources. As a result, the data resources can not be effectively integrated, which is not conducive to the establishment of government’s governance-decision-support-system. In addition, the constructions of Internet infrastructure, Internet of Things and other information infrastructures still need to be strengthened, the construction of information network security facilities must also have a breakthrough. The core technology of big data has a deficiency and shortcoming, the data talents are lacked, the infrastructure construction is imperfect, leading to the lack of motivation for government’s intelligent governance and the ineffective realization of the value of big data, thereby slowing the pace of government’s governance reform, these are problems that need to be resolved immediately.

## **4 Development countermeasures for government's intelligent governance in the big data era**

### **4.1 Correctly introduce the consciousness of big data, deepen the governance concept**

Under the new situation, the guidance role of the national policy should be strengthened for learning the related theoretical knowledge, the understanding and cognition of big data should be strengthened, and some errors and incomprehensive views should be corrected timely. So that the government staff at all levels can really understand the role of big data, so as to establish a correct sense of big data and to achieve "governing according to data." At the same time, it should strengthen the construction of service-oriented government, strengthen the mutual cooperation between the government and the community, so that the concepts of "collaborative governance" and "democratic governance" can be deepened in practice. In this process, it should point out and correct the shortcomings of the traditional governance approaches, so as to fundamentally update the thinking mode of the government personnel. When conveying the concept of "governing according to data", it should take a dialectical attitude to avoid blind dependence on data, the results of data analysis also need to be artificially judged, so as to let the data speak in a "proper way"; in addition to full use of big data technology, data collection should be purposeful rather than blind, so as to avoid the blind accumulation of useless data, it should be good at digging the hidden value behind the data.

### **4.2 Optimize the superstructure design, improve the system construction**

At present, the problems and obstacles in the application of big data of the government are largely caused by the deficiency in superstructure design and imperfect system construction, which makes the use of big data lack standardized and institutionalized protection. Therefore, it is imperative to optimize the superstructure design and improve the system construction and give full play to the role of the State's macro-control. First of all, it should strengthen the superstructure design, improve the overall development strategy of big data and promote the rational allocation of resources, so as to achieve the balance between the governance sectors of government, for instance, the reasonable planning and arrangements of government data platforms at all levels can make each sector no longer isolated and their information can be exchanged, and both interior and exterior high-efficient cooperation can be reached. At the same time, it should establish and improve the corresponding laws and regulations, such as improving the laws and regulations related to data security and personal privacy protection, speeding up the development of various types of laws and regulations about property rights, developing unified norms and standards, so as to take the advantages of regulatory role of laws to create a good environment for big data operations.

### **4.3 Innovate upon the governance, achieve Internet-based governance**

The use of big data technology can bring new ideas to government governance, so as to promote the transformation of governance pattern. Similarly, the innovation of governance pattern can also reversely promote the use of big data and sweep all obstacles for government governance in the era of big data, thereby promoting the intelligent and scientific governance. We should ponder on traditional governance pattern: too concentrated rights, lack of public participation, serious isolation of sectors, and we need to strengthen the active cooperation among the various departments and eliminate the information isolation situation; it should strengthen the active cooperation between the government and the community, actively building a government-led new pattern of Internet-based governance with participation of social, enterprise and individual forces. At the same time, it should actively use the advantages brought by the Internet and big data technology to build an online to offline "dual-line" government, so that its Internet part and reality part can be connected. The government can be reformed from the monopoly to cooperation, from the isolation to comprehensiveness, from interaction to linkage (Shi Jun, 2016<sup>[9]</sup>).

### **4.4 Make up for technical defects, improve the infrastructure**

Infrastructure construction and technical personnel are boosters and basis for the government governance in big data era. The development of information age first relies on the construction of information infrastructure, just like the inability to access the Internet without Internet devices, the importance of big data infrastructure construction is obvious. First, it must strengthen the construction of information infrastructure networks, such as broadband Internet, wireless networks, radio networks,

urban and household Internet of things; in addition the scientific and standardized big data infrastructures not only include physical servers, storage devices and IaaS layer resource pool, but also include the infrastructures at big data platform layer or PaaS layer, so it is necessary to increase financial investment and improve the construction of big data platform. Scientific and technological power is the driving force to promote social progress, for technical defects, two aspects should be focused, i.e. scientific researches and technical personnel training. It should strengthen the R&D and application of relevant technologies, increase financial support, and invest them into the technical shortcomings and weak areas, such as R&D and application of AI, blockchain technology. It should cultivate technical personnel and consider them as the most important resources in society and intelligence basis for technical updates, we can train them in the following ways: first, to strengthen the professional knowledge training for current data processing staffs of government, so as to enhance their technology knowledge; second, to introduce talents, to attract “high-grade, precise and advanced” talents from the Western advanced countries, so that their experience can be shared to stimulate the original team’s potential; third, to set more big data-related disciplines in the universities and the general vocational technical schools. At present, China has begun to specifically set up school-enterprise cooperation projects for big data processing, such as the “Alibaba Big Data Institute” jointly created by Chengdu University of Information Engineering and Alibaba Inc. In the future, we need to strengthen the support for similar professional trainings, grasp the market demand trends and form the talent-customized training model to provide customized talent input.

## 5 Conclusions

Big data, as new strategic resources and technological momentum, has brought both new opportunities and impact of the times for government governance. We need to seize the opportunities and face the challenges, to seek strategies from correct introduction of big data consciousness, optimizing superstructure design, innovating upon the governance pattern and making up for technical defects, so as to drive “good governance” with big data technologies and strive to achieve intelligent governance of government.

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# Research on Collaborative Management Mechanism between Local Governments to Solve Trans-administrative Environmental Pollution—Take Joint Conferences on Environment Issues in Yangtze River Delta as an Example

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**Abstract** Trans-administrative environmental pollution can't be solved by any single local government because of the geographical factor. To solve these problems, pursuing effective cooperation with help of the collaborative management mechanism between different local governments is an important way and in which, joint meeting is a widely used method. This paper tries to compare the existing status of three types joint meeting centered on environmental pollution issues. The three types are bilateral one, multilateral one and the one participated by all the administrative subjects. Based on analysis, the author tries to summarize the characteristics of the collaborative management mechanism and the difficulties it faces. The author also tries to put forward some own thinking and revelations about how to perfect this mechanism.

**Key words** Local governments, Trans-administrative environment pollution, Collaborative management, Joint meetings

## 1 Introduction

Environmental protection is a basic national policy of China. With more and more attention are paid to environmental protection, it is a systematic project not only involving wide geological range, but also requiring a complex operating mechanism. At the same time, trans-administrative environmental pollution can't be solved by any single local government because of the geographical factor. To solve these problems, pursuing effective cooperation with the help of collaborative management mechanism between different local governments is an important way. Aiming at making desirable collaborative actions when dealing with regional development issues and public affairs through communication and coordination, joint meetings between local governments is widely used in cooperation between local governments. As a kind of administrative joint conference, joint meetings between local governments are often applied to deal with social administrative issues between administrative subjects. Currently, governmental cooperative political documents of all levels in China are usually the achievements of administrative joint meetings. In terms of the administrative subjects number the involving administrative places, these meetings can be divided into three types including bilateral joint meeting, multilateral joint meeting and connection meeting participated by all administrative subjects.

## 2 Cases study

### 2.1 Introduction and case analysis of a bilateral joint meeting centered on environment issues in Yangtze River delta

This paper takes a bilateral joint meeting centered on environmental issues participated by Changzhou municipal government and Wuxi municipal government as the case of bilateral ones. Here are some simple introduction about the meeting: On May 30th, 2012, aiming at solving the trans-administrative waste air pollution which endangers both Shizhuang town in Jiangyin municipality and Xinbei district in Changzhou municipality, led by Environmental Protection Supervision Center in Southern Jiangsu Province, "Joint Meeting between Government of Wuxi Municipality and government of Changzhou Municipality Centered on Environmental Protection" was convened. In this meeting, environmental protection departments from the two administrative regions discussed how to prevent and control the waste air let off by some chemical enterprises. Considering the diffusion,

temporality of the waste air and its character of being susceptible to temperature and air pressure, some constructive advice was put forward and some consensus was reached.

This meeting was led by Environmental Protection Supervision Center in Southern Jiangsu Province, directly subordinated to the Department of Environmental Protection in this region. Namely, the joint meeting was convened under the coordination from relevant superior government departments. Based on fundamental renovation in chemical factories in both the two municipalities, a mechanism for joint prevention and control work was set up. "This newly built mechanism is a positive exploration helpful to prevent and control pollution from the source. Facing regional environmental letter visits, we won't blame each other, rather, we try to communicate with each other and cooperate to solve problems"<sup>[1]</sup>. This joint meeting actually obtained good result. Two years later in 2014, a report about this issue wrote: "With sunshine, blue sky, white clouds and lawns dotted between factory buildings, you can't imagine you are in a chemical factory"<sup>[2]</sup>."

Bilateral joint meeting between local governments is aiming at solving the problems faced by both the two regions and which can't be solved only by any single government. Since there are some coordination issues between two regions, relevant works will be easier and more timely with supervisor departments to participate. As for environment issues, when setting up work goals in bilateral joint meetings between local governments, provincial renovation plans should be considered. Decisions in the meetings were consensus made with full discussion and collaboration between two local governments, thus they would consciously abide by.

## **2.2 Introduction and case analysis of a multilateral joint meeting centered on environment issues in Yangtze River delta**

This paper takes two joint meetings centered on the environment issues in Tai Lake participated by the five municipalities around the lake (hereinafter referred to as: Tai Lake five municipalities joint meeting) as the case of multilateral ones. Here are some simple introduction about the first session of Tai Lake five municipalities joint meeting: from April 19th to April 20th, 2010, this meeting was held in Wuxi municipality. Relevant officials from local governments and NPC committees in five municipal cities including Wuxi, Suzhou, Changzhou, Huzhou, and Jiazhou attended the meeting. During the meeting, they did much on-spot exploration. Achievements of this meeting include *Declaration of Wuxi* and *Letter of Intent to Cooperatively Promote Environmental Governing Taihu Signed by NPCs of Five Municipalities around the Lake*. Here are some simple introduction about the second session of the Tai Lake joint meeting: from April 7th to April 8th, 2011, the meeting was held in Huzhou municipality. Through discussion, this meeting passed *Declaration of Huzhou*, and reached some consensus. During the meeting, representative presents did much on-spot exploration in many regions.

There are quite a few news reports on the environmental governing in Tai Lake. Comprehensively analyze the reports during the 8 years, we can find some initial achievements. The environment in Tai Lake basin was becoming better and better with joint efforts from cities around the lake. However, since the complex and difficult environmental governance in Tai Lake requires long time and the unstable improvement of the water quality here, the nitrogen phosphorus concentration in water is still suitable for algae to grow. The water body of Tai Lake hasn't changed fundamentally.

In 2008, the state council issued *Overall Plan of Water Environmental Governance in Tai Lake Basin*. In early April 2010, the third session of the joint meeting between provincial governments centered on water environmental governance in Tai Lake was convened. Later in the mid-April, the first session of the Tai Lake five municipalities joint meeting was convened. According to *Declaration of Wuxi*, NPC in the five municipalities respectively should use their local legislative power and decision power in grand proceedings to promote and guarantee the environmental governing in Tai Lake Basin. Every year, this meeting is convened with a priority subject and is participated by invited officials and some other in relevant local government departments. With principles of "consciously participation, mutual learning and joint promotion", these meetings are co-held and undertaken by local governments in turn<sup>[3]</sup>. In order to collaboratively govern Tai Lake, municipalities around Taihu Lake will jointly establish a platform for information exchange.

The first session of the Tai Lake five municipalities joint meeting was led by Wuxi municipal



NPC and participated by provincial NPC committees. Besides, according to purpose of the meeting and a relevant report, we can find that the water environment governance is a significant task given by the State Council to local governments of municipalities around the lake. Thus we can find that the environment issues are not only being much concerned by people, but also being the top priority of the State Council. Environmental governance in seriously polluted area is naturally the top priority in the local government's work list. This joint meeting aimed at implementing *Overall Plan of Water Environmental Governance in Tai Lake Basin* issued by the State Council. Echoing the third session of the provincial joint meeting, this meeting reflected how positive governments in the five municipalities are and how much attention they've paid to this issue. This meeting issued *Declaration of Wuxi and Letter of Intent to Cooperate*, creating a precedent of collaborative governance by all different polluted regions. Decisions in the multilateral meeting were consensus made with full discussion and collaboration by all joining local governments, thus they would consciously abide by. In early April, 2011, the second session of Tai Lake five municipalities joint meeting was convened in Huzhou municipality in Zhejiang Province, reflecting the positiveness of the five cities to continually improve the water environment in Tai Lake basin. The difference is that in this meeting, besides NPC of Jiangsu province, NPC Environmental and Resources Committee, NPC of Zhejiang Province, Bureau of Tai Lake Basin of Ministry of Water also attended the meeting. We can find how much attention had been paid to this issue and how significant this task is for administrative regions around Tai Lake.

What worthy praise is that in the two meetings, there were representatives who did some on-spot exploration, which was helpful for them to put forward some effective advice. Oddly however, the author failed to find any information about the third session of the Tai Lake five municipalities joint meeting, nor any reason to explain the stop.

Currently, the mechanism of joint meetings between local governments is not perfect and coordination between cities can't solve all problems. In some regions, the cooperation requires some collaborated mechanisms of higher level. As supplement, the next case confirms this point.

### **2.3 Introduction and case analysis of a joint meeting centered on environment issues in Yangtze River delta participated by all the administrative subjects**

This paper takes conferences from the second session to the sixth session of joint meeting between provincial governments centered on water environmental governance in Tai Lake Basin (hereinafter referred to as Tai Lake provincial joint meeting) as examples. The author couldn't find any detail information about the first session, however, it was simply described in a relevant paper: In June 2008, "Ministry of Water Resource should seize time to lead Ministry of Environmental Protection and administrative regions around Tai Lake to finish and perfect the function zoning in Tai Lake basin and report to the State Council" (Zhu Wei, 2012<sup>[4]</sup>).

Here are some basic introduction about the second session: from April 1st to April 2ed, 2009, this meeting was held in Suzhou municipality, Jiangsu province. The National Development and Reform Commission and other 13 departments of the State Council, together with leaders and relevant experts from Jiangsu province, Zhejiang Province and Shanghai participated and this meeting determined some new targets as "Two Guarantees and Three Declines" and eight specific requirements. The third session of the Tai Lake provincial joint meeting from April 1st to April 2ed was held in Wuxi municipality, Jiangsu Province. This meeting discussed and summarized relevant environmental governing work in Tai Lake Basin in 2009. Environmental governing work in Tai Lake basin in 2010 was also planned in this meeting. The fourth session of the Tai Lake provincial joint meeting from March 31st to April 1st was held in Huzhou municipality in Zhejiang Province. This meeting discussed and summarized relevant environmental governing work in Tai Lake Basin in 2010 and planned environmental governing work in Tai Lake basin in 2011. They also did much on-spot exploration. The fifth session of the Tai Lake provincial joint meeting from April 5th to April 6th was held in Changzhou municipality, Jiangsu Province. This meeting discussed and summarized relevant environmental governing work in Tai Lake Basin in 2011 and planned environmental governing work in 2012. The sixth session of the Tai Lake provincial joint meeting on March 19th, 2015 was held in Suzhou municipality, Jiangsu Province. The meeting determined the work priorities in the course for the future. During the meeting, delegates also did much on-spot exploration in many different

environmental governing projects in Tai Lake basin.

In the end of May, 2007, because of booming blue algae in Tai Lake and the serious water pollution, people in Wuxi municipality were badly influenced. In May 2008, the state council issued the *Overall Plan of Water Environmental Governance in Tai Lake Basin* and established the mechanism of joint meeting between provincial governments centered on water environmental governance in Tai Lake led by the National Development and Reform Commission. With same theme of environmental governance in Tai Lake basin, compared with multilateral joint conference participated by five municipal cities including Wuxi, Suzhou, Changzhou, Huzhou and Jiaying, main participants of the provincial joint meeting including administrative subjects from Jiangsu Province, Zhejiang province and Shanghai municipality. Mechanism of joint meeting between provincial governments centered on water environmental governance in Tai Lake (hereinafter referred to as: Tai Lake provincial joint meeting) was led by the National Development and Reform Commission and joined by 12 departments of the State Council including the Ministry of Finance, Legal Affairs Office of the State Council, the Ministry of Industry and Information Technology, the State Forestry Bureau, the State Meteorological Administration, the Ministry of Land and Resources, the State Council Legislative Affairs Office, the Ministry of Environmental Protection, the Ministry of Transport, the Ministry of Agriculture, the Ministry of Water Resources, the experts group of environmental governing in Tai Lake basin and the Ministry of Housing and Urban-rural Development. Since there are some trans-administrative coordination issues, it will be more suitable with upper department to organize.

Decisions in the joint meeting participated by all the administrative subjects were consensus made with full discussion and collaboration by local governments, thus they should consciously abide by them. Contents of the five Tai Lake provincial joint meetings can be summarized as summary of work in the last year, plan of purposes in the next year, and determinations of several work priorities. During the fourth and sixth joint meeting, there were some on-spot explorations helpful to truly understand the governing projects and relevant information. And the main goal of the joint meeting is to realize the short term objectives set in the *Overall Plan of Water Environmental Governance in Tai Lake Basin*. From the achievements of the meeting and the better and better water quality of Tai Lake basin, we can find that these short-term objectives have basically realized.

What notably is that there are no longer such meeting in 2013 and 2014. After the fifth session, the sixth session didn't held until 2015. The author found two reports in 2014 and 2015 respectively. From the report in 2014, we can find that though there was not such joint meeting, the environmental governing didn't stopped. "In the provincial plan, by 2020, 108.11 billion yuan should be invested and 1602 projects should be finished. By the end of 2013, totally 106 billion yuan were invested in 1450 projects" (Hang Chun-yan, 2014<sup>[5]</sup>). The test results showed that in 2007, water quality in nine rivers carrying pollution was worse than Grade V. In the end of 2013, water quality in the nine rivers was no longer such bad. This report also wrote that "2015 is the year to check achievement of environmental governing in Tai Lake basin." (Hang Chun-yan, 2014<sup>[6]</sup>). However, the report in 2015 also wrote, "According to relevant persons in charge of the Tai Lake, environmental governing in Tai Lake usually followed the decisions in joint meetings before. With no such meeting in successive two years, some issues need to be discussed and completely solved"<sup>[7]</sup>. Thus when it comes to the environment issues, these problems can't be solved in short term, sustainable improvement is needed. As effective collaborative and consultative mechanism, the joint meeting between local governments should be convened in a regular and continuous way. As for the reasons of this stop, the author can't know. According to the bulletin about the achievement of the environment governing in Tai Lake from 2013-2015 issued by Jiangsu Provincial government in 2016, we can find that since 2013, administrative regions around Tai Lake basin and relevant departments of Jiangsu Province never give up the environmental governing work, thus the short term goals, namely goals in 2015 had been realized.

### **3 Characteristics of this collaborative management mechanism applied by local governments to solve trans-administrative environmental problems and the difficulties it faces**

#### **3.1 Characteristics of this collaborative management mechanism applied by local governments to solve trans-administrative environmental problems**

According to the cases chosen in this paper, several characteristics of this mechanism can be summarized as follows:

First, there is a purpose. No matter cooperation between two governments, three governments or between all administrative subjects, the purpose is trying to increase the unity's ability to adapt to the changing environment through self-perfection of every single local government.

Second, there is integrality. Because of the unity consisting of different governments, when a single local government is self-driving, making decisions or participating the united actions, it will try to sustain the uniformity and stability of the system through rules and consensus they got.

Third, there is spontaneity. Local governments volunteer to hold such a joint meeting to discuss trans-administrative environmental problems and take collaborative measures according to consensus. Because each local government must properly handle the environment pollution, the joint meeting with upper department to lead or to participate would not change the spontaneity enjoyed by every single government.

#### **3.2 The difficulties the collaborative management mechanism applied by local governments to solve trans-administrative environmental problems faces**

Practices show that there are following problems in the collaborative management mechanism applied by local governments to solve trans-administrative environmental problems:

First, consensus reached in the collaborative mechanism to solve trans-administrative environmental problems has no effect and stability till now. Both the constitution law and the local organization organic laws lack specific regulations on the collaborative governance between local governments. This would cause some potential problems to the governance, for example, some local governments, in order to safeguard their interests, only pay attention to the orders from upper department, rather than attaching any importance to the regulated cooperation between local governments. With no clarification of rights and responsibilities of every local government respectively, it's difficult for them to investigate responsibility if any conflicts appears.

Second, with divisibility between local governments, it's difficult for them to collaborate in trans-administrative environmental governing. Because of the traditional idea of "cut up the links among departments and regions" and the current administrative system, local governments tend to take advantages of the central government and the upper governments, they need to enhance the horizontal communications between governments of the same level with them.

Third, there is no regulative collaborative model in the collaborative management applied by local governments to solve trans-administrative environmental problems. In some cases, the consensus reached between local governments is ensured by the personal consciousness and promises of the leader themselves. If there is any change in the leading position, the consensus would disappear easily. This shortage makes it difficult to organize some trans-administrative environmental governing project of big scale. Local governments haven't formed any negotiate mechanism. For example, the European Union takes group negotiation as the way to collaborate. However, when conflicts concerning their own interests appear, they would feel difficult to reach consensus using this method.

### **4 Thinking of how to perfect the collaborative management mechanism applied by local governments to solve trans-administrative environmental problems**

Generally speaking, cooperation between governments usually enjoys three characteristics as follows: First, cooperation is the product of communication between local governments, showing all the participants' agreements. Second, there are compulsory regulations written down. Third, there are formal actuators. So when the cooperators have some financial conflicts, there should be laws to obey and collaborative organizations with arbitration rights to help solving the problems (Wang Wei-quan,

2005<sup>[8]</sup>). The author thinks there are mainly three aspects in perfecting the mechanism:

First, establish and improve the legislation and consultation mechanism. The purpose of establishing regulations and laws specifying the collaborative mechanism of environmental governing is not only to promote cooperation between governments, but also to regulate their behavior respectively. The arbitration organization and mechanism after some illegal behavior should also be set up and perfected. Complete regulations and laws in organization and administration should be made to manage the collaborative management mechanism applied by local governments. The rights and responsibilities of local government respectively can be defined and allocated according to laws. The sustainability of the collaborative environmental governing can be ensured with the collaborative mechanism to reduce cooperative obstacles and regulate the local governments.

Second, strengthen the mechanism of law enforcement and supervision. With complete related laws, regulations, contracts, stipulations, organizations to enforce laws and supervise are needed to ensure that the cooperation intention would not change because of the local governments' own benefits. These organizations should be established according to the trend of collaborative environment government. Considering the overall regional interests, these organizations should take responsibilities to supervise the law enforcement of relevant government departments according to laws and regulations and strictly punish illegal behavior.

Third, perfect the mechanism of trans-administrative information symmetry between local governments. This mechanism of trans-administrative information symmetry should accurately reflect the economic information of the regions governed by the local governments and the collaborative information between them. Local governments can establish information platform using modern network technology to satisfy legislation and law enforcement, at the same time saving the communication cost.

## 5 Conclusions

Joint meeting between local governments is an effective collaborative and consultation mechanism helpful to solve the emergency problems appearing in environment governing. This mechanism can also help local governments to share information resources and do joint risk assessment, thus contribute to the overall optimization. In addition, it's more easy for the local governments to abide by the consensus reached in the joint meetings consciously. From the research of the Yangtze River delta case, some thinking and enlightenment can be summarized as follows:

First, joint meeting centered on the environmental issues in Tai Lake which were participated by the five municipalities around the lake stopped after two sessions. The author thinks the initial purpose of the joint meeting between governments in Yangtze River delta is to further promote environment governing in Tai Lake basin. However, the governing work in Tai Lake was also discussed in the Joint meeting participated by all administrative subjects in Yangtze River delta. Maybe there is some overlaps, wastes or insufficiency of the resources allocation in collaborative work. That's why just leave the joint meeting with all administrative subjects participated to allocate resources and ensure the efficiency of the governing work in Tai Lake. As the saying goes, knowledge comes from practices. Facing complex and difficult problems, practices based on scientific assessment can be helpful for scientific decision-making on environmental issues.

Second, the two years interruption of provincial joint meeting centered on environmental governing in Tai Lake basin left some vagueness in the work. This also hindered further promotion of the governing work in Tai Lake basin. Joint meetings between governments centered on environmental issues should be held regularly and continuously to strengthen actual effects especially when some environment problems needing sustainable investment of human, financial and material resources.

Third, there are some on-spot exploration in part of the Tai Lake provincial joint meeting and the two sessions of Tai Lake five municipalities joint meetings. On-spot exploration during joint meeting between governments is worthy extending. This is helpful for the participants in the meeting to know the real situation better and put forward some effective and practical plans. It should be noted that the on-spot exploration should not be "image projects" with "formalism". Rather, the exploration should truly reflect the current situation, the existing problems and the progress in solving problems.

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## Studies on the Yangtze River Basin Management System in China

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**Abstract** Yangtze River basin as the world third largest watershed, stretches across China's three economic regions, the Eastern, Central and Western, and plays a very important role in national economic development. The combined water resource management system of Yangtze River basin water resources management and regional water resource management is conducted now in Yangtze River basin. "Water Law" and a series of laws have built up the legal position of river basin management organizations and clearly regulated responsibilities and limits of authority of each river basin management organization so that their administrative authorization has been promoted to the legal and administrative integrated authorization. Through decades of exploration, Yangtze River basin management has obtained great achievements and effectively facilitated the development and governance of Yangtze River basin and ecosystem protection. But under the circumstance with barriers between different departments and regions, higher and lower levels, the authority of Yangtze River basin management organization is still not powerful enough and existing laws and regulations are short of coordination so that some authorization clarification is not clear enough to cause conflicts; there exist weaknesses in the coordination and negotiation, supervision and enforcement guarantee of cross-department and cross-regional integrated watershed management, administrative justice convergence mechanism is defective, etc. Therefore, it is necessary to refer to foreign countries' experience, targeting at solving Yangtze River basin management problems, to establish comprehensive, uniform, authoritative, and efficient Yangtze River basin management new mechanism, clarify the position of Yangtze River basin management organizations in the whole system, and provide fundamental support for the legislation of Yangtze River Protection Act.

**Key words** Yangtze River basin, Watershed management, Watershed management organization, Administrative management

### 1 Introduction of watershed management system

#### 1.1 Overview of Yangtze River basin

Originated from the "Roof of the World"—Southwest side of Mt. Geladaindong, Tanggula Mountains in Qinghai-Tibet Plateau, Yangtze River ranks the third place in the world with a length second to the Nile River in Africa and the Amazon River in South America among great rivers of the world. The stem stream of Yangtze River, with a total length of more than 6300 kilometers, a drainage area of 1.8 million square meters, taking up 18.8% of national territorial area and involving 19 provinces (autonomous regions and direct-controlled municipalities), bears 32% of China's population gross and 34% of China's economic aggregates as an important linkage of "One Belt One Road" opening up strategy and a significant support for the development of Yangtze River Economic Zone in a critical strategic position.

#### 1.2 Concept of watershed management system

System is the bridge and link connecting three major subsystems of social organism, productivity, productive relation, and superstructure for inter-association and interaction with each other. In ancient Chinese, the original meaning of system refers to "genre of poems and essays". At first, after extending its meaning to social fields, the system was explained into several meanings, "guiding principle to stipulate organization's mechanism and operation", "organizational institutions of national organs, enterprises and public institutions", "system for the organization structuring, administration authority and work arrangement of national organs, enterprises and public institutions"<sup>[1]</sup>. Based on above explanations, this article believes that watershed management system refers to specific system and organizational institutions of organization structuring, relationship of administrative subordination and divisions of powers in national organs, enterprises and public institutions in charge of watersheds.

#### 1.3 Model of watershed management

Scientific and reasonable watershed management system is the precondition to conduct effective

management on watershed development, utilization and conservation activities, as well as the basic organization guarantee to carry out the strategic objective of watershed sustainable development. Western countries have the tradition of local autonomy and governments are in an authorization relationship based on legal framework. Therefore, they attach more importance to legislation work in regional governance, and emphasize bottom-up power in development and management of great river economic zones<sup>[2]</sup>. There are several typical administration modes as below: watershed management organizations under the direct management of central government; watershed organization subordinated to national departments of water administration; watershed organization is a kind of consultation & coordination mechanism constituted by interested parties.

Different with western system background and the stage of economic and social development, China has stronger government-leading functions. In recent years, governments at all levels have carried out beneficial explorations and established Chinese characteristic management modes such as the comprehensive administration mode in the Yellow River basin, Shanjianghu mode in Jiangxi Province with local executive authority highly centralized and unified administration, and Yangtze River basin management mode combining watershed management with administrative management, etc.

## **2 Current management system in Yangtze River basin**

### **2.1 Current management system in Yangtze River basin**

According to “Water Law of the People’s Republic of China” (hereinafter referred to as “Water Law”), the state carries out a watershed management and administrative management combined management system for water resources; Departments of water administration of the State Council set up watershed management organization in important state-specified rivers and lakes, and perform water resources management and supervisory duties authorized by departments of water administration of the State Council as stipulated by laws and administrative regulations in the scope of jurisdiction. Other laws and normalizative documents of law such as “Water Pollution Prevention Law of the People’s Republic of China” (hereinafter referred to as “Water Pollution Prevention Law”) has provided relevant regulations. As China’s largest river basin, Yangtze River basin is conducted with the water resource management system combining Yangtze River basin water resources management with regional water resources management.

### **2.2 Current management organizations in Yangtze River basin**

According to regulations in “Water Law”, “Departments of water administration of the State Council set up watershed management organization in important state-specified rivers and lakes, and perform water resources management and supervisory duties authorized by departments of water administration of the State Council as stipulated by laws and administrative regulations in the scope of jurisdiction.” Changjiang Water Resources Commission as the management organization of Yangtze River basin, is a station organization deployed by Ministry of Water Resources and a public institution with executive authority and clear legal status, to perform its duties according to laws and regulations, and carry out relevant administration duties on behalf of MWR. Yangtze River basin have a widespread but limited distribution of natural resources. As water-involved affairs are complicated, there are 19 water-involving administrative departments in administrative regions, and 15 directly water-involving industry sectors in water conservancy, water and electricity, environmental protection, transport, marine affairs, urban construction, territory, geological minerals, tourism, sanitation (schistosomiasis prevention), etc.

### **2.3 Relevant legal provisions of Yangtze River basin management**

Currently, no professional and unified river basin management law has been set in China. Relevant contents are scattered and indicated in part of water-involving laws and regulations. Current legislation of integrated watershed management is mainly constituted by laws, administrative laws and regulations, local laws and regulations, department administrative rules and local government rules. Relevant laws for integrated watershed management mainly include “Water Law”, “Water Pollution Prevention Law”, “Soil and Water Conservation Law”, and “Flood Control Act”, etc. Relevant administrative laws and regulations mainly include “Regulations on Water Drawing Allowance and

Water Resources Fee Collection Management”, “Flood Prevention Act”, etc. Local laws and regulations mainly include provisions and implementation measures corresponding to relevant laws, laws and regulations of water resources protection or pollution control targeting at local important rivers and lakes such as “Fenhe Basin Water Pollution Control Rules”, “Guangdong Dongjiang Water System Water Quality Protection Rules”, etc. Departmental regulations are mainly administrative management measures formulated by MWR and Ministry of Environmental Protection to carry out “Water Law”, “Soil and Water Conservation Law” and other laws and regulations. Local governmental rules are mainly administrative management measures formulated by local governments to carry out “Water Law”, “Water Pollution Prevention Law”, “Soil and Water Conservation Law”, “Flood Control Act” and other laws, administrative regulations and local decrees.

### **3 Main problems existing in Yangtze River basin management**

#### **3.1 Watershed unified management cannot be put into implementation**

2002 “Water Law” has clearly stipulated the water conservancy departments’ authority of water resources unified management, but conflicts between different departments still exist. View from legal provisions, China carries out “watershed management and administrative regional management combined management system”, based on which watershed unified management shall play the leading role, department management and administrative regional management should be play the subsidiary role. However, in practice, CWRC as a watershed unified management organization has no administration authority for unified management. As a sending agency of MWR, it performs its coordination function only but does not become the subject of Yangtze River basin management. In practical situation, this kind of management system will easily lead to segmentation of higher and lower levels between the central and local governments and overemphasis on the management of administrative regions in the watershed. Each administrative department cannot adapt to the requirement of implementing watershed sustainable development strategy, on the contrary, it will hinder the implementation of watershed sustainable development strategy<sup>[3]</sup>.

#### **3.2 Local governmental protectionism is serious**

Under the condition of market economy, driven by economic interests, local governments in the watershed will inevitably collide with the unified management of watershed natural resources, natural environment exploitation, utilization and conservation for the sake of local region, and will inevitably make full use of their power in watershed administrative regional management for vigorous development and utilization of watershed natural resources and environment in the administrative region so as to pursue benefits for local social economic development<sup>[3]</sup>. Some local governments shall not investigate enterprises’ illegal sewage disposal into Yangtze River, and even some even conceal the pollution accidents occurred. This will inevitably lead to interest conflict between central government and local governments. In addition, in local-level government, each industry competent departments are usually same-level governmental administrative departments and public institutions, under the guidance of superior competent authority of industry in the business, but they are limited greatly by local government at the same level in personnel and financial aspects so that they cannot independently perform their administration authority.

#### **3.3 Conflicts of function between watershed management departments**

Currently, not a unified and integrated management organization has been set up in the watershed level and each department is subordinate organ to ministries and commissions under the State Council with own water-involving affair management authority. Therefore, Yangtze River basin management is actually in a state of “segmented management, lack of coordination”, which will easily lead to the competition for power, mutual reproach, prevarication and buck-passing between different departments<sup>[4]</sup>. Conflicts of function between watershed management departments are also caused by lack of unified legal provisions in the function scope, and stagnation of public finance system. Departmentation of income and expenditure leads to independent economic interests and increases conflicts in different departments. For matters with clear authorization, duty and authority such as watercourse and flood control management, water resources argumentation, and water drawing permit, sand mining management, and planning management are well performed. But for new matters with



ambiguous authorization and newly emerging social events such as water engineering construction, water and soil conservation, water resource protection, water dispatch, and other duties, there may exist conflicts of function.

### **3.4 There exist conflicts between each administrative regions in Yangtze River basin**

Under the management system of regional segmentation, local governments in upper Yangtze River usually start from their own standpoint considering less about the downstream interests. In addition, Regarding the Yangtze River water resources development and utilization, provinces along the river develop competitively, put one-sided emphasis on upper stream engineering, and blindly start high water consumption projects, expand water supply scope without considering the resource conditions so that the implementation of watershed planning is hard to be guaranteed and imbalance between supply and demand of Yangtze River water resources have been aggravated<sup>[5]</sup>.

### **3.5 Dilemma existing in watershed law-enforcing and supervision**

As mentioned above, “Water Law” has confirmed the watershed management organizations but has not clarified the duties of water management departments. Thus there exist problems in Yangtze River basin water law-enforcing and supervision such as law-enforcing authority ambiguity and conflicts. Watershed management department and local administrative management departments have not attach great importance to watershed law-enforcing and supervision. In front of some illegal problems, there is no necessary rigid restriction mechanism so that law enforcement is poorly conducted.

## **4 Reform and construction of watershed management system**

### **4.1 Clarify the authorization classification between watershed management and regional management**

We can see from the developed countries’ watershed management experience, water-involving affair management cannot be completely handled in a department. The key is to establish a cooperation and coordination mechanism between each department and region<sup>[6]</sup>. China sets up watershed management and regional management combined watershed integrated management system based on the integrality characteristic of watershed. Therefore, authorization classification between watershed management and regional management is an important part of improving watershed integrated management efficiency. During authorization classification, basin-wide affairs, local affairs and co-administration affairs should be clarified firstly. Regional affairs should be under regional management, external regional affairs shall be under watershed management organization’s unified administration. Prospective and comprehensive affairs should be under charge of Yangtze River basin management organizations such as planning management of Yangtze River, water resources scheduling and water drawing accreditation, supervision and law-enforcement of watershed water resources development and protection, hydrological information issue, etc.

### **4.2 Strengthen the function of CWRC**

Strengthening the function of CWRC mainly refers to further enhancing the unified planning, scheduling, unified monitoring, and unified law-enforcing supervision of CWRC on the basis of its current management function. Clarify integrated planning scope, strengthen the guiding and rigid restriction function of watershed planning so as to help Yangtze River Economic Zone adapt to water resources and water environment carrying capacity in its layout and structural adjustment. Strengthen the function of CWRC on unified scheduling of Yangtze River water, expand the combined dispatching of current upper ponds in Yangtze River into the whole river basin, and include hydraulic and hydro-power engineering in middle and lower reaches into unified scheduling scope so as to make full use of comprehensive benefits of water resource and guarantee flood control security, ecological security, water supply security, and navigation safety. Integrate partial industry supervising and law-enforcing function, authorize supervising and law-enforcing functions to CWRC such as water intake and use, draining sewage into river, wetland protection in river lake areas, shoreline management, and sand excavation in river courses. Replenish water administration supervising and law-enforcing power to CWRC, clarify authority limit, endow functions, and equip law-enforcing groups and establish a right-obligation unified watershed water administration supervising and law-enforcing system and operating mechanism.

#### 4.3 Clarify the legal responsibilities of local governments

Management in administrative region has its own limitation, but it is not feasible to totally replace it by watershed management. A lot of experience has been accumulated in long-term Yangtze River basin management of ministries and commissions and local governments. Although they have barriers between higher and lower levels without coordination and harmony, their historic experience and realistic cognition of Yangtze River basin are of great value for Yangtze River governance. Also, in current realistic condition, active participation from ministries and commissions and local governments will be indispensable<sup>[7]</sup>. Yangtze River basin involve 19 provinces, autonomous regions and direct-controlled municipalities. It is necessary to develop local government's activity but restrict government's behaviors, and clarify its legal duties at the same time. In October of 2016, the 28<sup>th</sup> session of central government's leading group for comprehensively deepening reform has approved "Advice on Comprehensively Promote River Chief System", and proposed to comprehensively establish provincial-level, city-level, county-level, and village-level four-grade river chief system, with major principals in CPC Committee or government holding the post. The implementation of river chief system has indicated that central government attaches great importance to ecological environment issues, and proposed requirements for local governments' responsibility for environmental protection. During the implementation process of river chief system, river chief's duties must be confirmed so as to make reasonable policy decisions during environmental protection and economic development.

#### 4.4 Strengthen the law-enforcing supervision of water administration in Yangtze River basin

Supervision of law enforcement cannot work without public participation. Therefore, watershed management departments should strengthen publicity for timely information sharing, and completely mobilize public participation, clarify the duties of watershed management organizations, establish special law-enforcing supervisory organizations, and always keep tough stance at illegal water-involving behaviors, severely crack down unlawful acts, and investigate water-involving illegal cases. To avoid the weakness of law enforcement, watershed management departments can strengthen the collaboration between administrative regions and departments, and promote public security department to support water administration law enforcement.

#### 4.5 Accelerate legislation of Yangtze River Protection Law

Considering the important status of Yangtze River, numerous items and sections are involved in Yangtze River base harnessing and development, and interest subjects are diversified with different and complicated conflicts between each other. Modification or formulation of general water laws and regulations cannot work sufficiently. Only by formulating comprehensive "Yangtze River Protection Law" can standardize the complicated water-involving matters in Yangtze River<sup>[8]</sup>. It is necessary to accelerate the legislation process of "Yangtze River Protection Law", confirm the objective of Yangtze River conservation, clarify responsibilities and limits of watershed management organizations, local people's government and industry departments, and subdivide the responsibility of law-enforcing supervision of watershed management organizations, clearly stipulate legal provisions on watershed water resources, water environment, water ecological conservation, flood control and drought relief, and water resources utilization, so as to provide necessary legal guarantee for the development of Yangtze River Economic Zone.

### 5 Conclusions

Scientific and reasonable watershed management system is the precondition of effective management of watershed development, utilization and protection activities, as well as the basic organizational guarantee to carry out the strategy of watershed sustainable development. The key of strengthening uniform management of Yangtze River basin management is to rationalize the relationship between watershed management and regional management, to establish a new system combining watershed management with administrative regional management, clarify and intensify three major types of Yangtze River basin management organizations' authority, planning, examination and approving, supervision and enforcement, change the current situation of Yangtze River basin division management, coordinate interests of each subject in the watershed, promote the eastern, central and western regions to shorten development gap, achieve the sustainable development of

Yangtze River basin, and provide fundamental support for the legislation of Yangtze River Protection Act.

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## A Research on Citizen Participation in Public Policy against the Background of the Disintegration of the Interest Groups

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**Abstract** With the development of political economy and the social transition in China, the social interest structure has been undergoing disintegration and reuniting all the time, and the interest groups in China has evolved, from the original two classes—the working class and the peasantry, into various different ones. Necessarily, different interest groups have their different interests. In this occasion, it is quite essential to discuss which system could be used to realize citizens' effectively participation in public policy. In the beginning, this article introduces the relative theories on interest groups to theoretically state how significant the suitable citizen participation in public policy is for each party of the interest groups; then, the article analyzes how the disintegration of the interest groups influence the citizen participation in public policy, and explores the flaws and causes of the outdated system for citizen participation in public policy against the background of the disintegration of the interest groups: the interest groups pursue their own interest rather than that of the public, the interest groups take advantage of their own superiority to interfere the public policy of the government, the government has a degree of self-interest, the common citizens are comparatively weak at participating in public policy, the system approaches for citizen participation are ineffective and there are no effective supervision by the society and public opinion. Based on the above-mentioned ideas, the article provides countermeasures on how to build a suitable system for citizen participation in public policy against the background of the disintegration of the interest groups.

**Key words** Interest groups, Disintegration, Citizen participation, Public policy

### 1 Introduction

In 1980s, the political reforms in China reached its climax, the notion—"interest groups" appeared in official document and was mentioned by the media in a high frequency, after that, the phrase has gradually been replaced by "interest mass" and disappeared from the official opinion. Till October 2006, as the sixth plenary sessions of the 16th CPC Central Committee was successfully held, the central government came up with the objective of building a socialist harmony society in all respects, which stressed that the emergence of the "vested interest group" must be prevented, and that marked the notion's appearance in the official document again. The reappearance of the "interest groups" attracted the public attention. While it happened that the Chinese society flooded with the issues on unfairness at that time, the "special interest groups" almost became the prime target for the media in China. Hence, it is obvious that the visibility and effect of "interest groups" are to be reckoned with in the development of Chinese political economy. Along with the reform and opening up, the unceasing disintegration and reuniting of the new social interest group resulted in a great many interest groups of diversity and specificity. However, the citizen participation in public policy and equal public rights are the basic rights and freedom of the social citizens in modern times. And it is the intrinsic requisition of the socialist democratic politics and the democratization of public policy that citizens should participate in public policy. Due to the interest mass are getting diversify, and the citizens are gradually conscious that they should participate in the process of public decision-making, of which the approaches become more diverse. To pursuit the infinite of its own interest is the essential characteristic of the interest groups, which has influenced the effective operation of the system for citizen participation in public policy to a large extent. Therefore, it is quite necessary and significant for exploration into how citizens effectively participate in public policy as well as the establishment of suitable participation system against the background of the disintegration of the interest groups.

### 2 The connotation and disintegration of the interest groups

Before the reform and opening up, during the planned economy period the entire society in China

existed only “two classes and one stratum”, namely the working class, the peasantry and the intellectual, among which the peasantry accounted for an overwhelming majority. Against that background, the interest structure was relatively plain. From the reform and opening up onwards, newly emerged social classes and the growing interest groups made the interest structure more complicated. With the establishing and consolidating of the objectives of the market regulation system, the transformation of ownership system, the distribution system and the alteration of people’s interest consciousness have jointly promoted the constant disintegration of interests. The generation of diverse interest mass followed.

“Interest group” is defined as “the interest community based on the relative common interest. There are certain differences, conflicts, and shared comparatively identical objectives and consciousness among each group”. The interest groups are the combination of groups of people with common interest. The essence of their interest relation is social relation, by which the complication and diversity of groups it shaped also referring to the diversity of the interest groups. Presently, the interest groups can be divided into three categories: first, corporate interest group, mainly indicates state-owned corporate and some large private enterprises, which are close to the institutions of the CPC and government; second, community interest groups, mainly indicates official and social organizations, and industry associations; third, non-organizational interest groups, mainly indicates some non-profitable organizations. These three types of organizations possess different discourse power and influence due to their corresponding status, characteristic and financial and material capabilities.<sup>[1]</sup>

### **3 The significance of suitable citizen participation in public policy to the interest coordination among the interest groups**

In early 1900s, Bentley the founder of Political Process Theory said, if the interest groups could be explained, then everything could. Although the present interest groups in China haven’t reached its greatest extent in illustrating all the political phenomena, beyond all doubt, they already become the notable variables in the process of policy decision-making in China. Given that the natural property of the interest groups is unceasingly pursue its maximal interest, the suitable citizen participation in public policy during the course of the disintegration of the interest groups means a lot to the coordination of interest.

First, the suitable citizen participation in public policy maximizes and balances on the interest of the interest groups. As the American scholar David Easton defined it as “the authoritative allocation of values for the whole society”, the most important link in public policy is the settlement of the interest. The process of interest allocation is actually the game of different interest groups. The redistribution the citizen participation in public policy does to the public interest aiming at satisfying the need of the citizens, advocating their positives, coordinating the interest relations of the interest groups to achieve the allocation of the public interest. Meanwhile, the system of suitable citizen participation in public policy plays an important role in the integration of the interest relations, the satisfaction of the interest demands, and the control of the interest conflicts to its largest extent, in which case the dynamic balance of the social interest community was ensured.

Second, the system for suitable citizen participation in public policy can maximally encourage the initiative of citizens. Citizen participation, among others, in public policy is actually the expression of their opinions and demands on behalf of their own interest about the public policy. While the system for suitable citizen participation in public policy itself is an approach to maximally secure the citizens, as the subject of legal rights and as the concerned interest party when participate every link of the formulation, implementation, supervision of the public policy. For one thing, the system can ensure the citizens feel free to express their willingness as much as possible without taking the risk of being blamed, defamed, or even being illegally held in custody; For another thing, it can ensure the citizens not to do whatever they want beyond laws and regulations, even if someone does, he or she would be punished.<sup>[2]</sup>

Third, the system for suitable citizen participation in public policy can maximally defuse social contradictions and promote social harmony and stability. In order to achieve the infinite of their interest, each party of the interest groups start fierce competitions, this results in various improper

(corruption, fraud, violence) conduct; furthermore, the inappropriate allocation of the social resource contributes to the increase of the polarization; the advantaged group and vulnerable group begin to take shape and become antagonism towards each other, which makes the vulnerable group takes irregular measures to defend its own interest, hence causes social problems and the social harmony being jeopardized. The system for suitable citizen participation in public policy offers a platform for the citizens to express their interest and demands. On the one hand, to some extent it meets the demands and interest of the citizens; on the other hand, each of the interest groups (including the citizens) has been extensively involved into the dynamic game of the system. In that case, the interest groups can maximally compromise with each other, and the social contradiction can be effectively solved with the maintenance of the social peace to the maximum.

#### **4 The flaws of the outdated public policy and its pauses**

Due to the social transition and the development of the economy, various interest groups have various interest demands. To meet their own demands, different interest groups, on the one hand, inevitably do as much as they can to influence the government (author note: the “government” here indicates the government in a broad sense) and officials on the formulation and implementation of the public policy, in the meantime, they do everything they can to exclude the citizens out of the process in the other to attain goals that benefit their own group. The system for citizen participation in public policy shaped under this circumstance is bound to jeopardize the fairness and justice of the society, and harm the fundamental interest of the people. The major flaws of this pattern of citizen participation are listed below:<sup>[3]</sup>

First, the interest groups pursue their own interest rather than the public interest. In most cases, the interest groups merely represent the interest of their own group, and focus on decision-making concerning them. The main purpose of achieving the infinite of their interest within established policy makes them showing no extra care to the common interest of the whole society. In spite that part of the interest groups represent the public interest, which are intend for the improvement of some certain common interest, most of the interest groups in China are self-interest groups. These groups always take little public interest into consideration but pursue their own one-sided narrow interest. The interest groups are usually interested in policy issues directly concerning their interest, and they will not specially seek the chance of participation and have no intention of improving their participation ability for anything not about them.

Second, the interest groups influence the public decision-making by their advantages. To get more benefit for themselves in the process of public decision-making, different interest groups will put pressure on government by all kinds of approaches, which seriously affect the independence of the formulation of the public decision-making. The lessening of the citizen participation as a role in the policy decision, and the inferior quality of the policy made in this occasion undermine the authority on the citizen participation in public policy.

Third, the government has a degree of self-interest. To begin with, some governmental administrative departments usually have cooperative relationship with relative interest groups in various kinds of forms. This kind of relationship may lead the government to take the self-benefit path by breaking the balance of the interest allocation. They will use their power to manipulate the political conduct, which further split the political environment. Eventually, the formulation, implementation, fairness, equity, and effectiveness of the public decision-making are all impaired. Next, the governmental officials, as the conscious individuals with their own interest to represent, are painstakingly pursue the infinite of their interest in the social activities. With the development of the market economy, the governmental officials are also updating the view of interest. Unlike the regular social members, the officials hold public power and are able to dominate the public interest. If the officials are not under effective supervision, they might exploit the public power to obtain profit for themselves. By taking the public power as the leverage of individual interest, the governmental officials abuse the power; then the phenomenon of “the departmentalization of the governmental interest, the individualization of the departmental interest” emerges.

Fourth, the participation ability of regular citizens is comparable weak. The sense of

self-independence, interest and participation of Chinese people has been increased along with the development of the market economy of China. To ensure that the interest and demands of their own are reflected in the implementation of the public policy, people's sense and demands of participation is getting stronger and stronger.<sup>[4]</sup> Nevertheless, the development of the overall economy in China is still at a low level, the education level and the cultural quality of the people is lagging behind, which causes that citizens' participation ability hardly meet the demands of participation in public policy. Despite that the law does not underline the minimum of citizens' science and culture level on the issue of citizen participation, there is a growing trend that the implementation of the public policy are getting more complicated and more professional than before, making that part of people cannot or choose not to participate in public policy out of the deficiency in knowledge, skill and information. Besides, the citizen education in the past was inclined to content related to ideologies, such as political participation. It concentrated less from the perspective of techniques on the citizen participation, and led to the situation that though presently most of the Chinese citizens have strong consciousness and demand to participate in public policy, the endemic low ability of participation brought the conflict between the actual ability and the requirement of the citizen participation in the process of the public policy, and then placed main obstacle in the way of citizen participation in public policy.<sup>[5]</sup>

Last, the system approaches of citizen participation and the supervision by the society and public opinion are ineffective. The approaches of participating in policy-making are the basic conditions for citizen participation, for whether the approaches are perfectible and effective, that it directly relates the citizens' expression of their interest and equitable distribution on the interest concerning public policy. Even though the Chinese government has established a series of system approaches for citizen participation in public policy-making—a matter of discretionary supplementation with serious formalization problem and the relative to-be-perfected supporting system, the system approaches established by the government plays a minor role in the course of citizen participation in public policy. All in all, China is lacking in the system approaches of participating in policy-making, the specific feasible regulations, effective social supervision; it trapped in the difficult position that the decision-making system is incomplete, and the systematic participation approaches are insufficient. All these elements give rise to the insufficiency and ineffectiveness of the system approaches for citizen participating in public policy, making them cannot effectively take part in decision-making of the national and local public policy.

## **5 Building a suitable system of citizen participation in public policy against the background of the disintegration of the interest groups**

In the first place, the government should update the idea, which is to say, practically build a kind of philosophy of fairness and impartiality. The government is for the people, and its sole purpose is serving the people heart and soul. In this occasion, the government should be persistent with the philosophy of fairness, impartiality to the interest groups and the common people. The government should not be hijacked by the interest groups and regardless of the interest of common people. In this philosophy, it is the priority that the government maximally constrains some certain restriction (or "hijack") and violation of the interest of the common people from the interest groups. Secondly, the government should reach its limit to protect the interest of the common people from the infringement of the interest groups by all kinds of so-called banner of "legitimacy and right". Thirdly, on the basis that the interest of the vulnerable group being secured to the greatest extent, the government should further provide the interest groups at all levels with approaches and opportunities to express their demands in a fair and appropriate way.

In the second place, building and standardizing the political system of citizen participation in public policy. Huntington once said, "the system we talk about, indicates a behavior pattern that is stable, respectable and constantly reappearing, and systematizing is the process of acquiring value and stability for the organization and procedures". A society should complete corresponding system and system to have its citizens express their interest demands, which means, by providing institutional safeguards and building system, all the interest groups are entitled to express their interest well; by the information open system, the perfecting of the hearing system and the democratic supervision system,

citizens obtain more approaches to participate in public policy, and more demands from different interest levels and groups are to be met. For the sake of the healthy and coordinated development of different interest groups, completing the scientific decision-making system of interest, interest expression system, interest-oriented system, interest supplementation system, and providing complete, sufficient, and effective approaches of interest expression for interest groups are of great necessity. The system of people's congresses and System of Political Consultation are the fundamental institutional safeguards for citizen participation. We need to constantly complete the above two systems and innovate on the basis of them to provide more approaches for citizens to effectively participate in public policy.<sup>[6]</sup>

Third, the relative laws and regulations should be completed, and the conduct of the interest groups concerning the participation in public policy should be standardized. The present citizen participation in public policy hasn't reached the expectation, of which the principal reason is that the system hasn't risen to the law level or coercive method to ensure the system being implemented. Therefore, series of regulations on the citizen participation are expected to be designed and established, in the meantime, the rights and obligations of the citizens should be clarified. The subjects, conditions, regulations, procedures, and orders are to be detailed, and conducts might jeopardize the citizen participation are to be penalized. Not only should the citizens fully engage in the political life, their conduct also need to be standardized so that the legal conduct would be protected and the illegal conduct would be cracked down. Either appropriate interest demands sought by illegal approaches or inappropriate interest demands sought by legal approaches should not appear. Meanwhile, in the course of building the system of citizen participation in politics, the interest groups' conduct of the participation in public policy should be standardized, especially those inappropriate measures they took in the past.<sup>[7]</sup>

Fourth, the supervision by the society and public opinion should be intensified, and the conduct of the interest groups in the participation in public policy should be restricted. Only by the supervision of the common people and public opinion, the equity of the power can be guaranteed. The effectiveness of the supervision of the society and public opinion straightly relates the degree of citizen participation. So the supervision of the group organization, the citizens, and press and media should constantly be strengthened. The government should actively create conditions to have the group organization, citizens and public opinion to exercise their rights under the laws and regulations confidently, and ensure that the power of the government can be exercised in the system and the system of citizen participation can be implemented smoothly. For one thing, by the supervision of the group organization, citizens and public opinion, citizens can be actually take part in the links of formulation, implementation and supervision of public policy, and their appropriate demands can be maximally satisfied. For another thing, the supervision of the group organization, citizens and public opinion can ensure that the government not to be "hijacked" by the interest groups, and the interest of the citizens not to be infringed by them. At the same time, the conduct of the interest groups is properly restricted.

Fifth, the citizens' cultural quality should be enhanced, and their ability of participation in public policy should be improved. The quality of the citizens decides the quality of the government and corresponding operation system and mechanism. Given that the overall cultural quality of the Chinese citizens is comparatively low, especially the quality of participating and administering the state affairs, it is a great necessity to build effective culture and education system, to strengthen citizens' cultural quality education, to improve their ability to participate in politics, and to broaden their vision of political participation.<sup>[8]</sup> On the one hand, while strengthening the higher education, the strength of various kinds of non-diplomatic education and citizens' permanent education are also very essential; being a person with high cultural quality is the cultural basics that citizens participate in politics. On the other hand, the approaches and opportunities enable the citizens to understand the important meaning of political participation, making them practically join themselves into the government decision-making. Citizens can grow up, improve and complete themselves, and achieve the "win-win situation" with the interest groups in the process of participation.



## 6 Conclusions

On the ground that the market economy leads to the disintegration and reuniting of the social interest structure, the social phenomenon—disintegration of the interest groups could not be reversed. Because the public policy is the very approach to manage the relationship among the diverse interest groups, the disintegration of the interest groups certainly will exert influence on the citizen participation in public policy. The government represents the public interest, so it must be cope with these problems. The government needs to continually try hard to build and complete the system of citizen participation in public policy against the background of the disintegration of the interest groups by maximally restricting the expansion of the interest groups, managing to eliminate the negative effect the interest groups made to the citizen participation in public policy, solving the conflicts, and coordinating the interest of all parties. All these efforts are very helpful for the advance of democratic politics, the stability of the society, and the realization of the political democracy and modernization.

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## A Study on Psychological Crisis Intervention in Emergency Management —Based on the Theory of Big Data \*

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**Abstract** Today the emergencies occurred frequently in the world and many countries has paid more and more attention to emergency management. Psychological crisis intervention is an important part in emergency management. Psychological crisis intervention in emergency management means the government and related departments provide mental intervention for the victims. The application of big data can improve the effectiveness of crisis intervention. This paper first analyze the content of big data and psychological intervention, then describe three problems of mental interventions, and last discuss the application of big data in the preparing work before intervention, effective intervention during intervention and continuous tracking after intervention. At the same time, in order to use big data reasonably, the government should perfect the laws and regulations to create a safe information environment.

**Key words** Big data, Emergency management, Psychological crisis, Psychological crisis intervention

### 1 Introduction

Psychological studies show that when people encounter unexpected events or major life events, the usual coping style can not help themselves solve the problem, and then they will be in a state of psychological imbalance. If they are not received psychological help, they will suffered serious psychological crisis (Zhang Wei-ping, 2006<sup>[1]</sup>). After the Wenchuan earthquake, Zero company and Tsinghua University Emergency Management Base conducted an in-depth and meticulous investigation for the residents of the disaster area. The results showed that 66.7% of adults had a strong sense of stress and 33.1% of them suffered from depression. Such psychological harm especially exist in the adult people who got physical hurt or lost loved ones in the earthquake, and 62% of them had serious post-traumatic stress disorder (PTSD)<sup>[2]</sup>. So psychological rescue and psychological crisis intervention are the important part in emergency management. Today is the age of big data. The development and application of big data has penetrated into various fields and has created huge economic and social value. Some countries in Europe and America has applied big data in emergency management and made a great achievement. Now in our country many scholars begin to study the application of big data in emergency management and psychological crisis intervention.

How to correctly understand the opportunities brought by big data and use big data to promote the work of psychological crisis intervention. This paper first introduces the concept of emergency management and psychological crisis intervention and then analyzes the current situation of psychological crisis intervention of emergence management, and last explores the effective way to solve the current problems and to improve the efficiency of psychological crisis intervention with the application of big data.

### 2 Psychological crisis intervention in emergency management and big data

#### 2.1 Psychological crisis intervention in emergency management

Emergency. *The State Emergency Response Plan for Public Emergency* issued by State Council has defined it. Emergencies are incidents that happen suddenly, causing heavy casualties, property damage, and ecological damage, and causing serious harmfulness to society and endangering public safety, and there are four types of emergencies: natural disaster, accident disaster, public health events and social incidents (Liu Da-wei, 2011<sup>[3]</sup>). When individuals suffer emergencies, they will produce a

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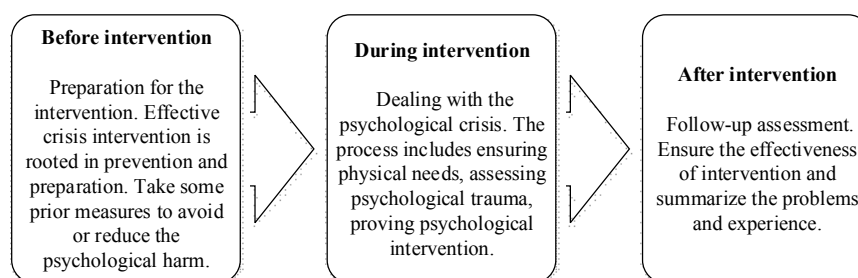
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series of psychological stress responses, including emotional reactions, cognitive responses, and physiological responses. Emergencies are the realist test of the psychological quality of people, and if they fail to respond the emergency, they will suffer psychological trauma.

**Emergency management.** Emergency Management refers to the process of dealing with emergencies with the purposes of reducing the hazards of emergencies and optimizing the decision-making purposes, and the process of warning, controlling and processing the emergencies by analyzing the causes, processes and consequences through integrating all aspects of social resources (Cao Rong, 2013<sup>[4]</sup>). The process of emergency management includes four stages: prevention, preparation, response and recovery. Different stages have different work contents, which demands to deal with emergencies in accordance with this process.

**Psychological crisis.** Psychological crisis is a state of psychological imbalance caused by events and encounters that can not be solved by the existing resources and habitual coping mechanisms (Brock S E, 1998<sup>[5]</sup>). If this psychological imbalance is not timely treated, it will cause psychological trauma, leading to cognitive, emotional and behavioral disorder and social function disorder, and even having PTSD, resulting in lifelong distress (Cheng Qi, 2009<sup>[6]</sup>). Serious natural disasters or crisis events, such as fires, floods, earthquakes, terrorist attacks, are important causes of large-scale psychological crises in the population.

**Psychological crisis Intervention in emergency management.** It mainly refers to providing psychological crisis intervention for people affected by the emergencies to help them restore the adaptation function, prevent and mitigate the negative consequences of psychological trauma (Everly G S., Mitchell J T., 1997<sup>[7]</sup>). G.S. Evely argues that the psychological crisis interventions provided in emergency management have three main objectives: reduce the risk of acute, severe psychological crisis and trauma; calm and reduce the serious consequence of crisis or traumatic situations; promote individuals recovery from crises and traumatic events. Studies show psychological crisis intervention in emergency management can effectively prevent and mitigate the psychological trauma by emergencies (Jr E G, 1999<sup>[8]</sup>). The psychological crisis intervention in emergency management cover three parts: the preparation before intervention, dealing with psychological crisis during intervention and follow-up assessment after intervention. See Figure 1.



**Figure 1 The process of psychological crisis intervention in emergency management**

## 2.2 The concept and characteristics of big data

Big data, also known as massive data, refers to the large amount of data that cannot be manually through a reasonable time to intercept, manage and process, and to translate the data into readable information (Zhu Ting-shao, 2013<sup>[9]</sup>). In other words the big data that can not be perceived, acquired, managed, processed and serviced by conventional machines and software and hardware tools for a certain period time (Li Guo-jie, Cheng Xue-qi, 2012<sup>[10]</sup>). Big data has three characteristics, namely 3V: volume, variety and velocity.

Two application methods of big data are big data technology and big data thinking. Big data technology include traditional technologies such as data warehousing, data mart and data visualization, as well as new technologies such as cloud storage and cloud computing. Big data thinking refers to discovering the problems in the massive data with the thinking of the whole sample and forming a way of thinking with fuzzy, relevance and integration (Ma Ben, Mao Qing-duo, 2015<sup>[11]</sup>). The application of big data include four features: rapid collection, analysis, decision-making and response mechanisms;

with high degree of credibility in the analysis and conclusions; more predictable and higher accuracy in individual and group behavior prediction; making full use of data. Big data plays an important role in early warning, effective intervention and follow-up assessment of psychological crisis intervention.

### **3 Problems in psychological crisis intervention in emergency management in our country**

Disaster psychology has begun to get attention since “SARS” in 2003, especially after Wenchuan earthquake in 2008, and the government gradually established a relatively perfect psychological crisis intervention system, which guaranteed the successfulness of psychological crisis intervention from the theory aspect in this earthquake. However, there is still a considerable gap between the ability of psychological crisis intervention and the actual needs. More problems are worth studying on psychological crisis intervention in emergency management.

#### **3.1 Lacking of preparation before intervention**

The existing psychological crisis intervention in emergency management has a wrong concept of “focus on dealing with emergencies but neglect prevention”. Only when the crisis occurred, the health sector or other organizations set up a psychological intervention team. The effectiveness of intervention is very low because of less preparation and prevention before intervention, which involves analyzing the experience of previous crisis intervention and getting the information of other rescue sectors.

#### **3.2 Low effectiveness in psychological crisis intervention**

**Lacking of unified organization and command system.** Psychological assistance in emergency management lack action planning, coordination agencies and command system. When the emergency occurred, especially natural disasters, some psychological assistance teams as well as some volunteers with psychological background actively provide psychological assistance. The problem is that there is no unified command, no coordination and communication. As a result, some victims receive help for many times by different psychological assistance team, while some people neglected. This situation not only wastes psychological relief resources but also causes secondary psychological harm for those receive help more than one time as they have to touch their psychological trauma for many times.

**Lacking of professional psychological crisis intervention staff.** After emergencies occurred, especially natural disasters, the victims are extensive. Some psychological professors said at least 10 thousand people needed psychological crisis intervention after “5.12” earthquake (Ma Ben, 2008<sup>[12]</sup>). However, according to the Zero Company’s survey, only 9.9% of the affected people received psychological crisis intervention within one month after the earthquake. Moreover, a large number of psychological assistance staff had not received professional training as well as no psychological knowledge and technology. They not only failed to achieve the effect of psychological assistance but also they probably became the indirect victims in this earthquake.

**Psychological assistance is passive.** When the psychological rescue team began to carry out psychological rescue, due to the lack of comprehensive understanding of rescue situation, can not grasp the distribution of the affected people. Moreover many rescue staff know little about professional knowledge, so they do not realize the timeliness and initiative of psychological crisis intervention. Many rescue teams are only passive to stay in the rescue site waiting for the victims who take the initiative to seek help. Also psychological crisis intervention staff make decisions passively because they do not know other information.

#### **3.3 Lack of follow-up assessment after intervention**

After the emergency occurred, many psychological rescue teams provide crisis intervention for victims only for one time, called “disposable” or “temporary” intervention. They do not track and assess the affected people to monitor their mental status. Psychological crisis intervention has never been a relaxed, short form of relief, but a hard, long work process. The people who suffer serious psychological trauma need a few years or even a lifetime to recover, so the psychological crisis intervention need long hard effort.

## 4 The basic framework of big data applied in emergency management psychological crisis intervention

In accordance with the psychological crisis intervention process in emergency management, the entire psychological crisis intervention process includes three parts: prevention and preparation, dealing with the psychological crisis, and follow-up assessment. According to this sequence of methods, big data mainly applies in three parts of psychological crisis intervention: before intervention, during intervention and after intervention. The basic application framework is described in Figure 2.

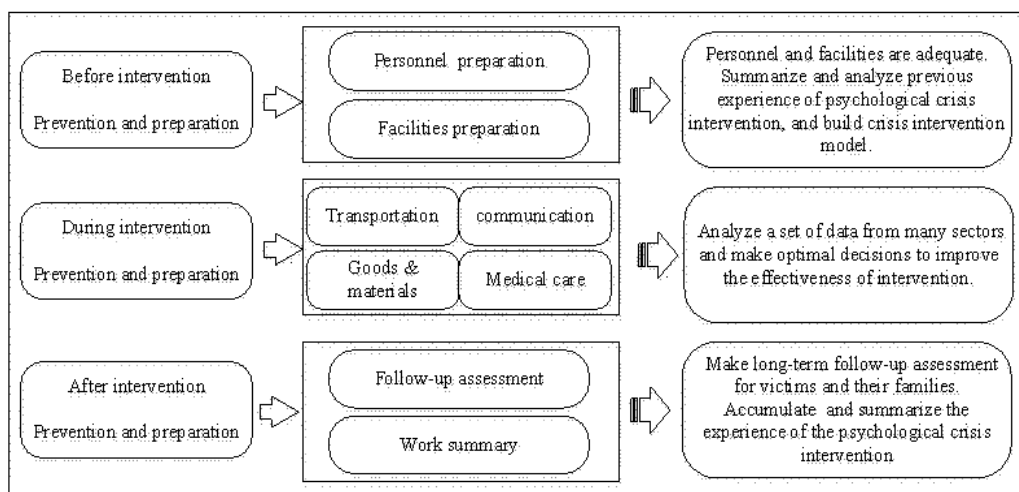


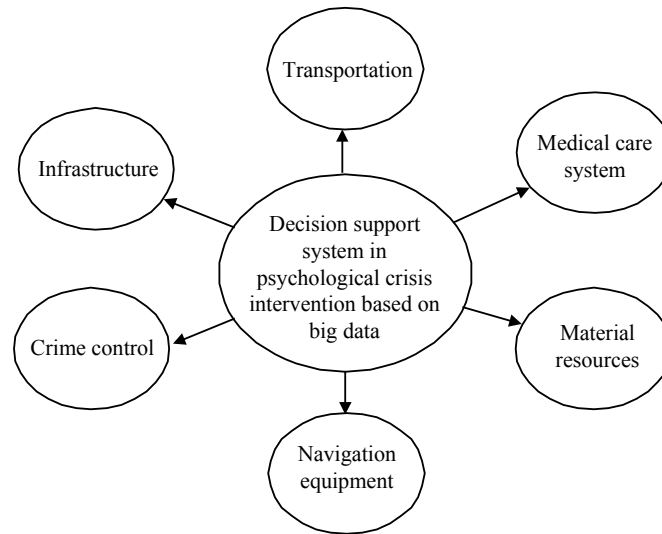
Figure 2 The basic application framework of big data in psychological crisis intervention in emergency management

### 4.1 Prevention and preparation before intervention

In the pre-intervention phase of prevention and preparation, the main preparation are personnel preparation and facility preparation. Personnel preparation refers to that the government and other departments increase the investment of big data personnel training and personnel introduction. Facility preparation refers to the support from the government on hardware and software facilities. Hardware facilities mainly refers to the new data acquisition technology, and except for this new data acquisition technology, software facilities include traditional data analysis and data mining technology. Big data personnel cooperate with psychological scholars to summarize precious experience and build psychological crisis intervention model, which provide theoretical guidance for future psychological crisis intervention.

### 4.2 Dealing with psychological crisis during the intervention

In the phase of dealing with psychological crisis, big data helps to achieve unified planning, coordination and command. In one hand, the application of big data has broken the information barriers caused by the specialized division for a longtime, so the information of each department can be shared, which is beneficial to the emergency management. Before the work of psychological crisis intervention starts, the psychological crisis intervention professionals should ensure victims' life safety and material satisfaction. In order to ensure the effect of psychological crisis intervention, psychological crisis intervention staff need to cooperate with other rescue departments and know their rescue information, which achieve decision optimization of psychological crisis intervention (Figure 3). On the other hand, big data technology and thinking help solve the problem of repeated intervention in the disaster area. All psychological crisis intervention organization are all under the leadership of the total decision-making department and orderly carry out crisis intervention. Moreover, the big data can be applied in online psychological crisis intervention, which effectively solve the problem of lacking of professional psychological crisis intervention staff. The victims can get online psychological crisis intervention through mobile devices, which makes the intervention more initiative and improve the effect and the area of intervention.



**Figure 3 The decision support system in psychological crisis intervention based on big data**

#### 4.3 The follow-up assessment after intervention

After the psychological crisis intervention for people who has experienced the emergency, the psychological professionals should carry out follow-up assessment for them and monitor their mental health. After the traumatic events occur, for 70% of the affected population, the basic psychological crisis intervention can make them recover from the trauma. While the remaining 30% of the population are not able to get recovery due to a variety of external and internal reasons, and the psychological barriers will affected their daily life and work. They need professional psychological counselors or therapists to solve their psychological problem. In order to discover these people timely, psychological crisis intervention need continuous follow-up assessment and give them scientific assistance. Big data technology and thinking use full sample and can grasp the mental health of the affected people more accurately and timely. Record and analyze people's physiological and behavioral data, and build model by machine learning, and then assess the model, which helps to assess mental health status.

#### 5 Conclusions

Big data's application in psychological crisis intervention in emergency management has become a trend. It has great application value in the establishment of psychological crisis intervention model, decision-making of intervention and the follow-up assessment of psychological status. Big data has bought opportunities as well as challenges. Big data provides convenience for the government and created economic value and social benefits, and it also threats individuals' or companies' information safety. To ensure a safe information environment, the government must establish and improve laws and regulations related big data.

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## Analysis on the Government's Guiding Strategy of Irrational Public Opinion about Network Hot Issues in China \*

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**Abstract** In the age of Internet, network hot issues have been emerging endlessly, and the public's right to set the topics of hot issues has been realized due to the openness and interactivity of the network. Diversification of the subjects and words expression of public opinion brought out a growing number of non-rational opinions in the hotspots of the Internet. The existence and accumulation of irrational opinion not only affect the trend of the events, but also increase the difficulty of government public administration. Therefore, government and media need to implement appropriate public opinion guidance strategy, thus while fully respecting netizen's rights of free speech, they should reduce the negative affects of irrational public opinion on the social normal order. When a hot event occurs, government should release prompt, real, open and transparent information to master the dominance of public opinion, mediating the hot issues in reasonable ways.

**Key words** Network communication, Irrational public opinion, Group polarization, Agenda setting

### 1 Introduction

With the rapid development of network technology in the Internet era, the network environment has become increasingly complex and hot issues have frequently generated. As the Internet is characterized by freedom, openness and popularization, netizens can express their views about hot issues on the network, but it also easily leads to irrational public opinion. If an event develops from an Network irrational opinion into an irrational action such as realistic group aggregation, there will be serious impacts on normal social order and public administration. etc. Therefore, the urgent problem needed to be solved at present is to correct guidance of public opinion on the hot issues in the Internet and to prevent the generation of irrational public opinion.

In this paper, the author uses the theories of agenda setting, group polarization to analyze the causes and influence of irrational public opinion, and explore the guiding strategy led by Chinese government on irrational public opinion on network hot issues. In response to irrational public opinion on hot issues on the network, government is expected to take effective measures in time to reduce the negative impacts of irrational public opinion, minimize resistance from government's public management and promote the healthy and orderly development of society.

### 2 Network hot issues and irrational public opinion

Network hot issues mainly refer to the issues drawing public attention through network communication and raising intense public opinion response, such as, the Explosion in Tanggu, Tianjin in 2015, the Vaccine Incident occurred in Shandong province in 2016, the Death of A Student at Luxian Middle School in 2017, the incident that an old man was hit by a toy car happened in 2016, and the event that an off-road car rushed to a traffic checkpoint out of rule in Wuhou District of Sichuan on March 14th, etc. The so-called network communication is under the background of global mass information and targeted to a vast of participants who are both information receivers and publishers, and able to give feedback at any moment; its text formation and reading are hyperlinked randomly in various texts and completed in the hypertext that is formed with different meanings according to

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different degrees of culture<sup>[1]</sup>; it has the basic characteristics of high speed, large capacity and powerful interactivity.

Irrational public opinion refers to that when the subjects of public opinion express their individual wills, they inject their shortsighted views, prejudice into and personal emotions into their views, so as to promote the public's irrational public opinion.<sup>[2]</sup> With the popularity of the Internet, China's network users has surged and the network media platform has become one of the main channels of discussing hot issues. In the online virtual world, because Internet users' identities can be hidden, they almost have nothing to fear and be hesitant when they speak on network platform, and they often give a lot of comments arbitrarily, even verbal abuse and emotional vent, which results in irrational public opinion.

### **3 The generation of network irrational public opinion**

With the development of the Internet, netizens can express their views unreservedly on the network. Network is a virtual environment, and its standard measures are not perfect. Besides, netizens' identities can be hidden and network hot events can produce a variety of negative effects, so its easier to cause irrational public opinion.

#### **3.1 The reasons for the irrational public opinion on the network**

##### **3.1.1 Social contradictions lead to people's psychological gap and breed irrational public opinion**

This is also the underlying cause of irrational public opinion. There are lots of social problems in today's society such as the widening gap between the rich and the poor as well as the frequently-occurred social unfair phenomena, which will result in the public's strong psychological gap, thereby the issues related to official, rich people or police are especially concerned and preconceived by the public and, giving rise to irrational public opinion. For example, the event of "Tangu explosion" of Tianjin in 2015 had great impact and arose widespread concern. The online public opinion reached a climax, in which some netizens produced irrational public opinions including forcing Jack Ma to do donation, and finding fault with Ma that "the richest man is bound to donate 1 billion" and other irrational public opinions. In the event of "traffic checkpoint rush in Wuhou District of Chengdu on March 14th in 2017", from the monitoring it can be seen that a white unlicensed Cadillac car crashed and crushed traffic police and passers-by, then the traffic police went to control it, but the driver were struggling to fight with the police and the driver suddenly died in spasm. Once the accident happened, without knowing the truth, the public made noise of irrational opinions only based on the online monitoring video such as the views "the traffic police went way over the top because the driver didn't knock over the police."

##### **3.1.2 Media publish false information, resulting in false public opinion direction**

According to Agenda Setting Theory, the media, through setting agenda, is capable of effectively determining which facts the public concern about and influencing people's cognition to the importance of the event, which affects the discussion sequence from the public.<sup>[3]</sup> As the main body of the agenda setting, if the media release unrealistic information, it will mislead the public and generate irrational public opinion because the information released by the media plays an important guiding role. For example, on March 14, 2017, after the occurrence of Traffic Checkpoint Rush in Wuhou District of Sichuan, Beijing News initiatively reported this news without making things clear as "A car in Chengdu knocked down the traffic police and passers-by, and the driver was beaten to death by the police", which was far from the actual situation and belonged to inaccurate report. As the mainstream media, Beijing News enjoys majority of readers and has great social influence. But this misleading report carried by Beijing News led to huge number irrational public opinions countering to traffic police such as "the police's behavior was too immoderate; why did you beat the driver though the driver didn't knock over you? Even if the police was killed, they should treat it with smiles."

##### **3.1.3 Opinion leaders wrongly guide public opinion direction, resulting in irrational public opinion**

Some network events just started with very little attention or are instantly forgotten, but get more people's concerns once they are transferred by opinion leaders, which extends these events' influence and arises netizens' watching. Opinion leaders' bias on views as well as behaviors have an important influence in the cognitive direction of the target audience, and their wrong bias will even intensify the group contradiction and cause a lot of irrational public opinions. For example, a microblog V-level user

named “Lier Chaisi” contrived the event that a young model Yang Zi-lu chartered airplane with 8.88 million for watching the Olympic Games, which gave the wrong direction and triggered the netizens’ extreme dissatisfaction to government officials, resulting in a large number of irrational public opinion aimed at government and vigorous cyber hunting to try to find the so-called official sugar daddy of Yang Zi-lu.

### **3.1.4 The main body of public opinion has irrational psychology and holds rigid impression to some events**

Rigid impression also means inherent stereotype. The US journalist Walter Lippmann put forward the word “inherent stereotype” in Public Opinion, and he pointed out that “inherent stereotype” refers to people insist ideas and impressions in immobilization, and simplification to certain things, and its usually accompanied with the judge to the value of the things.<sup>[4]</sup> Inherent stereotype reflects people’s irrational psychology to some extend. In the network public opinion, being influenced by the stereotype, netizens are easy to make simple value judgments to events, and often do moral justice to social public events, which is usually irrational. In the event of “An old woman found fault with a toy car” in 2016, netizens saw that the old woman was sitting on the ground crying from the monitoring video, and next to the old woman was a girl’s toy car, then the netizens immediately made a moral evaluation to that old woman and concluded the old woman deliberately found fault with the girl’s family. The reason is that nowadays there are increasing similar events, so the old woman’s image was destroyed; besides its the girl who rode that car which was a toy car; several factors led to netizens’ asserting the “fact” that the old woman deliberately fell down and wanted to ask money for the girl’s parents, then some irrational public opinions such as “even the toy cars are not missed” generated.

### **3.2 The evolution of irrational public opinion**

As time goes by or the events’ development, the irrational public opinion related to hotspot issues on the network will change from the ideological dissatisfaction to rough words attack, and it finally develops into a group gathering action.

Once irrational public opinion forms in an network hot events, the first phenomenon is dissatisfaction, and then it turns into network verbal aggression which is usually manifested as posting irrational comments and other forms comments. When the event develops to a certain extent, and irrational public opinion reaches a certain scale, it is prone to produce group polarization phenomenon, leading netizens from the network to the reality to take group aggregation action. The so-called group polarization was mentioned by Keisi Santan, American contemporary philosopher and chair professor of the law school in University of Chicago, in the book *Network Public—Democracy in Network Society*, which formally puts forward the concept that once the group members have some bias at the beginning, people tend to move in the direction of bias after negotiation, and finally form extreme views.<sup>[5]</sup> This is especially obvious in the event of the death of a student at Taifu Middle School in Luxian in April 2017. The student who was dead jumped to commit suicide for their own reasons, but at the beginning of this incident, its reported inconsistently on government official microblog, and at the same period there were a large number of false videos which were already cut, bringing out netizens’ strong curiosity with the “truth”. With lots of false videos spreading, netizens were gradually dissatisfied with it and though that there were unknown reasons behind the death of the student, and that perhaps just as the video said, the student was beaten to death by the son of principal. Gradually, the dissatisfaction of netizens was turned into network words violence, which filled in irrational public opinions tae school and government everywhere. Finally, the irrational public opinion of the netizens evolved into realistic group gathering behavior, thus a large number of netizens gathered Taifu Middle School and local government departments, asking to come it clean.

## **4 The negative impacts of irrational public opinion on network hot issues**

Compared with the realistic environment, irrational public opinion is more likely to arise in the network environment. On the one hand, network hot issues happen frequently; on the other hand, netizens can express their opinions on network hot issues due to freedom, openness and popularization of the network, but also can easily lead to the emergence of irrational public opinion which produces extremely negative impacts to social order and government administration.

#### **4.1 Disrupt public order, increase the difficulty of government public administration**

When reaching up to a certain extent, Irrational public opinion will affect the relevant people to produce irrational behaviors which are manifested as network words violence or extended to the irrational behaviors in reality. Irrational public opinion is based on the group has consistent comments, so irrational behaviors under the influence of irrational public opinions are usually manifested as group actions, and the forms are mainly carried as group meetings, parades and so on. These group meetings and parades can seriously effect public safety and easily cause social chaos. This situation has happened in the network hot issues in the past two years, for instance, when the event of the death of a student at Taifu Middle School in Luxian in 2017 occurred, it brought lots of irrational public opinions, which propelled this issue from online to offline, thus a large number of people gathered in front of Taifu Middle School and Local Public Security Bureau and other places, severely undermining the normal public order and resulting in the chaos in this area. This is a typical example that irrational public opinions effect behaviors and further disrupt social order and make it harder for government public administration.

#### **4.2 Cover the truth and expand crisis events**

Irrational public opinion comes into being after the distortion and incomplete presentation of facts, so the more intensive irrational public opinions are, the harder the facts are exposed. Truth covering can easily swirl people's minds, so that the event will be worse enough to forming or even expand crisis. At the beginning of the Traffic Checkpoint Rush event, the irrational public opinions led netizens to condemn traffic police, and even derived the object to some relevant government departments. Fortunately, the local Public Security Bureau made two pieces of announcement in time on "@Pingan Wuhou(a public microblog user)" to explain the real situation of that event, which reversed the tide. From the opposite response the event brought, it can be concluded that the early irrational public opinion covered the facts of the accident and was spearheaded at the traffic police. If the departments involved In this event hadn't promptly published the announcement , the event would be more likely to be worse and lead to trust crisis to the officials in government departments.

#### **4.3 Increasing public opinion pressure affects judicial trial**

As the fourth media, Network is highly open, so the public can freely speak on the network based on their demands. Irrational public opinion steps up the pressure of public opinion to some degree and have certain impact on relevant department management. Although the pressure from public opinion is conducive to the justice of the trial, but it is precisely because of the network real-time updates that the truth is not clear, making the public over-speculate and blindly pressure the event, which affects judicial trial.

### **5 The government's guiding strategy on irrational public opinion**

When Irrational public opinions are accumulated to a certain extent, they will affect the development of the event, and even cause a series of severe social consequences. Therefore, the correct guidance to irrational public opinion is very critical. Since Network hot issue have great social influence, the government, as national administrative organization, is bound to be responsible for maintaining social order. The government's guidance on irrational public opinion is aimed at reducing the negative impact of irrational public opinion, mitigating the resistance of government's public management as well as promoting the healthy and orderly development of society.

#### **5.1 Government and the media cooperate to disseminate information to correctly guide public opinion**

Irrational public opinion is often produced with information dissemination blocking, late guidance of public opinion and other factors. Therefore, in order to reduce the irrational public opinion, channels of information disseminating must be clear enough to ensure the timely release of authoritative information, so that the public can analyze and view the problems rationally in the transparent information environment.

When Government and media cooperate with each other to disseminate information, the first is to disseminate information promptly and accurately. Government departments should establish a strict sense of information disclosure, thus when the hot issues occur, these departments should follow up

them and take measures together with media to set agenda, disclose the most authoritative official information as soon as possible, fight for the discourse power and steer the public opinion. According to the Agenda Setting Theory, the agenda set by the media can influence the public agenda, and the attitude of media coverage has great influence in the public judgement. Therefore, when the network hot events has had irrational public opinion, the media's positive, real and accurate reports will have a positive impact on the development of the events and on the reversal of public opinion.

### **5.2 The government popularizes the knowledge of using the network medium to enhances public's medium quality**

Netizens' mediumquality mainly refers to netizens' abilities of distinguishing right from wrong messages and filtering information, and their usage situation of medium. The principal part of irrational public opinion is a mass of netizens whose medium quality directly influence the emergence and development of public opinion. To guide irrational public opinion and control its development direction, its the most straight, eternal and effective way for government to improve netizens' medium quality.

From the aspect of specific measures, government should first strengthen the propaganda of basic Internet knowledge and the teaching of basic skills to improve netizens' media quality. Netizens can regulate their own behaviors only know about medium's basic situation and the operation rules of online world. Second, government need to improve netizens' ability to access medium, and cultivate their abilities of researching information, knowing about information and acquiring information on the basis of ensuring netizens to have full access to network medium. Finally, government should teach netiens to distinguish and filter information under the environment filled with a vast of information. According to the "hypothesis of selective exposure" proposed by Lazarsfeld, the audience receive the network information without not choosing, because they are more willing to choose those closing to their own positions and attitudes and avoid the contents that are opposites their views.<sup>[6]</sup> As for the online events, the netizens' speech is relatively free, and they can randomly search information according to their own needs and prefer to accept those that stand by their views without considering if those opinions are realistic and rational. As a result, in order to ensure netizens' rational analysis of the accessed information, it is very important to cultivate the abilities of information screening and discernment.

### **5.3 The government cooperates with traditional mainstream media to "strictly inspect" the circulation of information**

Kurt Lewin put forward the concept of "inspector" for the first time, thus before the information spread in public, it should be inspected at all levels, and only those conforming to the guidance of information dissemination can finally pass through spreading channels. The information inspection is not only carried out before but also during the process of information dissemination. Inspecting disseminating information needs government to collaborate with media and strictly control the steps from information processing to information circulating.

The public still place great expectations on traditional mainstream media when they access to the hot issues on the network, and they believe the media represents government to post the information, so traditional mainstream media plays an important role in government's releasing information and the public's acquiring information. During the spreading of network hot issues and the guidance of public opinions, government should give full play to the role of the traditional mainstream media and inspect network hot issues together with the media to disseminate information and guide public opinion more effectively, so as to solve or deal with network hot issues.

### **5.4 Government should improve network management regulations and implement real-name system for the netizens**

In recent years, China's Internet has developed rapidly, but some related network management regulations still need to be improved, which is good for building a sound network environment.

Because netizens in network environment are anonymous, the netizens in network terminal don't know each other and most website administrators know nothing about the netizens' real identities. When the network hotspots happen, the hidden identities allow netizens to talk whatever they want and post violent words, which leads to irrational opinions and network violence. So real-name registration

system can regulate netizens' behaviors in a large part, and has a positive influence in purifying the network environment.

### **5.5 The government should improve crisis warning plan, duly responding to and solve crisis to prevent irrational public opinion**

Various crisis also provide foundation for the generation of irrational public opinion, so government needs to strengthen the sense of crisis and improve crisis warning plan to deal with the crisis events happening possibly or suddenly, which one of the methods to prevent irrational public opinion.

To do a good job in crisis warning plan, government departments shall classify the crisis and sum up experience of handling crisis, and combine current big data technology to build crisis information data base according to the summary. On the basis of establishing crisis warning plan, government should also summarize the response plan for normal crisis. When there are no signs or not detected by relevant departments in time, some crisis will happen suddenly, which then needs the departments take actions promptly according to the crisis. Therefore its necessary to sum up the general crisis response.

## **6 Conclusions**

In the age of big data, only government, media, and the public work together can the irrational public opinion be guided and controlled effectively. The government should purify network environment by enhancing laws and regulations, timely release authoritative information to eliminate rumors, pay attention to public opinion monitoring, and strengthen communication with the public. The media should strengthen the information "inspecting" and reasonably set topics to achieve positive interaction with government and eventually with the public. Netizens should cultivate rational thoughts and improve their own medium quality and moral integrity. The favorable development of public opinion can be achieved in the multi-cooperation of government, media and the public.

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## An Analysis of the Intersubjectivity of Public Management from the Perspective of “Information Complex Holographic Person”

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**Abstract** The “Information Complex Holographic Person” hypothesis is the origin for the study of public management activities and the Archimedes point of the public management system in Information Age. There is no agreement on the definition of “management”. Therefore, the connotation of “public management” tends to be extensive, which also makes the subjects of public management diversified and heterogeneous. In addition to the interaction between the subjects, the intersubjectivity in the public management should also include the interdependence and equivalence between the subject and the object. As the public management can be divided into “hard public management”, “soft public management” and “smart public management”, the intersubjectivity can also fall into “hard intersubjectivity”, “soft intersubjectivity” and “smart intersubjectivity”. In terms of public management in socialist countries like China, the relationship between the governments at all levels and the public is different from the opposition between the powers in western countries. In China, the government is of the people and for the people. Officials in the government are from people. Thus government and the public are not contradictory. Government officials take serving people as the purpose. From “Information Complex Holographic Person” hypothesis, the human individual should be “plural individuals”. Instead of “management theory jungle”, the theory of public management should be the theory of “Quantum Information Ecological Public Management”, whose intersubjectivity presents the “Quantum Information Entanglement” relationship.

**Key words** Information complex holographic person, Intersubjectivity, Quantum information ecological public management, Plural individuals, Quantum entanglement, Smart intersubjectivity

### 1 Introduction

With humans entering the information age, the science of intersubjectivity, which is people oriented, boost the development of technology and economy, whereas it may lead to some detrimental effects on humans. Under this circumstance, some investigations related to intersubjectivity emerge as the times requires. Nowadays, the so-called state-social relationship is essentially a matter of public management. Since the concepts of the state or society are general, the emphasis of the research should be put on the government, citizens, or social groups. Based on “Information Complex Holographic Person” (IHP) [1], the author puts forward the concept of “Quantum Information Ecological Guan Li” (QIEGL). This concept is characterized by quantum, information, holography and paradox features, from which the analysis of “Intersubjectivity” originates. In this paper, the human individual is essentially “plural individuals”, which are composed of the “tangible individual” and “imaginary individual”. “Tangible individual” consists of atoms while “intangible individual” is contained in the surrounding environment. Moreover, “intangible individual” refers to individuals’ influence, reputation or prestige in the social groups, similar to intangible assets. As the group is comprised by individuals, the concept of “plural group”, “plural social organization”, “plural government” and “plural state” are formed. On the complex plane where the imaginary unit  $i = \sqrt{-1}$  is introduced, the “plural individuals” are represented as a point, or a vector. Similarly, the trajectory of life should be a curve on the complex plane; the plural point is a disordered set, indicating that “people are not comparable”. Admittedly, the join force of two “plural individuals” can only meet the vector sum of parallel quadrilateral law. From the perspective of “IHP”, the intersubjectivity of the constituents of “QIEGL” is “Quantum Information Entanglement” relationship, which transcends or develops the relationship between multiple subjects, the individual and the group, the subject and the outside world and the equality of the subject and object.

## 2 The concept of intersubjectivity

It is generally considered that “Intersubjectivity” was proposed by Jacques Lacan (1901-1981), “Freud of France”. In his view, the subject is defined by the “otherness” in its own existence, namely, intersubjectivity. He opposed “I think, therefore, I am” by Rene Descartes(1596-1650), and put forward the opposite view—“I think where I am not,” “I am where I do not think”. This paper argues that Lacan’s view is mechanical and superficial. The paradox law of “self-inclusion” or “part contains whole” is one of the basic laws that nature and human society must comply with. For instance, each seed contains the main information of the entire plant. In other words, seed is the holographic point of a plant. The following is to analyze the intersubjectivity from sociology, epistemology, ontology and administration.

### 2.1 Communicative behavior can be divided into three major types

From a sociological point of view, the existence and development of human beings cannot be separated from social activities. The complex relationship between self-existence and social existence determines that contact systems should be constructed through communication activities, especially information communication activities for the survival and reproduction of human beings. In sociology intersubjectivity refers to the relationship between people, who are social subjects. It involves the unity of interpersonal relationships and values. Jurgen Habermas (1929-) argues that interpersonal relationships in the real world can be divided into tool behavior carried out by the subject and the object and intersubjective behavior that describes communication behavior. However, it is obvious that this dichotomy is not complete, and not consistent with real social relations. Some scholars have suggested that human needs can be divided into hard need, soft need and smart need<sup>[2]</sup>. Therefore, the tool behavior can be further divided into the communication between the subjects, between the subject and the object and between the objects. This paper argues that the interpersonal behavior varies due to different human needs, and can be divided into “hard communication behavior”, “soft communication behavior” and “smart communication behavior”. “Hard communication behavior” refers to the communication of materials, including basic needs such as clothes, food, shelter and transportation; “soft communication behavior” refers to constraints or influences exerted by emotions, ideas, laws and regulations; “Smart(Clever) behavior” refers to communication or influence reflected in information. “Hard communication behavior” is basic; “soft communication behavior” is subjective; “Clever behavior” plays a key role.

### 2.2 Cognition is determined by communicative behavior

In epistemology, intersubjectivity refers to the relationship between the subjects of cognition. The concept of intersubjectivity proposed by Edmund Husserl (1859-1939), a master in phenomenology, involves only the relationship between the subjects of cognition, not the relationship between the subject of cognition and the world. He believes that the consensus and the universality between the subjects is based on the ability of “empathy”. He also defines the subject and object. The subjectivity refers to the individuality, while the intersubjectivity refers to the group, which should replace the subjectivity. In fact, intersubjectivity should transcend or develop subjectivity, rather than simply replace it.

The theory of reason shows that “everything has a whole course from the beginning to the end” (“Book of Rites”). The world is composed of objects, events and information, also known as the hard element, soft element and smart element; objects move to be events; events become objects; all objects move; movements generate information<sup>[3]</sup>. Before knowing subject, humans must first understand themselves. It was suggested that consciousness is the quantum behavior of brain neurons, namely, ‘Wave Particle Information Consciousness Four Phases’; consciousness corresponds to the ‘Koch Protrude’ or ‘Koch Deformation’ of brain neurons. Human consciousness is closely related to the structure of brain cells and microscopic quantum behavior, and there is no the so-called ‘free consciousness’ or ‘free will’. Spirit and matter combine in brain cells, which are unified. Consciousness is one of the basic features of matter<sup>[4]</sup>. the generation, formation and storage of consciousness take place in cells or subcells that are similar to Cork’s snowflake curves. Structure determines the function. Matter and spirit are unified in the nervous system. The management is to do things. Things cannot be accomplished without knowledge. On the other hand, knowledge comes from cognition. Cognition is

determined by communicative behavior, which includes hard communicative behavior, soft communicative behavior and smart communicative behavior. The cognition embodied by the subject is the consensus between the subject, the object and the environment, and depends on the intersubjectivity.

### **2.3 The beingness, the essence and the moveability of an individual**

The subjectivity in the field of ontology is mainly reflected in the “existence, nature and dynamics” of any subject. “Existence” investigates whether the subjects are real or not. It reflects the relationship between the subject and the environment; “nature” investigates the essence of the subject, and whether there is an internal structure. If there is, what the structure will be like?; “dynamics” investigates the law of growth, the operating mechanism or the law of evolution. Before analyzing intersubjectivity, the subject should be clarified first.

Martin Heidegger (1889-1976) established the intersubjectivity of ontology. He believed that subject and object is not directly related; information, culture, language, behavior, social relations, etc. should be the intermediary. Social relations involve the relationship between “I” and others, between the individual and society. “I” am coexistent with other subjects. “I” should share the common world with others. Based on the world of “I and it” and the world of “I and you”, Martin Buber (1878-1965) founded the intersubjectivity theory centered on “dialogism”. Habermas proposed the “communicative rationality” and “the theory of communicative action”. Karl Jaspers (1883-1969) asserted that human interaction can be divided into four forms, namely, communal subjectivity, interobjectivity, external communal subjectivity and internal communal subjectivity. “Internal communal subjectivity is the most developed one<sup>[51]</sup>”.

The author believed that in this communal world, each individual is the “plural individual” composed of two parts- one is the atomic “entity”, the other is the evaluation, cognition, understanding and cooperative intention from the outside world, which is called the “imaginary individual”. The “existence” of individual is “Information Complex Holographic Person”; the “nature” is “plural individual”; the “dynamics” is the fractal feature with self-organization, which follows the law of conservation of quality energy, the law of information proliferation, the law of paradox, and fractal law.

### **2.4 Self management is the embodiment of paradox law**

Generally speaking, the management theory is to divide the relationship between all levels in management into the relationship between the subject and the object. The subject is dominant, exercising management or influence, while the object is subordinate, accepting management and affected. The whole management process is conducted through a series of the relationship between the subject and the object, from high level to low level or from outside to inside. Consequently, the management directive from the highest commander can be implemented and carried out by the performer through the middle management.

Norbert Wiener, the founder of cybernetics, claimed that “information is information, not material nor energy.” In the intelligent society and information age featured by the Internet of things and big data, the relationship between the subject and the object is solely decided by its organizational structure. On the other hand, its nature of information movement should also be analyzed. It can be considered that the three elements of management system are information producers or transmitters, information media and information receivers. So Information producer or transmitter is the subject of management; information receiver is the object; information carrier or medium can be in various forms, such as light (electromagnetic wave), sound, vibration and the environment outside the management system of course.

Management is doing things, management is everywhere and cannot be avoided anytime., management contains self-management, self management is the embodiment of paradox law. The intersubjectivity of the management field should be the relationship between the information source or the information transmitter. The chairmen or general management issue the directives or information. Thus they are the management, the subject of the management . The people who accept the directives can be classified as an object.



### 3 Intersubjectivity revealed by “information complex holographic person”

#### 3.1 The concept of plural number

In electrical technology, the basic physical quantities such as current and voltage can be expressed in terms of complex numbers or vectors. The impedance calculated from Kirchhoff laws is also a complex number and is called complex impedance,  $Z = R + i(X_L - X_C)$ , where  $i = \sqrt{-1}$ ,  $Z$  is the complex impedance;  $R$  is the resistance;  $i$  is the imaginary unit and  $i = \sqrt{-1}$ ;  $X_L$  is the inductance;  $X_C$  is the capacitance;  $(X_L - X_C)$  is the reactance. In the electromagnetic theory, the electric field  $E$  and the magnetic field  $B$  may be complex number, and the dielectric constant  $\epsilon$  and the magnetic permeability  $\mu$  may also be complex number. In quantum physics, the Schrodinger equation is a complex equation, and the probability range  $w$  is also a complex number. In the theory of relativity, the four-dimensional position vector  $X = (x, y, z, ict)$  is a complex vector, and the transformation matrix  $A$  of the four-dimensional space-time rotation is a complex matrix, too. The imaginary unit  $i = \sqrt{-1}$  is not understandable in the form of a mathematical real number, but in its physical sense, it represents a 90 degree rotation process. For example, if a person is a complex  $A$ , that is, a person can see the obverse side ( $A$ ) in the mirror.  $(i A)$  indicates the person on the side (the right side from the top view), that is, the person turns 90 degrees to the back once; and the second turn-back is  $i*(i A) = i^2 A = -A$  (where  $i^2 = -1$ ), which means the person's back can be seen. The third turn-back is  $i*(-A) = (-i A) = -(i A)$ . In this formula,  $(i A)$  is the reverse side of the first turn-back (the right side from the top view). The fourth turn-back is  $(i A) = -(i * i A) = -(-A) = A$ . That is, a 360 degree rotation operation is completed. A complex number is a number that can be expressed in the form  $a + bi$ , where  $a$  and  $b$  are real numbers and  $i$  is the imaginary unit, that satisfies the equation  $x^2 = -1$ , that is,  $i^2 = -1$ . In this expression,  $a$  is the real part and  $b$  is the imaginary part of the complex number. The sets formed by points in the complex plane are disordered sets, so complex numbers are not comparable. That is, people cannot decide whether two complex numbers are equal, or which one is more than the other. Any complex number can be represented by a directional quantity, called a vector. Then the addition and subtraction of two complex numbers satisfy the parallelogram rule, rather than the simple addition. People are one objects in nature so that people can also be complex numbers.

For social administration, Margaret Gilbert, a famous American scholar, put forward the concept of “plural subjects” and the corresponding theory of political obligation in the 1990s. The so-called “plural subject” refers to different forms of basic social groups-nation, political society and even the society itself. The social groups include family, clubs, protest groups, trade unions and military organizations, which create “plural subject” through mutual commitment. By virtue of mutual commitment, members in the social group is accountable for each other, and for political obligation naturally<sup>[6]</sup>.

#### 3.2 “Information complex holographic person” hypothesis

A scholar Zhang Tian-bo puts forward the concept of “Information Complex Holographic Person” (ICHP). ICHP shows that ‘human’ is a complex, quantum, holographic and paradoxical intelligence giant system, known as ‘Giant Complex Adaptive Intelligent System’ (abbreviated as: GCAIS). All the systems human involved in are GCAIS, so all the organizations or administration systems human involved in should be GCAIS<sup>[7]</sup>.

External environment has influence on people, and the environment is the mirror image of people. The influence and mirror image constitute a person's imaginary individual. The imaginary individual refers to individual's social influence, communication ability, reputation, social evaluation and so on. The synthesis of physical and imaginary individual is plural individual. For example, in infancy, both physical and imaginary individuals are small. Nevertheless, In adulthood, the imaginary individual is small. Namely, the social influence is faint. Famous people, such as Lenin, Stalin and Deng Xiaoping who are short but prestigious, are mainly embodied in the imaginary individual. The physical individual of God, god, etc. can be considered as zero, and they only have positive imaginary individual. Similarly, the physical individual of devil is zero, but they have negative imaginary individual, namely  $i^2 = -1$ . The success of human individual mainly lies in imaginary individual, just like “the hero of the times”. An atomic physical individual can disappear or be transformed, but the

imaginary individual formed by it can last forever and can exert a profound influence on society. People in social administration or in the dominant position can form religion or belief through the imaginary part of the imaginary plural individual, which may be the root cause of religious belief.

For both public administration field and other administration fields, it is the “plural individual” who gives full play to the administration function, rather than economic person, the rational person, social person, complex man, and literate person, and so on. The “plural individual” is synthesized based on the “Information Complex Holographic Person”.

### 3.3 The concept of individual ego

By means of Lacan’s theory of mirror image, the author argues that the atomic physical ego and the imaginary ego in the mirror comprise the plural ego. In addition to the “physical ego” (complex holographic information person) composed of objects, things and information, there is an “imaginary alter ego” similar to mirror image. The integration of these two is “plural ego”. For 2 to 3 years old toddlers, when their shadow in the sunlight follows them closely, they may howl for terror. The experiment shows that the shadow of individual belongs to “alter ego”. In fact, this “alter ego” should be an integral part of the ego, which can be described as an aspect of the imaginary ego.

Atomic physical ego is composed of the following four aspects: first, individual sensory organs such as visual, auditory, olfactory, gustatory, tactile and balance organs; second, conduction neural network system, which can be divided into the import neural network, the processing neural network, the export neural network; third, the thinking activity organ, such as storage memory system, associative thinking system, analyzing and reasoning system, etc.; forth, effector, including the imitate expression organs (hands or limbs), walking organs (legs), language organs (tongues) and forms (dance). These are the physical ego analyzed from the perspective of subjectivity.

So, “plural ego” or “plural individual” contains three basic meanings. Firstly, the generation of the individual is a process of quantization, which contains almost all the information. Secondly, the generation of individuals is disordered. Thirdly, individuals are incomparable. The collection of all human beings in society corresponds to all points on the plural plane, which are disordered, quantized and essentially incomparable. Ego can be divided into three parts: hard ego, soft ego and smart ego. “Hard ego” is the atomic ego; “Soft ego” refers to the interaction of communication, namely, the direct contact or mutual influence of hard individuals within a certain range; “smart ego” is represented by the information and generated from indirect contact or hearsay.

By extension, social organizations, governments or countries can be reflected by human activities. As a result, these concepts are also in plural form, namely, the “plural groups”. “Plural groups” are a combination of “physical groups”, which is revealed by atomic individual, and “imaginary groups”, which are concluded from the external environment. Among them, the “imaginary groups” refers to the overall impressions, comments or opinions from external environment, like “intangible assets”. Correspondingly, the concepts of “plural groups”, “plural social organizations”, “plural governments” and “plural countries” are generated. Obviously, the “plural group” in this paper is completely different from Gilbert’s concept of plural subjects.

## 4 The exploration of “ quantum information ecological public management”

### 4.1 The four basic laws of management theory

The author has demonstrated that management theory has four basic laws, namely, [The first law of management (uncertainty of management connotation), The second law of management (management is “doing things”), The third law of management(ubiquitous property of management) and The forth law of management (The paradox law)]<sup>[8]</sup>. Since the law does not change with the analysis methods, the four basic laws of management theory do not change due to the analysis or change of the relationship between the subjects.

According to the characteristics of “ICHP”, the author argues that the essence of management is the effective transmission of core information. Those who generate and transmit core information can be called an administrator, while those who receive core information can be called the subordinates. In other words, the division of administrators or subordinates is not entirely dependent on their position in the structure of management. Of course, because the quantity and quality of the information held by

each member in the system are not asymmetric, that is, chairman of the board, general administrator and senior administrators usually have a richer amount of information, these people are often referred to as administrators. If the subordinates produce some new ideas or new information, which can have positive or effects on or alert the management system, and can be approved or received by others, the subordinates are equipped with the nature of administrators.

#### **4.2 The concept of “Quantum Information Ecological Public Guan Li”**

Public management can be simply interpreted as management behavior occurring in the public domain, which is a subsystem in management system. It might involve citizens, community, social organizations, governments at all levels, the whole nation and relevant environmental conditions, etc. The concept of Quantum Information Ecological Guanli (abbreviated as: QIEGL) in this article can be considered as “Quantum Information Ecological public Guan Li” as long as the concept is contracted into the public domain. QIEGL mainly considers the quantum, informational, fractal, holographic, paradox, emergent properties of atomic individuals, as well as quantum entanglement which may result from group behavior. The phenomenon of entanglement in the micro domain refers to things(objects, things, information) that can produce entangled states by two or more particles.

“Quantum Information Ecological Guan Li”, with quantum, informational, holographic, fractal, ecological and emergent properties, researches into holographic, integrated and purposeful activity conducted by “Information Complex Holographic Person” in management scenarios. These scenarios are dominated and personified by quantum management subject. It aims to optimize social benefit, economic benefit, cultural benefit and political benefit and sustainable happiness. Management is doing things <sup>[9]</sup>.

Indeed, according to the Chinese ancient theory that “man is an integral part of nature”, the theory about families and countries, or the theory of “Quantum Information Ecological Public Guan Li”, individuals, families, groups, social organizations, governments, and society or countries have similar fractal structure. For example, a small family is a holographic points or holographic element of clans, communities, social organizations or countries. Namely, the structure and operation of a family is homogeneous to the structure and operation of a country, and they have similar information elements. In a family, family members have a duty to obey the rules and customs. In the same way, citizens have a duty to obey the national laws and regulations.

Quantum Entanglement was put forward by Einstein, Lukas Podolski and Rosen in 1935. Under any representation, the quantum state cannot be written as the tensor product of quantum states in two sub-systems. This form of quantum states is called entangled quantum states. According to an analysis by Pan Jian-wei of the Chinese academy of sciences, quantum entanglement can travel at speeds of up to 10,000 times the speed of light. The closeness of entanglement can be expressed by entanglement degree, which refers to the amount of entanglement carried by the entangled state. According to the strength, entanglement degree can be divided into five levels, including miaoguan entanglement (the strongest entanglement), microscopic entanglement (strong entanglement), macroscopic entanglement (weak entanglement), yuguan entanglement (almost zero) and zhangguan entanglement (no entanglement). Miaoguan entanglement (the strongest entanglement) refers to more than 128 man-made entangled particles at the same time. microscopic entanglement (strong entanglement) refers to around 16 man-made entangled particles. Macroscopic entanglement (weak entanglement) refers to the number of the entangled particles produced within the limits of human individuals. Yuguan entanglement (almost zero) refers to the entanglement in the sphere of the earth. Zhangguan entanglement (no entanglement) refers to the entanglement in or beyond the solar system. In general, twins are prone to entanglement.

Human belongs to nature, so the person also must abide by the laws of quantum physics. For example, individuals can see the objects around them; humans radiates infrared rays constantly. These phenomena illustrate that people follow the laws of quantum physics. The individuals in early childhood and adulthood are generated in fractal form. Individuals, families, groups, social organizations, governments, society and the whole or country have similar fractal structure. In other words, the individual is the holographic point of human society; the family is the holographic point of social organization, the government or the country. Mutual trust between family members can demonstrate that there is similar or homogeneous trust between social members, given that the social

nepotism reflects mutual trust in the society. So the formation of the country can be concluded. By the same token, this is the root of the relationship of “Quantum Information Holographic Entanglement”. The “intersubjectivity” of “Quantum Information Ecological Public Guan Li” is “Quantum Information Entanglement” relationship.

The so-called “Quantum Information Entanglement” takes “Information Complex Holographic Person” as the core element of the administration system. In this entanglement, atomic physical individual and the imaginary individual in the mirror world constitute the plural individual, which has quantum, informational, ecological, holographic, fractal, paradox, emergent properties, and may form entangled relationship with others or the environment. Intersubjectivity refers to the interrelationship between the plural individuals, the plural groups, the plural public, the information organization (imaginary institutions), the plural government, or the plural countries.

## **5 The intersubjectivity of the public management in socialism with Chinese characteristics**

After analyzing the relationship between the state, the market and the society, and relevant social management theory abroad, the scholar He Hai-bo believes: the welfare state theory demonstrates the government’s control of the market. New public management theory reconstructs a kind of market methodology, namely, “entrepreneurial government” or “market-oriented government”. In addition, the new public management theory also includes “small government” theory, “process reengineering” theory, “total quality management” theory and “reinventing government” theory, etc. Obviously, the so-called “new public management theory” is inappropriate, because the adverbs, such as “new” “before” “after”, which contain time is not a proper noun. The “third way” theory, which was short-lived in Europe in the 1990s, sought integration between the country and the market. The governance theory explicitly states that the state, market and society are partners in the governance of public affairs. In the current period of regime shift and the community system in China, the country regards market and the society as partners, leading to multiple subjects. Therefore, a new pattern of social management, where the Party committee, government, society and the public share the rights and responsibilities, is built up<sup>[10]</sup>. For example, in the modern university system with Chinese characteristics, management structure is headmaster-in-charge system under the leadership of the party committee, namely, the democratic management system of party leadership, the principal responsibility, managing the university by law. The schools teachers’ representative congress is the embodiment of democratic management in school.

As an analytical framework, intersubjectivity not only helps explain the evolution of social management theory abroad and the social management system at home, but also combines these two to guide reconstruction of the social management system in our country. In this case, reflecting and transcending subjectivity, the intersubjectivity is mainly present in the relationship between citizens, groups, social organizations and countries in social public management.

A society system with full civil liberty would be fragmented. Because of the incompleteness of the laws and regulations, the separation of powers in U.S. will be an inefficient management system. This paper argues that: for a socialist country with Chinese characteristics, due to the particularity of our regime, administrators at all levels of government are members of the people. They are the administrators on behalf of the state, whose duty is to serve the people heart and soul and to maximize social benefits. On the other hand, common citizens are usually the subordinates, but they can also be the administrators of government agencies. Social organizations at all levels may also participate in government management. Complaint reporting channels can collect the feedback and appeals of the subordinates. As information transmission is of the essence of management, government officials, social organizations, mass and citizens, all can be administrators. Their intersubjectivity will be “quantum information entanglement” relationship.

## **6 Conclusions**

In summary, the subject in information theory is the sender of information, and the object is the receiver of information, and if the information from the environment is received, the environment

becomes the subject of the information. From the quantum, informational, holographic, paradox features revealed in “ICHHP” hypothesis, it can be seen that the human individual is “plural individual”, a point or a vector present in the complex plane. Therefore, groups, governments and countries made up of individuals should also have a plural form, namely, the plural groups, plural social organizations, plural governments and plural countries. Since the plural point is a disordered collection, the so-called self-evident “all men are created equal” is a false proposition. The individuals in early childhood and adulthood are generated in fractal form. Individuals are holographic points of human society, and families are holographic points of social organization, the government or the country. Mutual trust between family members can demonstrate that there is similar or homogeneous trust between social members, given that the social nepotism reflects mutual trust in the society. So the formation of the country can be concluded. At the same time, this is the root of “quantum information entanglement” relationship, and the “intersubjectivity” of “Quantum Information Ecological Public Guan Li” is the “quantum information entanglement” relationship.

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## Discussion on the Optimization of Public Services Precision Supply under Big Data Background

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**Abstract** From the perspective of development effect in the past five years, China's public service system has been basically established, the coverage has gradually expanded, and the quality of people's living standard has become increasingly higher. However, public service development in China still faces some problems and challenges. Challenges like the mismatch of public service resources and "satisfaction bottleneck" have been of great concern. As the current background of the times, big data can exert the advantages of information technology to provide technical support for the public service supply shifting from the extensive to precise, thus promoting the improvement and development of public service system.

**Key words** Big data, Public services, Precision, Supply

### 1 Introduction

In 2016, the State Council of China issued the "Action Plan for the Promotion of Big Data Development", which states: "Big data will become a new approach to enhance the government's governance capacity, promoting progress of government management philosophy and social governance model<sup>[1]</sup>." The publication of the document triggered a "big data trip" in almost all of China's management areas, and a "big data" research boom was also spread in academia. This year, The State Council issued "*13th Five-Year Plan*" to Promote the Basic Public Service Equalization Plan and proposed to "improve the public service system, and strive to enhance people's sense of fairness, security and happiness, achieving the goal of all Chinese people entering into a comprehensive well-off society"<sup>[2]</sup>. Therefore, as the one of the key words in current Chinese government administration, "public service" has inevitably become a hot academic research topic.

Since the "12th Five-Year Plan", China's public service system has been basically established, which equalization of public services and standardization of supply level have been further improved. As the public service system construction has obtained a series of achievements, the standardization of supply has brought problems like "one size fits all" and "satisfaction bottleneck"<sup>[3]</sup> at the same time. Therefore, the concept of public service precision supply came into being. In the breadth of equalization, we need to develop the depth of precision, linking work at selected spots with that in entire areas to build a more efficient mode of public service supply, so that the investment in public resources should gain maximum and the best output.

This paper combines the background of the times and real problems, and discusses the optimization of public service supply. How to use big data technology to achieve public service precision supply has an importantly practical significance on improving the accessibility of public services, enhancing the people's sense of gain and accessing to a comprehensive well-off society.

### 2 Concept definition and theoretical basis

Before searching solutions to realize the public services precision and supply optimization, it is necessary to give explanation on related concepts and theories. Main concepts involved in this paper include big data and precision supply, and theories mainly related to this paper include The New Public Service Theory and government response theory. For the concept of big data, its definition has been widely accepted by the current academic community, and will not be repeated in this paper.

#### 2.1 Definition of precision supply

Precision supply refers to the utilization of information technology, data, standardization and procedures to accurately identify the different needs of the parties at different times, different locations, and timely and accurately provide the products meeting requirements to respond to demand.

According to the above concept, we can define the precision supply of public services as follows: Public service providers such as government and enterprises apply the advanced technology of big data to accurately identify different public service needs of different demanders at different times and different locations, and timely and accurately provide the public service meeting requirements to respond to demands.

## 2.2 The new public service theory

In the book *The New Public Service-Service, Not at the Helm*, the Denhardtts elaborated the New Public Service Theory, which centered on citizens and thought the functions of the government should be service provider rather than helmsman. The government should aim at satisfying public interest, rather than by-product<sup>[4]</sup>.

One of the core ideas in The New Public Service Theory is people-oriented, requiring the government to provide public services without blind in put and superficial effort, which should pay attention to the properly allocation of resources to meet the real needs of citizens. In other words, public services provided by the government should be demand-oriented, thus realizing people-oriented precision supply.

## 2.3 The government response theory

The Government Response Theory is the product of the public management theory development and practice transition. Yu Ke-ping mentioned in the book entitled *Rights Politics and Public Politics* that the government response is one of the basic elements of social good governance. He thought that the response means: “Public managers and regulatory agencies must respond promptly and responsibly to the requests of citizens without undue delay or no more specifics. If necessary, they should also regularly and proactively consult with citizens, and explain policies and answer questions. The more responsiveness government receives, the higher the degree of good governance a society can achieve<sup>[5]</sup>.” Therefore, under the influence of The New Public Service Theory, service-oriented government construction should enhance the responsiveness, but also accurately perceive the demand of public services, thus to maximize the utility of limited resources and to provide precise supply of public services.

## 3 The realization dilemma of public service precision supply

The “People’s Well-Being Priority Strategy” implemented during the 12th Five-Year Plan enabled China’s rapid establishment and development of modern public service system. The system coverage has been gradually expanded, and the supply level of standardization and equalization has been steadily improved as well. However, the establishment of precision supply on the basis of equalization is now facing many difficulties.

### 3.1 Resources mismatch dilemma caused by data silos

In the past five years, the diversification of public services supply has been developed rapidly, and the scope, quantity and quality of public service have been greatly improved. However, the diversification of the subject has also brought difficulty in the realization of public services precision supply<sup>[6]</sup>, significantly characterized by data silos due to data non-communication between various subjects, thus resulting in dislocation of supply and demand in public service resources.

In the supply of public services, the impact of data silos is enormous. Taking employment services as an example, a major difficulty is to control accurate employment data in employment services. Several departments are involved in the employment population data management: taxable population data is kept in the tax department; social security insured population data is kept in the social sector; household population data is kept in public security departments, and so on. Although the amount of data is huge, but there is no perfect data exchange system to integrate these data, which cannot fully and accurately reflect a local employment situation. Further, due to the lack of integration of employment data, it is likely to have mismatch information on the supply and demand, eventually leading to the wrong allocation of employment services resources. It is difficult to realize the effective integration of resources, which is one of the great challenges and dilemmas brought by the data island problem to the precision supply of public service.

### **3.2 Lack of accessibility caused by “value supply and belittle services”**

The supply of public services in the era of pre-big data often tends to be the pursuit of standardized services. In the unified and standardized supply mode, the standardized public service resources release enabled China's public service system to set up quickly. “Short, adaptable and fast” public service projects are favored by government investment and those with high public demand but are difficult to see the effectiveness in short term have been neglected<sup>[7]</sup>. In addition, the supply of public services is still in accordance with the unified standard “one size fits all” without flexible supply mechanism. To a great extent, it cannot meet customized needs of different groups, such as service item, quantity and opportunity etc., making the realization of public services precision supply become more difficult.

In other words, the Chinese government now focuses on “value supply and belittle services” in the supply of public services. The government provides comprehensive public services and products, without taking different practical demands for different people as a starting point to provide public services in the supply process. Such a standardized and unified behavior has a positive effect in the breadth of the expansion of public service, but restricts the depth of supply.

### **3.3 Demand will expression indifference dilemma caused by inadequate government response**

The needs of the public constitute the basis of public services, and public service needs determine the quantity of public services supply. The ideal supply and demand model is based on the establishment of supply and demand information symmetry. In the public services supply and demand model, for the reason that the public services supply is determined by the demand, then only when the public demand will be fully expressed, it is possible to achieve right response between supply and demand. In fact, the current public services supply in China is a top-down supply-oriented model. Because the public services supply is top-down, most of the grass-roots governments, with strong subjectivity and preference in public services supply decision-making, develop supply policy from their own interests and hardly respond to the needs of the public, which is characterized by ignoring the demands, having a negative or slow response, etc. As time passes, this situation caused a frustration on the public expression enthusiasm, and psychology of low status makes the real needs of expression willingness gradually become indifference, ultimately leading to supply and demand imbalance in both quantity and quality and hindering the realization of public services precision supply.

In addition, China has yet to establish a smooth channel for communication with the general public, or it has not established a channel for smooth communication with the general public service needs. This reality is in contradiction with the strong participation of citizens in the current era of big data, which also forms a vicious circle: the more inadequate the government response, the more indifferent to the demand; the more indifferent to the demand, the less the government response. It is important to emphasize that the current government has realized this deficiency and has taken a series of measures to gradually improve the problem, and we are fully convinced that this issue will be well resolved in the near future.

## **4 Advices on the realization of public services precision supply**

In the current era of big data, data has become an important strategic resource, and government management has gradually moved to the “number-based management”<sup>[8]</sup>. Personalized and open features of big data also make public services supply inevitably shifts from the extensive pattern to precise one. On the road of public services precision supply turning into a reality, big data technology will become the pioneer to provide technical support and solution for the realization of precision supply.

### **4.1 Integrate and establish a comprehensive information resource platform to achieve information sharing**

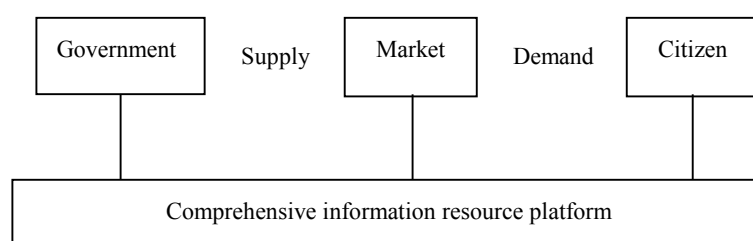
To achieve the precise supply of public services, we must address the supply and demand information asymmetry between the two sides. If the supply does not match demand information, the resources will be difficult to effectively integrate, and blind spots and excess resources mismatch supply will appear on the public services supply.

Integrate and establish a comprehensive information resource platform to achieve information



sharing between government departments. Through big data technology analysis of some key data composition, such as population, age, region, income, consumption levels and public service agencies and facilities distribution, the platform can accurately shows places or areas of public service resources are too concentrated or relatively scarce. This can effectively prevent the mismatch of public service resources, which is conducive to incline public service resources to the less developed areas, difficult groups and real needs. In addition, the application of comprehensive information resources platform can achieve the needs of the government and the masses of the two-way interaction, which also a comprehensive understanding of clients' current needs, such as demand categories, demand quantity, etc. in order to match public service supply and demand information in a timely manner and meet the masses personalized service needs.

In other words, through the integration and establishment of a comprehensive information resource platform, government departments can grasp the needs of the object information in all directions in the process of public service supply, thus to effectively capture, accurately identify and rapidly integrate public service needs in order to achieve a public services precision supply.



**Figure 1 Establishment of a comprehensive information resources platform for information sharing**

#### **4.2 Establish a “limited but effective” supply mechanism to ensure public services effectiveness**

Under the basic premise of limited resources, it is necessary to have a “limited but effective” supply mechanism to realize the accurate supply of public services. “Limited” refers to rather than taking care of everything on public service supply, or blindly following the “government must respond to all demands from people” principle, the government should accurately understand its own responsibility on public services supply and fulfill its own job within the scope of responsibility. “Effective” refers to that in the allocation of public service resources, the government should not carry out resource allocation based on its own preference. The government should allocate resources oriented by demands and monitor throughout the supply process to ensure that the services provided can be timely and effective.

In the determination of the scope of public service supply, that is, limited issues, the cost of accounting and financial investment are key issues. The traditional public service decision-making cost accounting method is relatively simple, and a few separate business departments have incomplete information and relatively limited information processing capacity. In the era of big data, through the integration of fragmented information in individual department business system, we can accurately calculate public service supply costs and define service border provided by the government with the help of cloud computing technology.

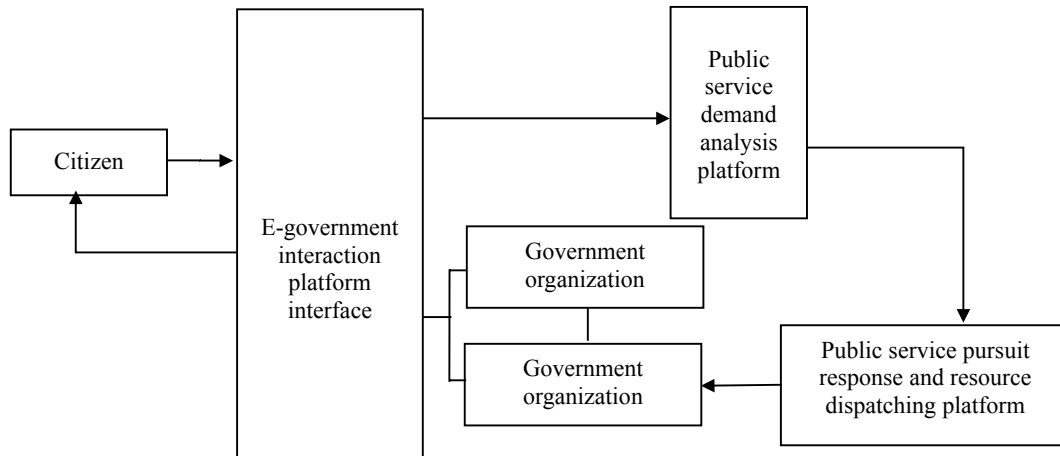
The identification of demand and the diversification of supply channels are the key issues in the guarantee of service supply effectiveness, that is, effectiveness. Through the data capture analysis we can build a dynamic demand acquisition and identification system, taking into account the differences in demand issues. On the basis of the development of a variety of supply channels to meet the different needs of the public, we should also establish a perfect supply process supervision mechanism to ensure the effectiveness of public service supply.

#### **4.3 Strengthen the government response to improve the effective participation of public services**

One of the prerequisites for public services precision supply provision is the application of demand-oriented supply model. Therefore, it is an important method to ensure the government’s effective response to the needs of the people to achieve a precision supply.

First, improve the e-government interactive platform construction. At present, the communication

between our government and the people is realized through the e-government website. To improve the effective participation level of the public service, we should perfect the platform of real-time government interaction, including the platform of demand analysis, platform of response and resource dispatching platform. We should enable citizens to express their needs in a timely manner through the platform, but also allow the government to timely receive and respond to demand information in order to promote the standardization of public service supply process.



**Figure 2 Construction of citizen response system under big data background**

Second, establish a whole-process public service supervision mechanism under big data background. On the one hand, the government should improve the information disclosure and sharing system so that the community can better understand the government activities through information approaches and enhance the government's emphasis on the standardization of public services. On the other hand, the government should allow the community to participate in the supervision of public services precision supply to meet the people's participating desire, thus enhancing the credibility of the government and providing support to achieve public services precision supply.

## 5 Conclusions

In recent years, China has attached great importance to the reform and development of public services. The public service system has basically established, and the equalization of public service construction and development has made a series of significant achievements as well. The realization of public services equalization can improve the living standard of the masses, especially the people in need. However, it is still insufficient to further improve the sustainable and consistent public service system of China's national conditions. Therefore, public services precision should be the direction in the development of China's public service system. In the process of building a well-off society in a comprehensive way, public service is not only the basic carrier of people's livelihood protection, but also an important way to enhance residents' sense of satisfaction and gain. As the most important part of public service system, the public service products precision supply is undoubtedly a key part to achieve public services precision supply, and is of great significance to achieving a comprehensive well-off society.

At present, the obstacles to achieve public services precision supply are mainly due to the asymmetry of supply and demand information and the lack of service availability, etc. This requires the government to increase investment in the public services precision supply and enhance the supply level to meet the higher requirements of a comprehensive well-off society. The short board hindering China's public service precision supply, that is, information and technology short boards, but also fit with the advantages of big data. Therefore, by taking technical advantage of big data, we need to integrate and establish an information resources platform, precisely define the scope of services and requirements, and improve the citizen response system to improve the effectiveness of public services

supply, which undoubtedly is an effective approach to promote the public services precision supply , Improve the Chinese public service system, and enhance people’s sense of gain and satisfaction, enabling people to enjoy a higher level of public services.

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## A Study on How to Reform the System of Academic Institution

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**Abstract** The development of service-oriented government and social governance innovation in China can push forward the reform of the academic institution organizational system. To solve the disadvantages that exist in the current organizational system of the academic institution, the relationship of authority and subordinate between the government and the academic institution itself needs to be clarified. The main proposals of the reform are to reconstruct the government's management system and establish the principle of the reform of the academic institution organizational governance system.

**Key words** System definition, Clarify the relationship, Clarify the responsibility, System reconstruction

### 1 Introduction

The Third Plenary Session of the 18th Central Committee of the Communist Party of China pointed out: "dealing with the relation between government and society, speeding up the implementation of separating government functions from social organization, promoting social organization's clear responsibilities, promoting autonomy in accordance with the law, and playing a role. Social organizations shall be responsible for the provision of public services and the solutions that these organizations provide. Support and develop voluntary service organizations. The time limit should be short for achieving industry association chamber of commerce and administrative organizations true decoupling, focusing on cultivating and prioritizing the development of industry association chamber of commerce, technology, public welfare charity, and class society of urban and rural community service organizations, which should apply directly for registration in accordance with the law when they are formed." The establishment of a service-oriented government and innovative social management is an inevitable choice for accelerating the transformation of government functions and stimulating the vitality of social organizations.

On February 23, 2017, the ministry of civil affairs issued a notice on matters relating to the approval of the third national associations and trade associations. The "five separation, five rules" focuses on the following the separation of institutions and the regulation of comprehensive supervision; separation of functions, regulating the relations of administrative commissions and responsibilities; the separation of assets and finances and the regulation of property relations; personnel management and separation of personnel; Party construction, foreign affairs and other matters should be separated and regulated.

As an important part of social organization, the academic institution plays an important role in social governance and national governance. At present, our country can build a service-oriented government, innovation social management from the government to promote academic institution relationship (referred to as political- institution relations) and provide service for its breakthroughs in reform.

### 2 Firstly, academic institution organization system characteristics

What is the organization of the academic institution? It mainly refers to the system, form and practice of academic institution to set up, lead membership, and manage jurisdiction. In accordance with the articles of association of the provincial academic institution, the academic institution shall be established in the scientific and technological sciences, technical sciences, engineering and related disciplines. It is a corresponding subject in the field of scientific research, education, design, use, production of scientific research personnel and management personnel, and related to unit voluntary organization non-profit mass organizations; it is an important part of the provincial association. The academic institution's aim is to promote prosperity and development of science and technology, promote the popularization and promotion of science and technology, promote the talent training and growth, promote the combination of technology and economy, for the socialist material civilization,

political civilization and spiritual civilization construction service, service to our members, and science and technology workers. The academic institution is a mass organization. The general assembly is the institution of the highest authority; the council is the executive branch of the general assembly; the secretariat is the administration of the institute; the professional committee is a branch of the society. Academic institutions use subordinated management; link units of social agencies; and are responsible for the administrative leadership of the office personnel's political thought education, party organization, personnel, labor, rank, welfare, work and for the assessment and management of all. As a business executive, the provincial association has the functions of supervision, administration, guidance and coordination. (note: the information comes from the website of the China association of science and technology: the organization system, operation mechanism, and the way of activity 2005-11-22)

From the above, the academic institution is characterized by its distinctive features: first, academic. Academic is the fundamental attribute of learning, which is the fundamental difference between the organization of other societies. The academic institution originated from and developed in academic exchanges. Academic communication is the core task of learning to organize. Second, mass. The academic institution is formed by voluntary members of the scientific and technological community, who have the freedom to participate or leave. Zeal and devotion are qualities of the members. The members are relatively loose and have no organizational constraints. But: "the form is scattered and the spirit is not scattered," this foundation is the same kind of our members. Thirdly, public welfare/nonprofit is the basic attribute of the academic institution and the basic requirement of learning. Academic institutions are different from entrepreneurial ones. Companies pursue the maximisation of profit, while academic institutions focus on the development of disciplines, social progress and the growth of scientific and technological personnel. Fourth, expert. A large number of experts is a great advantage in the organization. The academic institution is often initiated by a senior expert or discipline leader in this field. Most of the directors are well-known experts with rich theoretical knowledge and practical experience. The expert collective is the important embodiment of the academic institution organization's academic authority.

### **3 Secondly, the two clarifications**

According to the above academic institution system definition and characteristic analysis, presently two clarifications need to be made: the relationship between the government and the academic institution and the responsibilities of both.

#### **3.1 The government and the academic institute make clear the two sides**

According to the above academic institution system definition and characteristic analysis, the present needs to be well as two clarifying: the political and institute relations should be clarified and the responsibilities of the government and academic institution will be clarified.

##### **3.1.1 The government is the academic institute's manager**

The organization of management is the responsibility of the government, and the relationship between the government and the academic institute is the first between the manager and the manager. The key question now is not whether the government should run the institutions, but how the government manages the system and how it is managed.

##### **3.1.2 The organization is the bearer of the change of government functions and the service members of the academic institute**

The development of the academic institute is conducive to the smooth realization of the transformation of government functions. Our country is in a critical period of social and economic system transformation, the transformation government function as the main content of government agencies are in-depth reform, the government will exit from economic affairs, social affairs management, the government will be made by the micro management to macro management; Direct management to indirect management; To be managed by the department to the industry; The main shift from "management" to service supervision; The government will organize the social and social services of the government agencies in the market and socialization.

The government will not be able to control and control the functions of enterprises and guild and

institutions. Government macroeconomic management, the enterprise mainly on the micro management, the institute mainly take the government past micro level industry management function, fill the blank and the weak link of government's work.

The academic institute is also a service member of the institute. Look from the function, members of the academic institute is all walks of life services organization, member for the purpose of the institute is to learn to group provides services to change some of the limitations of individual action. Learn to organize for three parties: market, government, and membership. to develop plans, information gathering and publishing, meeting and other activities is the embodiment of learning how to do this.

### **3.2 To clarify the responsibility of the government and the academic institute**

#### **3.2.1 To implement the goal of decoupling the organization from the government, we must clarify the responsibilities of the government and the academic institute**

The academic institute is a non-profit social organization that is organized by the same industry in order to safeguard the interests of the industry and the interests of the industry. The main elements of the academic institute's decoupling from the government include:

**Institutions set up.** The academic institute shall have its own independent office, which shall be set up with government departments.

**Personnel Separation.** The staff of the organization shall not be appointed by the government staff, nor shall they be appointed by the government and shall be recruited by the society for self-employment.

**The property division.** Academic institute and the property of the government departments should be clear property right, establish standard institute of asset management system, the institute should have their own independent account. Academic institute and the government in the process of decoupling, should pay attention to different regions, different academic institute of the choice of the ways of decoupling, solve the decoupling bottleneck, gradually realize administration will separate.

#### **3.2.2 The determined function of the academic institute**

##### **(1) In theory, the academic institute's functions**

**The first is the function of bonds and bridges.** The academic institute of China is the link and bridge between the party and the government to unite and contact the science and technology workers. The academic institute of our country decides that it must bear the social function of "bond" and "bridge". academic institute to implement the party's principles and policies, from top to bottom and from bottom to top and willingness to reflect the scientific and technical workers, calls, advice, and dedicated to the communication of the party and technology workforce, to fully develop the socialist democracy in the tech world. Learn how to organize academic activities, communicate research, teaching and production, and promote the transformation of scientific research results and the dissemination of scientific and technological knowledge. For example: learning to organize consultation and collaboration is the concrete embodiment of the bridge.

**The second is the promotion and promotion of functions.** academic institute is the primary task of learning, but it also has other functions. It covers a wide range of disciplines and can play a role in many aspects, thus having the basic functions of science and technology popularization, technology popularization, promotion and promotion of scientific prosperity and development. The academic institute is a collection of science and technology professionals, with abundant intelligence and information resources. In promoting the growth of scientific and technological talents and the improvement of people's scientific and cultural quality, promoting scientific and technological progress and developing economy, the academic institute has an irreplaceable important role. Learn through organizing experts to carry out technical services, consulting, reasoning, proposed solutions, advice, organizing training talents, help the implementation of a variety of forms such as direct to promote scientific and technological progress and economic development.

**The third is collaboration and coordination.** It has an advantage in the coordinated development of science and technology and economic and social development. It has mass, academic, subject knowledge intensive, talent and cross-industry, inter-departmental lateral contact etc, it can put the relevant experts set up scientific research, teaching and production department, elastic procession, implement talent and knowledge flow "targeted" and solve some technological problems and

decision-making consultation, also can make up for some appropriate because between regions, the unit of large difference of science and technology level, imbalance between the defects. Due to the concentration of experts, is not only the production department or production management expert system, but absorbed the other units of the experts for more common decisions or research, make this kind of activity is not affected by more constraints, the administrative department for can objectively research problems, put forward solutions. This kind of more detached characteristic, make the academic institute show the function of collaboration, coordination, staff, assistant, and become the necessary complement of the administrative department.

**The fourth is the function of clustering and transmission.** Academic institute is an active, developing information source and activity center for scientific and technological talents. The characteristics of the talent pool and the landscape are very prominent in the society. The practical problems are comprehensive, wide-ranging, competitive and rapidly changing, which requires a large amount of scientific and technological information. It is one of the important social functions of the academic institute to gather and disseminate information through constant communication between the inside and outside.

**Fifth, development and mining functions.** The common feature of the academic institute function is the development of intelligence, which is the intellectual development of intelligence, the ability to develop the financial resources of intelligence, and the ability to develop productivity with the intelligence. This function mainly through scientific and technological personnel and intellectual resources and development of mining, including potential talent intelligence development and the achievements in scientific research development, finally realizes to the transformation of the productivity directly.

**Sixth, comprehensive and enhanced functions.** The development of modern science and technology tells us that the synthesis can produce results. One of the functions of learning is synthesis. In the whole course of science and technology activities, the production of a scientific and technological achievements, from the “inputs” to “output”, involving system, institution, policy, management, cooperation and academic exchanges, personnel training, etc, and can learn on these links have the effect of promoting, catalytic, reflected the society has the advantage of comprehensive activity. The academic institute has gathered leaders of all disciplines and has a positive effect on improving the discipline level.

#### **(2) From the operational process of practice, academic institute’s function**

**The first is to learn to develop consultancy functions.** Academic institute can accurately grasp the market information in time, learn the basic information of members and industry enterprise, no academic institute to participate in planning the development of the industry, formulate and publish and execute might be divorced from reality.

**The second is to learn how to set standards.** Because academic institute is familiar with the actual situation of the industry, to grasp the industry quality level, reflect the market changes in the industry, in this way, to learn the organization’s set of standard for the purpose of service industry can effectively improve the participation of the industry, guarantee to the organization’s set of standard universal implementation.

**The third is to learn the propositional function of licensing.** Institute for membership and industry development situation, the technical level, conditional set to barriers to entry standards, learn to compete, improve the quality of the industry as a whole, establishing good image of the industry.

#### **3.2.3 The determined function of the government manage academic institute**

The core of the reform of the government-academic institute is the responsibility of the government to devolve power and transfer to the organization. Government departments transfer function of the core is to let it go, the past is the heavy management, now is the heavy service, used to do, the government money minded, often also thankless, now promote the interaction between the political will, moreover, academic institute, make itself as the main body of social affairs management, the original is “want me to do,” into “I want to do”.

## **4 Thirdly, reform suggestions**

The proposal of policy reform mainly consists of two aspects: the reconstruction of government management system and the principle of deepening the reform of academic institute governance system.

### **4.1 Reconstruct the four aspects of the government management system**

#### **4.1.1 To set up government agencies pushing forward the reform of academic institute**

The key is to push forward the organizational reform of the academic institute and build strong government institutions. Proposed setting up government institute reform around the joint, by the national development and reform commission, the legislative affairs office, civil affairs, federation of industry and commerce and other relevant departments, not on a regular basis to learn organization development consultation and coordination and regulatory reform.

#### **4.1.2 To improve the dual management system of the academic institute**

The existing government has a hard time adapting to the needs of the institute organization and the management system. The dual management system should be perfected, and gradually realize deregulation, with academy of management organization is suitable for the requirements of the market economy mode, is in the process of our socialist market-oriented reforms to learn organizational development inevitable trend.

One suggestion is that China adopts the registration system. As long as the organization meets the relevant rules and regulations, the relevant standards set up by the academic institute shall be approved by the administration department. This saves an enormous amount of institutional costs. (Guangdong Province is about to do so.)

The second is to cancel the “one-line” rule. Introducing the competition mechanism, the change of approval is approved, the appropriate healthy competition between the institutes is introduced, and it is the key system that promotes the organization efficiency of the academic institute.

#### **4.1.3 Improve the management system in the process of government transfer function**

After the transfer function, the government must strengthen the leadership of the organization. The government needs to set up a technical and service function to transfer reform to the industry, and it should be made up of relevant government departments. The working group is responsible for the coordination, formulation and evaluation of function transfer. Each functional transfer department shall designate special departments and special persons to take charge of the pilot work. Organizations that undertake the transfer of government functions should establish and improve organizations that carry out government functions.

#### **4.1.4 Support and promote to improve academic institute internal governance mechanism and management system**

Basic principle of clear rules in the institute in the organization of the unit, academic institute should be based on the provisions of the articles of association, establish and perfect the internal governance structure, management system and democratic supervision mechanism; To support the establishment of a sound internal governance structure and to clarify the responsibilities of the general assembly, the council, the President and the secretary-general; We will promote the academic institute to improve the internal management system and establish a sound agenda, internal management system and oversight mechanism. Gradually realize the marketization of the academic institute and the transfer of the people.

### **4.2 The main principle of academic institute governance deepen reform**

#### **4.2.1 Grasp the general direction of political-academic institution separation correctly**

Adhere to the market-oriented direction, keep politics will be separated, adhere to the overall coordination, adhere to the four general requirements in accordance with law, regulation, this is the national and social development overall goal, is the trend in the country. The reform of China's political and academic institute relations must be carried out under this general demand, and the direction of the Chinese government will be grasped in order to properly navigate China's own path.

At the beginning of the academic institute's development, the more academic institute is the official organization, mainly by government agencies to streamline and functional transformation, its functions, staff, office expenses, office space is provided by the government, was mainly dependent on



the government's governing body, has a strong security administration color, can't do it on behalf of the members and industry, is not conducive to the construction of the new order of market economy. In the future, we will improve the organization and management system of the academic institute, which must be separated from the government.

#### **4.2.2 The priority principle of academic survival and development**

The development of the Chinese academic institute must follow the path of political separation, but first, we must ensure that the academic institute can survive, and that it cannot be cut off. Academic institute from government control to market, it needs a process, this process exactly how long, basically see when society organizations can adapt to market independent survive independently of mandatory administration will separate, will inevitably lead to part just in all the academic institutes, the government support sinking fast. At present, the survival and development of the academic institute is the first task.

#### **4.2.3 The transfer of government function adhere to the principle of "not leaving"**

We should departure from the market economy development needs, the government put the transactional, technical and professional related microscopic functions entrusted or technical functions authorized institute, such as industry demonstration, skills assessment qualification examination, industry standards and guild regulations, industry research, industry statistics, price making, certificate of origin, trade dispute settlement, product exhibitions exhibition functions entrusted to learn authorized organization, establish the academic institute management, the authority of the member management position in the industry, make the academic institute have part of the industry management, participate in the service and management of public affairs.

To establish the mechanism for organizing and organizing the functions and tasks entrusted by the government in accordance with law, order and norms. The government manage the economy under the condition of market economy should be grasped the scope and ways, find out exactly what function should be returned to the organization, which functions should clean up, can't transfer. Academic institute should avoid undue interference in the institutions of learning. Based on clarifying the functions of the government and academic institute, the government should be able to "not leave" the principle.

#### **4.2.4 The government establishes the principle pf buying service**

The government entrusted the academic institute to carry out the work, should adopt the way of buying service, sign the trust agreement, and pay the corresponding cost. For the government to carry out the institution service purchase, formulate measures for the administration of purchasing service clear entrust academic institute condition, the matters entrusted, fund and service evaluation standard and supervision measures, standardize purchasing service management, manage and use well service purchase, to ensure the quality of purchasing service.

Academic institute governance is one of the foundations of government and social governance, and the key is to explore appropriate governance paths. Through the study of academic institute structure, we should clarify the current restriction to the function of organization system factors, clarify the transition state and the basic relations of the society, government and academic institute. We should focus on the reconstruction of government management system, establish the deepening understand the basic principle of academic institute governance reform, promote the reasonable adjustment of relation between nation and society.

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## On the Legal Nature of PPP Contract and Its Relief Mechanism in China \*

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**Abstract** The legal nature of PPP contract is very important for the litigation settlement of PPP dispute. At present, there is no uniform conclusion on the nature of PPP contract in China. In the context of the national policy of streamline administration and institute decentralization, side supply reform and the transformation of government functions, the Ministry of Finance and the NDRC have identified PPP contract as a civil contract, and proposed that the PPP contract dispute between government and social capital should be settled through civil litigation. While the newly revised “Administrative Procedure Law” put the PPP contract disputes into the scope of administrative agreements, and it is the social capital party who should bring an administrative suit so as to solve disputes. In the case of conflict between national policy and legal system, the legal cost-benefit theory should be adopted to define the nature of the two contracts from the perspective of law and economics, and then choose different litigation relief mechanism accordingly.

**Key words** PPP contract, Legal nature, Civil action, Administrative litigation

Government and Social Partnership (PPP) project contract refers to the contract made between the government (government or government authorized institutions) and social capital (social capital or project company) in accordance with the law on PPP project (Li Ying-ying, 2015<sup>[1]</sup>). Therefore, this paper is limited to the discussion of the legal nature of PPP project contract between the government side and the social capital, and other contracts in the PPP project will not be discussed. In PPP project, the social capital side is involved in the construction of infrastructure. At present, there is no conclusion on the legal nature of the PPP project contract. The government considers it as a civil contract while at the legal level, the “Administrative Procedure Law” defined it as an administrative agreement. Because of the inconsistency of law and policy, it is confused to identify the legal nature of PPP project contract in judicial practice.

In the case of *Xinling Company v. Huixian Municipal Government* concluded by the Supreme Court in October 2015, the Supreme Court of the Second Instance considers that the case is a typical BOT mode of government franchise agreement. The project is for profit, and the agreement is made between the Huixian Municipal Government—the subject of the contract—and Xinling Company out of autonomy of will and equal consensus. The administrative examination and approval and administrative licensing matters are not specified in the contract, and other contents relating to administrative examination and approval, and administrative licensing matters are behaviors performed by the contract, which are part of the contract, thus cannot determine the nature of the contract. From the perspective of the purpose, duties, subject, behavior and content of the agreement, it has obvious nature of civil and commercial legal relations and should be classified as civil and commercial contract, which does not belong to the scope of administrative agreement in the revision of administrative law and judicial interpretation. There is another case of *Shangqiu Xinao Gas Co., Ltd. v. Shangqiu Kunlun Gas Co., Ltd.* tort liability dispute concluded by the Supreme Court in October 2015. Supreme Court, the court of retrial, confirmed the nature of the case as a civil case, which is defined by the first instance and the second instance, and rejected the improper prosecution for the reason that the Xinao Company cannot provide the diagram form and consequently cannot prove the scope of its franchise

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area. The administrative division related to the scope of the franchise area is within the administrative functions and powers of the government, which do not belong to the scope of civil cases. It can be seen that, after the revision of the “Administrative Procedure Law”, the Supreme Court showed a different state on the nature of the contract between the government and social capital.

## **1 The disputes of the legal nature of PPP contract**

### **1.1 Civil contract**

With the gradual transformation of government functions, social management is ever innovating. In 2015, Xi Jin-ping, the General Secretary of China, put forward the concept of side supply system reform for the first time. It focuses on dealing with the relationship between the government and the market, and decentralizes the power originally dominated by government to the market, enabling the market to give full play to its decisive role in the allocation of resources. The government transforms from the original master and performer of power into macroeconomic regulators, which have effectively improved the efficiency and quality of the supply side (the department of economy teaching and research, 2016). Therefore, in the background of national side supply system reform, decentralization and government function transformation, the series of policies and norms issued by the Ministry of Finance and Development and Reform Commission defined PPP project contract as civil contract. The Ministry of Finance recognized in the “PPP Project Cooperation Guide (Trial)” published in 2014 the two functions of government: one is to perform its administrative functions of planning, procurement, management, and supervision in PPP project, and form an administrative legal relationship with social capital side; and the second, to purchase public goods or services as a civil subject, and form equal civil legal relationship with social capital side. However, on dispute settlement mechanism, article 28-3 of “Cooperation Mode and Operation Guide of Government and Social Capital (Trial)” published by the Ministry of Finance in 2014 provides that: in the process of implementing project, project implementation institutions, social capital or project companies can bring a civil action in accordance with contract agreement and law in the event of disputes which cannot be negotiated to reach an agreement. The “PPP Project Cooperation Guide (Trial)” states in article 20—applicable law and dispute resolution that the contractual dispute arising from PPP project contract is a dispute between the equal civil subjects and shall be governed by a civil proceeding, not administrative reconsideration or administrative proceeding, and this will not be changed whether the government is a signed party to the PPP project contract or not. Article 49 of “Law of Government and Social Capital Cooperation (draft and instructions)” provides that in cooperation between government and social capital, when disputes on cooperation agreement arises and cannot be negotiated to reach an agreement between social capital and the implementation party, it can bring a civil action or arbitration in accordance with law. It can be seen that national policies identify PPP project contract as civil contract, and the legal disputes in contract between the government and social capital should be resolved through civil action or arbitration.

As the leading department of the PPP project, it is of profound political considerations to define PPP project contract as civil contract. As a main body of civil contract, the government side enjoys equal legal status with the capital side. This aims at implementing the policy of decentralization of the state and encouraging social capital to actively participate in the PPP project so that the market can give full play to its decisive role of allocating resources.

### **1.2 Administrative agreements**

From the government’s purpose of making contract, the subject of contract, the rights and obligations of the parties to contract, and the system of the effectiveness of behavior, it belongs to the scope of administrative contracts for the government to sign contract with administrative counterparts for the purpose of achieving public interest or administrative objectives. The “Administrative Procedure Law” newly revised in 2015 includes administrative disputes in the process of implementation, change and cancellation of administrative agreements in the scope of accepting cases. Article 12-11 provides that cases accepted also include government franchise agreement, land housing compensation agreement and other agreements not complied with law, not performed accordance with agreement or illegally changed and lifted by executive authorities. In this regard, the “Explanations”

made a specific definition on the administrative agreement in the “Administrative Procedure Law”. Article 11 provides that the administrative agreement means the agreement with the contents of the rights and obligations of the administrative law made by administrative organs with citizen, legal person or other organizations within the scope of the statutory duties for the purpose of realizing public interest or administrative objectives. It means that the administrative contract should meet the following three requirements: first, one of the contract parties should be the executive authorities with executive power; second, the purpose of signing contract is to achieve public interest or administrative management; third, it should be within the scope of statutory duties of administrative bodies. PPP project contract happen to meet the definition of administrative contract in administrative litigation law. The main body is the government of executive power; the purpose of signing PPP project contract is based on the consideration of public interests; the government side which signs PPP project contract with social capital is authorized by law and superior authority. Thus, PPP project contract, which legally belongs to the scope of administrative contract, should seek administrative reconsideration and administrative litigation to resolve disputes.

(1) The purpose of making administrative contract

From the contractual point of view, administrative contract is different from civil contract. The government side has different contracting purposes with the social capital side: the former is based on the public interest considerations, while the latter on the consideration of private interests. The government signs contract to achieve public interest or administrative objectives. For the government, the contract is only the form and means, and administration is its entity and purpose; for social capital, it signs PPP project contract aiming at obtaining profits. However, based on the particularity of PPP project contract, the profit-gaining behavior of social capital will be subject to the public interest. But usually it is profitable. When the two conflict with each other, there will be game of interests. There is no doubt that public interest being greater than the private interest is the inevitable result of the game. As a result, it laid the tone of the unequal legal status of government and social capital in PPP project contract.

(2) The main body of administrative contracts

From the main body of contract, the contractor, the subject of contract and its legal status of PPP project are very different from that of civil contracts. PPP project contract is an agreement reached between the government and social capital through mutual exchanges and communications (Research group of Hubei Supreme Court, 2003<sup>[2]</sup>). In order to achieve administrative and public interests, the government has a certain degree of preferential status. Such unequal administrative contract is different from reciprocal civil contract; the subject qualification standard of PPP project contract is higher than that of civil contract. Article 9 of “Contract Law” stipulates that the subject of contract shall have the corresponding civil rights and civil capacity. For PPP project contract is related with public interest, the qualification of the contract subject is strictly restricted. The government side is administrative department of the people’s government at or above the county level, and the eligibility criterion for social capital is more stringent. Article 18 of “Government and Social Capital Cooperation Law (Draft)” provides that social capital should be chosen in accordance with relevant provisions of Government Procurement Act. The Government Procurement Act clearly defines the qualifications of supplier in Article 22: (1) it should have the ability to independently assume civil liability; (2) good business reputation and a sound financial accounting system; (3) equipment and expertise necessary to perform the contract; (4) good record of paying tax and social security funds; (5) zero record of significant illegal act in business activities within the first three years of government procurement activities; (6) other conditions regulated in law and administrative regulations. Thus, in PPP project contract, social capital should have good reputation and tax records etc. in addition to having the civil rights and civil capacity required by civil contract.

(3) Administrative contract rights system

The core issue of administrative contract right system is the allocation of rights for the main body (Judy Freeman, 2010<sup>[3]</sup>). In reciprocal civil contract, both parties are comparable, and both of their goals are for private interests. The rights between the main bodies need no special allocation. However, the PPP project contract should avoid the drawbacks caused by unequal contract on the basis of

protecting public welfare. Therefore, special considerations should be given to rights allocation of the main bodies in PPP project contract.

The government has the following administrative special rights: (1) the right to inspect and supervise the performance of administrative contract; (2) the right to change the content of payment unilaterally subject to the purpose of contract and the maintenance of economic balance; (3) the right to unilaterally terminate the contract in order to prevent or eliminate significant loss of public interest after explaining and paying reasonable compensation; (4) when there are unexpected major changes in the situation, and it is obviously unfair for the relative party to act according to the original agreement, the administrative subject has the right to order the relative party to perform according to the original agreement after compensate the counter party; (5) the right to enforce and punish the relative party according to law if the relative party fails to fulfill the obligations of the administrative contract; (6) the right to explain when the content of administrative contract is not clear or there are different explanations (Jiang Bi-xin, 2012<sup>[4]</sup>). These rights are public power entitled on the premise of public purpose, which is essentially different from the pure private power. At the same time, the government should assume the obligations of the law, policy and minimum demand risk in PPP project; for social capital, it has to assume certain administrative obligations due to the need for public well-being. For instance, it will undertake commercial risks such as design, construction, financial and operational maintenance of PPP cooperation projects, and the obligation not to unilaterally terminate the cooperation agreement during the cooperation period.

#### (4) Effectiveness of act

In terms of the effectiveness of act, PPP project contract should follow the legal procedure in addition to satisfy the subject, object, content, purpose, meaning of expression and the formal requirements. Such as informing, hearing, confirmation, signing, explaining and other procedural system (Jiang Bi-xin, 2012<sup>[5]</sup>).

Thus, through analyzing the administrative factor in PPP project contract, it has theoretical support for the “Administrative Procedure Law” to put the PPP project contract into the scope of accepting cases.

### 1.3 Summary

From the national policy aspect, PPP project contract is a civil contract; while from the legal aspect, PPP project contract is an administrative contract. In the event of conflict between the two, it is crucial to define the contract in resolving disputes that arose in PPP project. The government in PPP project contract may be either a power act or a rights act. The combination of power factor and contractual spirit is the charm of PPP project contract. From the perspective of encouraging the participation of social capital, it should emphasize the contractility; while from the perspective of ensuring the realization of administrative purposes, the government should maintain its original public power status. Therefore, the legal nature of the PPP project contract and the choice of the litigation relief mechanism should be determined through comparing the legal costs of dispute litigation relief mechanism of both civil contract and administrative contract, as well as the legal benefits of whether it is conducive to resolving disputes and the realization of administrative targets. This paper will continue to analyze and compare the legal benefits and legal costs of the government and social capital in prosecution stage, trial stage and enforcement stage, and research on PPP project contract from the perspective of law and economics.

## 2 Analysis and comparison of the legal cost-benefit at the stage of prosecution

Whether the administrative organ can act as a plaintiff is one of the important differences between civil litigation and administrative litigation. In a civil contract, the government exercises contractual rights rather than executive power. Thus, the government cannot exercise administrative rights to social capital in order to achieve administrative purposes, which includes monetary sanctions, forcing to continue to perform, acting performance and unilateral termination of contract (Zhang Kun-shi, 2013<sup>[6]</sup>). In the event of a dispute, the government can bring a civil action in the capacity of the plaintiff, or bring counter-claim as a defendant. In administrative contract, the government enjoys a certain degree of administrative benefits in contract establishment, lifting, change, interpretation and

supervision etc. Thus, the government can achieve its administrative purposes through exercising the administrative prior rights. Administrative litigation ensures the legitimate rights and interests of administrative counterparts and resolve administrative disputes mainly through legal review on administrative action. The government cannot sue as plaintiff in administrative proceedings. Therefore, the legal cost of PPP project contract as an administrative contract is much lower than that as a civil contract in the stage of prosecution, and the government can realize the litigation purpose of the government side in civil action through exercising administrative sanction. In legal effect, the administrative purpose of the government side can be achieved in a timelier manner when PPP project contract takes effects as an administrative contract. But there are also problems. For matters that the government does not enjoy administrative benefits in PPP project contract, such as when social capital breaches contract, it would be clearly unreasonable not to give government the right to claim indemnity when it claims compensation. At this time, the government should be allowed to sue as a plaintiff. Therefore, it is uneconomical on legal benefits or legal costs to solely treat PPP project contract as civil contract or administrative contract.

### **3 Analysis and comparison of the legal cost-benefit at the stage of trial**

#### **3.1 Judicial mediation system**

Judicial mediation is the procedure carried out by the court and eventually issued a legally binding legal instrument (Qian Da-jun, Liu Qui-ming, 2017<sup>[7]</sup>). According to the disposition principle of civil action, both parties can reach agreement out of their own will witnessed by judicial personnel in people's court (Pu Yi-wei, Wang Xue-mian, Guo Xiao-dong, 2013<sup>[8]</sup>). Both parties reach an agreement through negotiation out of their own contract purpose. On the basis of achieving respective legal benefits, it does not only lower the legal costs for the government and social capital to resolve contract dispute, but also saves the judicial resources of the country. However, in administrative litigation, only cases of administrative compensation, recuperation, and cases in which administrative organs exercise discretion can be applied to the judicial mediation system. It is still controversial as to whether the performance, cancellation and alteration of the administrative contract can be mediated or not. Even if it can be mediated, both parties, especially the administrative organs, are greatly limited in the freedom of disposition, which is not conducive to the effective resolution of the contract dispute. Although it considers to protect public interests, such rigid rules will easily lead to rigid system of administrative contract mediation for contract of autonomy of meaning. Thus, in mediation system, the legal benefits and costs of civil contracts are better than that of administrative contracts. Through analysis on legal costs and benefits, judicial mediation system should be reasonably applied except for conditions specifically stipulated by laws and regulations.

#### **3.2 The review object and trial authority**

The object of civil litigation refers to the civil rights relations between both parties to dispute. The purpose of civil litigation is to protect the rights and interests of the state, group and individual through review of the relationship between civil rights and obligations. The object of administrative litigation refers to the relations of administrative rights and obligations with disputes between administrative organs and administrative counterparts. Its purpose is to resolve the administrative dispute by reviewing the legitimacy of administrative action. It led to different trial authority and focus of the court on civil contract and administrative contract. In civil contracts, the court deals with the contractual issues of contract parties in the process of contract making, performance, change and termination; while in administrative contracts, the court deals with, according to the newly revised "Administrative Procedure Law", the legality and contractual issues of administrative organs in the process of contract performance, changes and termination. For PPP project contract, both methods of trial have their own strengths. As a civil contract, the court can review the behavior of both parties in the whole process of the contract. Although the legal costs are higher, the disputes between the two sides are resolved from a more essential level. As an administrative contract, though the review is more focused and the cost is lower, there may be no effective solution to contract disputes. For example, the law does not stipulate whether the court can deal with the review of the contract effectiveness of PPP project contract, which leaves a legal blank zone for PPP project contract disputes.

Through analyzing legal costs and benefits, when choosing lawsuit relief mechanism of PPP project contract, civil litigation and administrative litigation should be respectively applied based on whether the behavior of the government is exercising administrative prior rights.

#### **4 The burden of proof**

In civil litigation, the burden of proof lies with the person making the claim, and the person shall bear the adverse consequences when the proof cannot be proved to exist. In other words, if the PPP project contract is a civil contract, the social capital, when claims, has the burden of proof to prove that government behavior is not legitimate or breaks the contract. In opposite, in administrative litigation, burden of proof lies with the defendant. When PPP project contract is an administrative contract, the government will usually assume the burden of proof to prove that its behavior is legitimate or conforms to contract. Thus, the litigation costs of the two kinds of legally qualitative contracts are different for the government and social capital. In the civil contract, social capital bears greater legal cost than the government. Social capital should prove that the government does not keep the contract on the one hand, and it must prove that the government behavior is illegal. In administrative contract, the government bears greater legal cost than social capital. For the litigation brought by social capital, the government should not only bear the responsibility to prove that their own acts are legitimate, but also shall prove that their own behavior keeps the contract. In administrative agreement litigation, the burden of proof of the administrative organ is cured and strengthened, which is inconsistent with the actual situation of the making, performance, change and termination of administrative agreement and it is conducive to the settlement of the dispute.

#### **5 Analysis and comparison of the legal cost-benefit at the stage of implementation**

In the enforcement stage, the legal cost-benefit of both parties will be analyzed assuming that the cost of enforcement of civil contract and administrative contract litigation is equivalent. In civil action, there are regulatory enforcement measures and enforcement measures of punishment on the basis of whether the enforcement measures can enforce obligators to fulfill their obligations and to achieve the purpose of putting legal instruments into force. The regulatory enforcement measures, also called as preservation measures, are the measures of attachment, seizure, freezing, detention, prohibition of delivery etc., which are adopted to prevent the person subject to enforcement from transferring, hiding, selling or damaging property. The enforcement measures of punishment refer to the measures adopted to price the property of the person subject to enforcement to pay off debts (Zhuang Zhong-fan, 2000<sup>[9]</sup>). On the basis of the above mentioned measures, the administrative litigation has especially set up enforcement measures of appropriation, fines, announcements, judicial proposals and detention for administrative authorities. Thus, if PPP project contract is deemed only as a civil contract, there might be dilemma of non-enforcement of effective legal instruments for there is no enforcement measure that can be adopted for government who has administrative power. The legal benefits of treating PPP project contract as an administrative contract is greater than that of the civil contract.

#### **6 Conclusions**

As a contract signed out of consensus by the government and social capital, PPP project contract includes both administrative and civil legal relations. Under the background of conflict between law and state policy, it is more reasonable to define the nature of PPP project contract and the mechanism of litigation relief from the perspective of law and economics. To have a comprehensive view of the prosecution stage, the trial stage and the enforcement stage, both legal costs and benefits are imbalanced if PPP project contract is defined only as a civil contract or an administrative contract project contract should be defined as a contract with both civil and administrative relations. In terms of the choice of litigation relief mechanism for PPP project contract, civil action and administrative litigation should be adopted respectively by examining whether the behavior of the government is the exercise of the administrative prior rights. When the object of the court review involves the administrative prior rights of the government, the administrative litigation relief mechanism should be applied, and the government shall bear the burden of proof to prove that its administrative behavior is



legal and complies with contract. Meanwhile, the enforcement measure against administrative bodies can be applied. For the review of other matters, the civil litigation relief mechanism can be applied, and the prosecutor shall provide proof for the claim, and the enforcement measures provided by Civil Procedure Law shall be applied. Therefore, the legal benefits can be achieved to the maximum extent and the current chaos of policy and law can be put into end when PPP contract is defined as a contract with both civil and administrative relations and respective relief mechanism of civil action and administrative litigation is chosen based on the nature of government behavior.

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## Practical Paths and Explorations of People's Political Consultative Conference Think Tank Construction

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**Abstract** Led by the Communist Party of China(hereinafter referred to as the CPC), Chinese People's Political Consultative Conference(hereinafter referred to as CPPCC) is a patriotic united front with Chinese characteristics, which plays an important role in political consultation, democratic supervision and participation in the administration and discussion of state affairs. Also, based on these significant functions, CPPCC can play the role as a think tank and help advise government. In construction, characteristics of CPPCC think tank such as "enjoy advantages of CPPCC" were formed, while some problems including "lack of recognition of new paths provided by think tank for CPPCC to perform its duty" also appeared. To strengthen construction of CPPCC think tank, we need to start from correcting cognition and resorting to methods such as improving the influence of research achievements on think tank.

**Key words** The People's Political Consultative Conference, Think tank, Construction, Practical paths

### 1 Introduction

In January 2015, *Proposal for Strengthening Construction of New Think Tank with Chinese Characteristics* issued by General Office of the Communist Party of China and General Office of the State Council clearly pointed out that "CPPCC needs to promote think tank building and do researches on system of multi-party cooperation and political consultations and socialist consultative democracy system." In June of the same year, *Proposal for Implement of Strengthening Construction of Socialist Consultative Democracy* issued by General Office of the Communist Party of China emphasized that "As a critical way of socialist consultative democracy and a professional consultative organization, CPPCC is an import part of national governance system." This shows that CPPCC and its think tank will play a crucial part in developing and perfecting the system of socialism with Chinese characteristics as well as promoting modernization of governance ability and governance system. Hereafter, CPPCC of all levels nationwide gave positive responses and started to explore in various forms how to build a think tank. Many achievements have been gained; however, there are still some issues need to understand accurately theoretically.

### 2 CPPCC think tank construction and its characteristics

In 1983, Qian Xue-sen, the vice-chairman of the sixth CPPCC National Committee put forward that "CPPCC should play a role as a thank tank". In 2008, Wang Yang, the provincial secretary in Guangzhou Province then emphasized in the first session of the 11th Political Consultative Conference of Guangdong Province that "CPPCC should become a think tank of reform and innovation to free our minds". In 2011, Lin Zhi-min, the deputy secretary-general of the CPPCC then wrote "Building CPPCC think tank is beneficial for decision-making on state issues." In the same year, led by Political Consultative Conference in Chenzhou, Hunan Province, CPPCC members from all social sectors came together and connected with democratic parties and functional departments, carrying out consultation to advise government. The consultation was participated by personages from all kinds of sectors including experts and scholars, elites in various industries, grassroots representatives, media journalists, etc. With "choose topics of overall importance and foresight to do research and consultation" as main method, "reflect sector characteristics, express mass' wishes, pay attention to follow the policies, enjoy professional advantages, take advantage of media's influence" as endogenous structure, "provide reference for the Party and the government to make decisions, advise scientific development, build consensus for promoting work" as goals, consultation in Chenzhou was a great innovation in helping the advantage of talents come into play and performing the duty of CPPCC, which was being hailed as

“Chenzhou Model”. In January, 2014, Nanjing municipal CPPCC led to build Nanjing Think-Tank Coalition. In April of the same year, Tianjin Municipal CPPCC committee hold a seminar to discuss think tank construction. After *Proposal for Strengthening New Think Tank Construction with Chinese Characteristics* was issued by General Office of the Communist Party of China and General Office of the State Council, local Political Consultative Conference of Nanjing, Luoyang and other places issued *Proposal for Think Tank Construction* successively. In May, 2016, CPPCC committee in Ganzijing district, Dalian city built a think tank alliance with Public Management School of Dongbei University of Finance and Economics. CPPCC think tank enjoys characteristics as follows.

### **2.1 Build think tank platform by taking advantages of CPPCC**

CPPCC, as the policy advisory organization with the longest history, enjoys advantages including a galaxy of talents, strong intelligence, abundant connections with other organizations and individuals, flexible position and outstanding information channels. Using these invisible capitals to build platform is a common characteristic of CPPCC think tank construction currently. For instance, Nanjing Think-tank Coalition is a non-profit combined public organization with the status of legal person organized by famous experts and scholars, elites from various industries and think-tank organizations of municipal, provincial and state level. “Finance and Economy Think-tank Salon” created by *Journal of the Chinese People’s Political Consultative Conference* also takes advantages of strong intelligence strengths coming from CPPCC, United Front Work Department, parties and committee members. Think-tank Alliance created by Dongbei University of Finance and Economy and CPPCC of Ganzijing district in Dalian city also aims at establishing a platform to integrate talents and carry out united researches and coordinated innovation.

### **2.2 The municipal CPPCC is responsible to supervise think tank and ensure valid management from the Communist Party of China**

In think tank construction with Chinese characteristics, an appropriate relationship between the Party and the think tank should be established. We need to ensure the valid management from the Party while the relative independency thus it can advise governance. This relationship, concerning the direction and quality of think tank construction is of strategic significance. System of multi-party cooperation and political consultations is a basic political system of the People’s Republic of China and it is also a party system with Chinese characteristics. The foremost precondition and fundamental guarantee is insisting on leadership of the Communist Party of China and adhering to the Four Fundamental Principles (the socialist road, the people’s democratic dictatorship, Marxism-Leninism and Mao Ze-dong Thought, the leadership of the Communist Party of China). Article 5 in *Temporary Regulations on Private Non-enterprise Units Registration* stipulates that “State council departments and departments of county-and over-county governments or organizations authorized by state council or county-and over-county governments are responsible to supervise non-enterprise units of relevant industries.” CPPCC takes the responsibility to guide business and supervise management of the CPPCC think tank, practicing both political principles of the Party’s management and the law principles. Take “Nanjing Think-tank Alliance” as an example, as a non-profit advisory organization coalition, it is led and supervised by Nanjing Municipal CPPCC.

### **2.3 Various methods of choosing topics**

CPPCC think tank is a public policies research organization which based on CPPCC. With theoretical study of system of multi-party cooperation and political consultation and socialist consultative system as the guiding and social responsibility as research principle, it is also a professional research organization combining inner mind and outer mind. Methods of choosing topics are linked to style and influence of the think tank. Currently, the ways are various. Take Nanjing Think-tank Coalition as an example, though the operating model insists on “government-run”, its decisions of research topics are completely independent. Guided by need, there are several ways to choose topics. Municipal CPPCC may apply for topics to municipal Party committee and municipal government and then authorize the think-tank coalition to do research. Municipal CPPCC may award the research topics to Coalition. Also, the Coalition can choose topics by themselves according to market and do research in advance. Leaders of municipal CPPCC can take part in researches and relevant activities individually.

### 2.4 Abundant research achievements

Based on superior resources, influences of the CPPCC think tank construction are gradually taking shape. During the NPC and CPPCC annual sessions in 2015, approved by leaders of the CPPCC, *CPPCC Wisdom: focusing on New Normal Economy and Deepening Reforms*, in which compiled essence of discussion in “Financial Think-tank Salon”, copies of the book were delivered to relevant CPPCC committee members. Hereafter, as one of the significant research achievements in 2015, the book copies were given specially to all leaders of CPPCC and governmental leaders of bureau- and over-bureau level. Members of Nanjing Think-tank Coalition compiled their research achievements in *Jian Yan* ( in Chinese means constructive remarks) and copies of which were directly delivered to relevant municipal leaders of Nanjing as internal data. Till now, *Jian Yan* has totally 53 issues. Contents of *Jian Yan* consist of Research Reports and information, which including Current Affairs, Current Hot Topics , Financial News, Overview of Public Sentiment, Expert Views, Apartment Files, etc. Among them, Research Reports accounted for 24%, involving economics(44%), politics(17%), culture(8%),

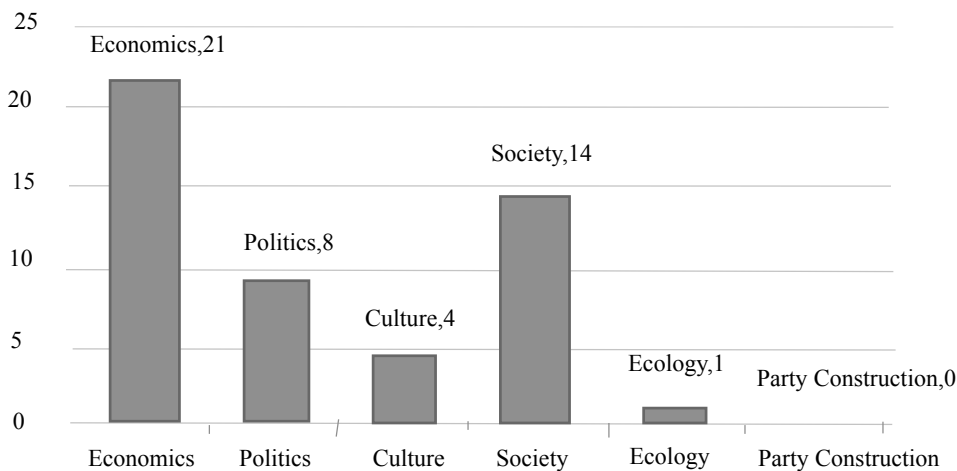


Figure 1 Fields covered in the research reports of *Jian Yan*

society(29%) and ecology(2%) (see Figure 1 below). *Jian Yan* provides suggestions for the Party and government to make decisions, making great contributions for economic social development of Nanjing. *Jian Yan* provides a solid basis for the decision-making of the party and government departments with real and accurate information.

Besides, *Jian Yan* also provides some true and accurate information, which give solid foundation for the decisions made by the Party and government apartments.

### 3 Deficiencies of CPPCC think tank construction and relevant reasons

Although CPPCC think tank construction unlocked a great develop period for CPPCC; however, in terms of the whole circumstance nationwide, practical progress is far behind the hopes. Reasons are as follows.

#### 3.1 Lack of recognition of new paths provided by think tank for CPPCC to perform its duty

Significance of think tank in promoting scientific decisions and improving governance of government has been social consensus. On February 6, 2017, in the 32nd conference of the the leading group for comprehensive deepening of reform, significance of think tank to do researches on issues related to decisions made by the Party and government was emphasized again. CPPCC should “stick to contributing its ideas and energies to the reform and development” and great functions of think tank must not be ignored. However, existing data indicates that when it comes to practical activities, CPPCC of all levels rarely carry out think tank construction. Consciousness of strengthening CPPCC think tank need to improve.

### 3.2 Vagueness of connotation of CPPCC think tank because of lack of theoretical researches

Taking “CPPCC think tank” as the theme words, searched in the Chinese National Knowledge Infrastructure (CNKI), during period from 2008 to now, only 31 documents about CPPCC think tank was found (see Figure 2). Most of the researchers are CPPCC officials (51%) while professional scientific researchers are much less (13%) (see Figure 3). Analyzing currently data, researches of CPPCC think tank in China started later than think tank researches, which started since 1980s and the research achievements of the former one are also relevantly less (see Figure 2). The research efforts are weak and no foreign research achievements are founded.

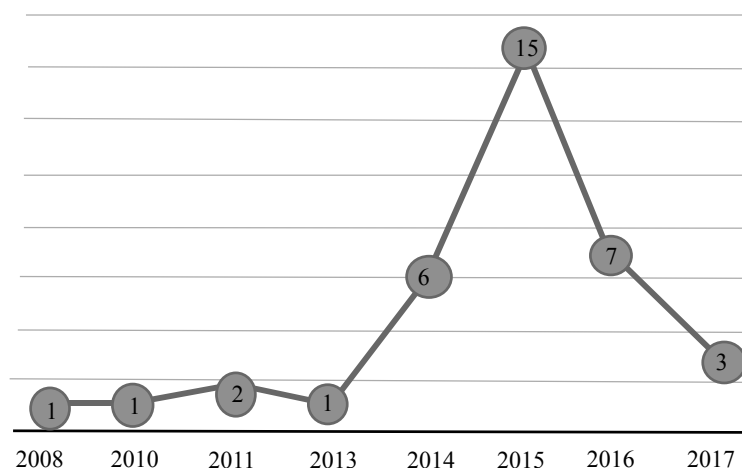


Figure 2 Line chart of the number of documents founded in CNKI about “ CPPCC” and “think tank(including thinking bank)” from 2008 to 2016

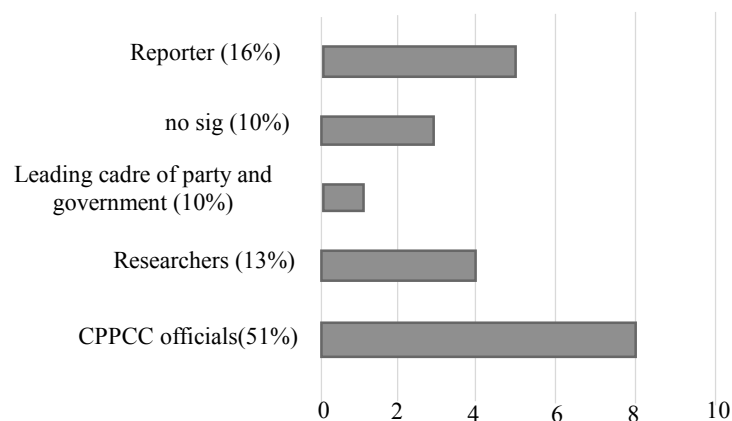


Figure 3 Proportion of related researchers of CPPCC think tank on CNKI from 2008 to 2016

Divergence exists in relationship between “CPPCC” and “think tank”. Some scholars hold the idea that “CPPCC is not equal to think tank” and set think tank as the goal CPPCC development. For instance, ideas such as “CPPCC should try hard to become a think tank of freeing our mind and promoting reform and innovation” (Wang Yang, 2008) and “Thinking bank construction of CPPCC is beneficial to make decisions on state affairs” (Lin Zhi-min, 2011) actually imply that CPPCC is not a think tank. Some other scholars think that “CPPCC is a think tank”. Typically idea is that “CPPCC member is think tank”(Hu Ke-qun, 2014), which deeply have the same meaning of the idea that “CPPCC is a think tank”. In the view of reality and logic, CPPCC think tank is the expansion of ways of performing the responsibilities of CPPCC. The two are different both in connotation and denotation.

### 3.3 Weakness of the CPPCC think tank construction

Steven Olson from the USA pointed out that some problems including unclear institution characteristics, imperfect efficiency evaluation, independent boundaries vagueness and so on exist in China's think tank construction. These problems also appeared in CPPCC think tank construction. Search "CPPCC construction" in Baidu, most of search results are theoretical researches rather than explorations of practical construction. Most existing think tanks have problems including incomplete, unbalanced research areas, single capital investment and old research system. All these problems not only limit the research ability, but also restrain the level and influence of research ability, even decision-making of the CPPCC think tank.

### 3.4 Lack of compulsory adopt mechanism in the politics advisory system

The role of CPPCC think tank is limited by political system. Though *Regulations on Political Consultation, Democratic Supervision, and Participation in and Deliberation of State Affairs of the National Committee of the CPPCC* issued by the Central Committee of the Communist Party in 1995 pointed out that chairman and secretary of the Party group in CPPCC (if they are not the member of the Party Committee) can be invited to sit in on the conferences of the Party Committee and other important ones. When needed, CPPCC leaders can be invited to attend conferences of state council and governments of all levels. However, without vote power, influences of CPPCC are much weaker. Because the state itself is an important participant in policy making, thus efforts of the think tank may not successfully become the final policies. This objective fact limits CPPCC think tank construction.

## 4 Suggestions for strengthening CPPCC think tank construction

*Constitution of the People's Republic of China* provides fundamental legal basis for the legal existence of CPPCC think tank and its effect. Charter of the Chinese People's Political Consultative Conference revised and passed in the second session of the tenth CPPCC National Committee is the organizing principles for think tank construction. Functions of CPPCC think tank are closely linked to the unique status and organizing form of CPPCC, which also give the CPPCC think tank special advantages compared with other policies advisory organizations in the course of government's expert consultation. Therefore, it is very important and necessary to strengthen CPPCC think tank construction.

Firstly, raise understanding of connotation and denotation of CPPCC think tank. First of all, CPPCC think tank should enjoy all the features of general think tank. Features of general think tank are as follows. First, it is a long-term existing entity, rather than a temporary committee or research group. Second, it is an independent non-profit organization for public benefits. Third, it is usually "independent from government or party" (Wiki Media). Fundamental principle of new think tank with Chinese characteristics is to "insist on the leadership of the CPC.", meanwhile, CPPCC think tank need to try its best to insist on general characteristics of general think tank. Because acknowledge and respect the researches and original appearances enough is a significant link in CPPCC think tank construction. Think tank system in the USA is regarded as the most energetic one with most perfect functions, which leads the direction of development of think tanks worldwide. State think tanks in western countries represented by USA think tanks should be closely focused on and studied by China. "Populism" in researches of CPPCC think tank should be avoided.

Secondly, special characteristics of the CPPCC think tank should be uphold. CPPCC think tank should explore deeply in the connotation and denotation of "Researches on the System of Multi-party Cooperation and Political Consultation and the System of Socialist Consultative Democracy". Only by this way, can the unique features, the vitality of CPPCC, be remained.

Thirdly, improve the influence of the research achievements. Influence, the core competitiveness of fundamental importance for the exist of CPPCC think tank should be improved by ways including research organizations integration, reform topics bidding, achievements valuation methods perfection, etc. CPPCC think tank can also mobilize CPPCC members who are in or ever been in a university or institution to participate in researches. Researches on experiences of CPPCC think tank construction should also be carried out to promote the construction by theoretical studies.

Fourthly, establish compulsory adopt mechanism in government. Restraints of think tank influences including "How government treat the function of think tank", "democratic consciousness

and vigor of citizens to participate in policy making”, “quality of the think tank itself” and “competition from other policies advisory organizations”. Currently, government is paying much attention on this and the citizens are also vigorous to participate in policies making. Thus to establish a compulsory adopt system is extremely important. Most scholars hold the idea that whether the compulsory adopt mechanism complete or not, namely the development level of democratic politics system in China, is the key element in CPPCC think tank construction. As the outer environment of CPPCC think tank construction, ensuring the relationship between think tank and decision consulting systems and policies is being focused is important as well. On 8<sup>th</sup>, July, 2014, Chairman Xi Jinping pointed out in Expert Panel on Economy Situation that extensively listen to experts from various fields and institutionalized this advisory activity are significant to improve the Party’s administration ability and the governance of governments of all levels. Report of the 18th National Congress of the CPC pointed out to “insist on scientific, democratic and lawful decision-making, perfect the decision-making mechanism and procedures”. Scientific, democratic and lawful decision-making is the inner core of decision-making mechanism and procedures. The fourth session of 18th National Congress put forward to “set public participation, expert argumentation, risk evaluation, legitimate review, group discussion as lawful procedures of major administrative decision-making”. This is the clear requirement of perfecting lawful decision-making mechanism. Whether the compulsory adopt mechanism complete or not, namely the development level of democratic politics system in China, is the key element in CPPCC think tank construction. Therefore, establishing policies making procedures with openness, science and accountability mechanisms is an outer factor to facilitate think tank development. Lawful procedures of “set public participation, expert argumentation, risk evaluation, legitimate review and group discussion” put forward in The fourth session of 18th National Congress should be introduced as soon as possible. Also, influence competitive mechanism of think tanks need to be established, in order to facilitate CPPCC think tank to improve their professional level.

## 5 Conclusions

Constitution of the People’s Republic of China provides fundamental legal basis for the legal existence of CPPCC think tank and its effect. Conference revised and passed in the second session of the tenth CPPCC National Committee is the organizing principles for think tank construction. Functions of CPPCC think tank are closely linked to the unique status and organizing form of CPPCC, which also give the CPPCC think tank special advantages compared with other policies advisory organizations in the course of government’s expert consultation. Therefore, it is very important and necessary to strengthen CPPCC think tank construction.

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## Analysis of the Anomie of Financial Aid in Chinese Universities —A Double Detection of Self-correlation and Clear Set QCA Based on 31 Provinces in China

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**Abstract** Social equity is an important topic of discussion during the Two Sessions, and the standardization of financial aid is an important part of social justice. This study is based on probability proportional to size sampling (PPS) to collect data of the 851, 31 provinces in mainland China domain as the research object, using GIS tools and spatial econometrics the Cartogram distribution, Moran's I index method, such as grants anomie phenomenon in colleges and universities for the empirical study of geographic distribution. The study found that the number of anomie is closely related to the province domain space. Inland areas (Sichuan, Hubei, etc.) have most anomie and decrease from them to outsides, presenting a five-steps-ladder distribution; Considering such phenomena, the study further discuss combination of factors behind the differences of areas. The most current documents analyzed the reasons of the anomie of financial by regression analysis, however, since variables exist the possibility of mutual influence, so qualitative comparison analysis (QCA) is a more ideal vehicle. Researches show that are not the Self-improvement Psychology and the Interpersonal Relationship that lead to the failure of financial aid, but the roughness of Student origin audit(village committee/neighborhood committee), School Violation and the blocked Supervision Channel.

**Key words** Social justice, The anomie of financial aid, Moran's I index, QCA detection

### 1 Introduction

College financial aid anomie is undoubtedly the economic and social development and education of the important issues<sup>[1]</sup>, it is the integration points of morality anomie and the system anomie in modern micro anomie. From a moral point of view of moral sociology, dynamic adjustment between ethical anomie and system architecture anomie is the key mechanism to contradictions of college financial aid "a set of system and flexible execution". China has a vast territory and a large span of educational supervision. There are obvious differences in economic, social and cultural aspects in different areas. Therefore, the anomie of College grants is bound to vary from place to place.

### 2 Theoretical framework and research hypothesis

The concept of anomie stems from the moral sociological explanation of the word "some specification function is blocked"<sup>[2,3]</sup>, it was developed by R.K.Merton in the 1930s, the introduction of the "normative absence" was a bad thing that deviated from normal orbit. At the research level, a lot of disagreements over the anomie, but researchers thought it has a distinction between the transition of crisis and the disintegration of rules, which can be divided into two types: "subversive boundaries in the period of crisis" and "different normal social rules".<sup>[4-6]</sup> The anomie of transition of crisis emphasizes social unrest, especially during the time of economic crisis, those who suddenly gained or lost status have ambitions to break the boundary of the rules; The anomie of normal society comes from different rules of social members of functional department, and which produces inconsistencies in action. And in that time, old rules has not yet been established, while new rules is in chaos and far to reach.

There exist both macroscopic and microscopical perspectives in the discussion of normal social anomie mechanism<sup>[7]</sup>. Macro social anomie emphasize social disorganization is of the macroscopic social background or causes of deviant behavior, namely due to mismatch of the social transformation of social structure fracture, making social norms solutions group and value system collapse. Micro social anomie focusing on social solutions group situations, stable social dependent link no longer exists, leading to social atomization, then show the confused about what to do with. Researchers in



moral sociology generally assume that people who are in a situation where they are not in the same situation will deviate from the rules. Thus, a fundamental problem of normal social micro anomie is the matching of the specific circumstances of the mismatches.

In the microscopic anomie matching, there is a distinction between moral anomie(network moral anomie, administrative morality anomie, professional ethics anomie), psychological anomie(marriage psychological anomie, professional psychological anomie), power anomie and system anomie. System anomie focuses on retracing a system and its corrective mechanism, the education anti-corruption, the cultivation of clean government, college debt, teachers' professional ethics in colleges and universities, college financial aid and other fields has accumulated a large number of literature at present<sup>[8]</sup>. Among them, system anomie to explore college financial aid is the top priority, for grants to promote education fairness in our country, but, after the birth of the policy has led to a series of "withhold" or "collar" "gray" events, and once in trouble, making the education fair beginner's mind strayed far, also casting a great shadow on the poor students who are supposed to benefit.

The importance of implementing and practicing policies of college financial aid to the country and poor students is self-evident, scholars at home and abroad for the financial aid system anomie research has also made certain achievements. Most of the view that the cause of poor students in colleges and universities grants anomie is the poor students in our country that model is not perfect enough<sup>[9]</sup>.

Based on the existing university grants the anomie of the related literature review, scholars are finding results by reason, namely trace grants direct clues to the causes of anomie, and put forward the series solution for the path, but China's colleges and universities grants anomie phenomenon is still widespread and hasn't been solved effectively. As a result, We try to look for reasons from a regional perspective. Based on the theories of Yoshio and Usher<sup>[10]</sup>, the following theoretical hypothesis is proposed:

①Different provinces and regions have different levels of anomie, so there must be a certain relationship between the university financial aid and the provincial domain. According to the general theory of economics, the phenomenon of financial aid anomie in colleges and universities is related to the degree of economic development, and the existence of spatial self-correlation.

②On the basis of this hypothesis, we can seek for college financial aid anomie and regional correlation of the driving factors behind, which grants the dominant reasons behind anomie.

### 3 Space statistics

#### 3.1 Data sources

The poll, conducted in the form of online questionnaire on the provincial distribution, according to the provincial population and economy level then distributed in the form of probability and scale (PPS). A total of 851 effective questionnaires were taken back, subjects distribution in Beijing, Fujian, Guangdong, Jiangsu, Hainan, Jilin, Anhui, Shandong, Shanxi, Shaanxi, Heilongjiang, Hunan, Guangxi, Hubei, Yunnan, Henan, Hebei, Sichuan, Chongqing, Tianjin, 31 provinces (municipalities and autonomous regions), covering the four levels of institutions of higher learning (985&211; 211; undergraduate batch; higher vocational/specialist).

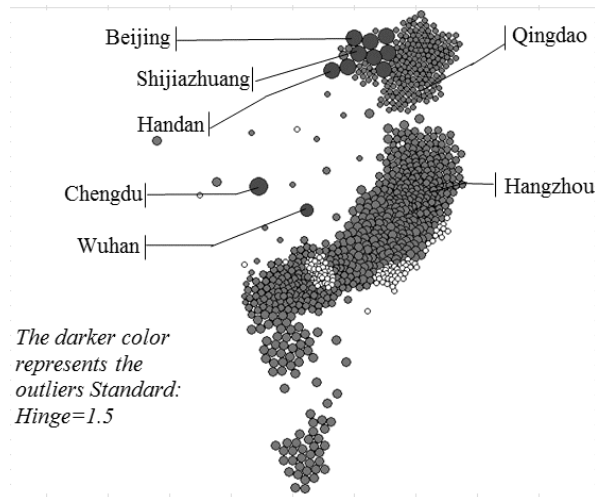
This survey, summarizes the reasons for the anomie of financial aid based on the completion of the answers: The poor students are self-conscious and ashamed to show their family(Striving to improve psychological); The poor students have a rigid relationship with their classmates and teachers, and the rating is low(Relationship between the rigid); Students who do not qualify for the financial aid but have received the financial aid are not informed by any of the students(No report); The school is in order to occupy the poverty reduction in this province(School quota); The accreditation of the residence (village) committee is rough (Student origin audit roughly); The school is in pursuit of rough auditing(The school on rough); The students reviewed each other, and the teacher evaluated are lacking off airness (Mutual random); The school deducts the student's financial aid (Disciplinary punishment); The school was delayed and diverted(put to other uses); Schools and societies lack accountability mechanisms (Shirking Responsibility of School and Society); Class divide the financial aid (Class Carve up); And we sorted the 11 reasons, as shown in Table 1:

**Table 1 Analysis of reasons for anomie**

Top-level category	Second-level category		
Self-improvement Psychology(SIP)	Self-improvement Psychology (SIP)		
Interpersonal Relationship(IR)	Bad relationship between teachers and students	Random evaluation	
Supervision Channel(SC)	No Report	School Audit Roughly	Shirking Responsibility of School and Society
School Violation(SV)	School Quota	School for Other purposes	Disciplinary Punishment
Class Carve up (CP)	Class Carve up		
Student Origin Audit Roughly (SOAR)	Student Origin Audit Roughly		

### 3.2 The cartogram distribution of university grants' anomie

Cartogram (comparative statistics map) method, is based on a certain division unit, according to a certain number of map elements districts average index were classified, and the corresponding color level, different density hachure, or other form of the difference of the elements in different districts unit method. Geoda using the non-linear cellular automata, a non-linear cellular automata developed by Daniel Dorling in 1996, to determine the location of the circle. The default value of the circle (normal) is green, the default color is green, and the red circle indicates that the area is a high outlier. The criteria for judging outliers are Hinge = 1.5. In this study, because of the province area as the research object, numerous areas, each area accounted for more of this map is very small, by Cartogram, it can be more clear that which areas stand out, red, size large, round represented by the region's most significant. As shown in figure 1, Beijing, Shijiazhuang, Handan, Chengdu, Wuhan university grants anomie quantity are most significantly, the southeast coastal city of college financial aid anomie number are not obvious. And in inland areas, the darker color circle are provincial capital cities, mostly in these regions including southwest of Chengdu, Wuhan, in central and north of Beijing, Shijiazhuang, Handan, etc. For places such as Beijing and Chengdu, it has become a high frequency area of anomie of colleges financial aid owing to its economic superiority and numerous population contradictions.



**Figure 1 A comparative statistical map of the quantity distribution of college grants**

### 3.3 The spatial agglomeration of college grants' anomie distribution

The Moran's I index is a global indicator of measurement space, reflecting the degree of similarity in the value of the property values of a contiguous area adjacent to space. By calculating the size of the Moran's I index, the geographical distribution of an indicator can be measured quantitatively.

$$\bar{X} = \frac{1}{n} \sum_{i=1}^n X_i$$

### 3.3.1 Analysis of the spatial agglomeration of university grants' anomie

To eliminate the variance of the data, we took a logarithmic transformation of the data. Calculation of 31 provinces university grants anomie quantity Moran's I index, the result was 0.745, indicating China's regional grants anomie phenomenon in colleges and universities, there is a significant and positive spatial autocorrelation, the height of the similar value in various areas spatial agglomeration.

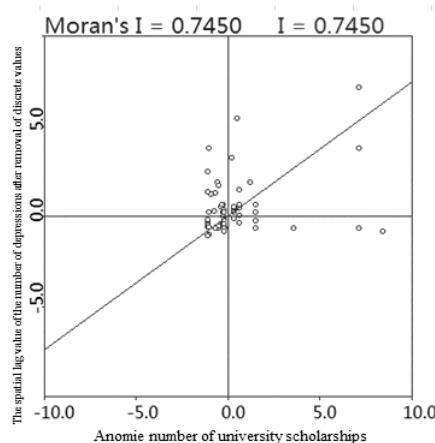


Figure 2 The spatial Moran's index

### 3.3.2 Spatial agglomeration analysis of university grants after removing some discrete values

Further, in the Moran scatter diagram, we select the points that are farthest from the oblique line at the bottom of the slash. The reason why we chose these points is that the farther the distance from the diagonal is the greater the slope of the fitting line. These points are respectively Qiqihar, Harbin, Changchun, Taiwan of P.R. China, Xining, etc, to remove these points to recalculate the Moran's I index, the result of 0.8156, 0.745 have significantly improved than before. Moran's I index significantly increased illustrates these areas is the result of the global influence, but also reflect the college financial aid problem in most regions of northeast China and south China frequency is lower than the national average.

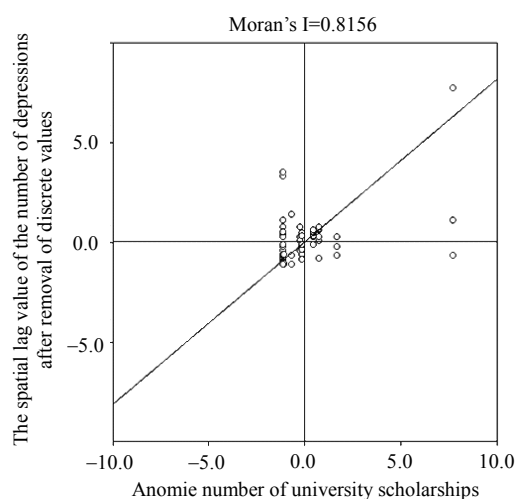


Figure 3 The Moran scatter diagram of the number of college grants after removing outliers

## 4 Variable settings and data analysis

Qualitative comparative analysis (qualitative comparative analysis, QCA) as a new research

technique is getting more and more attention and application, and the current Chinese social science is introduced and the application of QCA are not enough<sup>[11]</sup>.

With regression analysis, which is guided by independent variables and their influence, the qualitative comparison analysis (QCA) is based on cases and the cause of the result as the guidance, it is mainly to find the causes of a certain result, is a result of the necessary and sufficient conditions and a variety of conditions. Regression analysis has an incomparable advantage in the large-N samples and the study of the average effect of variables, but in the medium and small size samples (moderately large - N samples) analysis, QCA may have some advantages: First, QCA focuses on the sufficient and necessary conditions to produce a result, which is not subject to the negative effects of self-correlation and multiple co-linear. Secondly, in the middle and small scale sample analysis, QCA can cause more in-depth analysis of the results, it emphasizes that lead to the result can have multiple factors combination, clear, in turn, can lead to the result of a variety of ways and channels, and QCA can also be used for the different combination of multiple reasons analysis, as a result is caused by the different combination of a variety of reasons, QCA can measure the net effect of the different reasons combined with the results.

As shown in table 2, the following result variables and conditional variables are set for the QCA analysis.

**Table 2 The setting of result variables and conditional variables**

	<i>Variable name</i>	<i>Variable assignment</i>
<b>Outcome variable</b>	The result of the grant	The compliance criterion is 0, and the anomie is 1
<b>Conditional variable</b>	Self-improvement Psychology	Pay attention to 0, do not pay attention to 1
	Interpersonal Relationship	Good interpersonal relationship is 0, bad is 1
	Supervision Channel	Supervision channel transparency was 0, and path closure was 1
	School Violation	School compliance procedures are 0 and non-compliance is 1
	Class Carve up	The class evaluation atmosphere was 0, and the class was randomly or equally divided into 1
	Student origin audit roughiy	Student origin audit strictly 0, rough 1

#### 4.1 Path analysis

**Table 3 Qualitative analysis of path analysis**

<b>Variable relationship</b>	<b>Path coverage</b>
~ir*soar	33%
cp*soaar	13%
sv*~soar	26%
sv*cp	8%
sc*cp	13%
~sip~ir*sv*	21%
~sip*ir*sc	18%
sip*sc*~soar	10%
sip*ir*sv	3%

In table3, the “\*” is a conditional variable connection symbol, said the connection condition variables together to form a combination, namely “logic AND”, the “~” is a conditional variable connection symbol, said “the logic NON”; Path coverage is an important part for the combined interpretation of the results. Fsqca software gives six condition variables of the optimal condition combinations, these combinations have to explain the results of the strongest ability, summarizes the path leading to grant the anomie of 9 groups: ①~ Interpersonal Relationship \* Student origin audit roughly; ②Class Carve up \* Student origin audit roughly; ③School Violation \*~ Student origin audit roughly; ④School Violation \* Class Carve up; ⑤Supervision Channel\* Class Carve up; ⑥~Self-

improvement Psychology\*~ Interpersonal Relationship \* School Violation; ⑦~ Self-improvement Psychology\* Interpersonal Relationship \* Supervision Channel⑧Self-improvement Psychology\* Supervision Channel\*~ Student origin audit roughly; ⑨Self-improvement Psychology\* Interpersonal Relationship \* School Violation.

What does the path above mean? Taking “~ Interpersonal Relationship \* Student origin audit roughly” for the instance, it means the reasons for anomie phenomenon of financial aid in Chinese universities are the rough audit of student origin and the opposite of student’s interpersonal relationship. And the other explanations are the same.

Among them, the first combination path① was 33%, which one has the greatest impact on the outcome. It is not difficult to see that the frequency of supervision channels blocked, the school violation, Student origin audit rough are of the highest frequency.

## 5 Conclusions

(1) The anomie phenomenon of financial aid in Chinese universities exists generally, through the university grants anomie associated with provincial analysis<sup>[12]</sup>, we found that around the university grants anomie phenomenon is very related to the economic development of the region. The results of the spatial autocorrelation analysis show that there is a significant and positive spatial correlation at the anomie of financial aid in Chinese universities. The higher the level of economic development, the more severe the anomie of financial aid. College financial aid problem in most regions of northeast China and south China frequency is lower than the national average, but the economic developed areas in coastal areas or frontier economic less developed areas, such as grants anomie phenomenon in the high frequency region.

(2) Based on the analysis of QCA, we concluded that in the cause of grants anomie phenomenon appeared, generally are driven multiple reasons, and school violations, possession coarse, supervision channels occlusion in grants anomie phenomenon causes the dominant role. This suggests that in our country, college financial aid system also has large holes. Previous studies have focused on the discussion to establish a reasonable evaluation system. But through this paper ,it found that the reason is not only to the problem of poor students determination, the existence from the origin of one class to review to the final financial aid distribution of flaws, so the solution should be established between a provincial mechanism.

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## The Characteristics, Realistic Dilemma and Governance of Chinese Media Activism: A Qualitative Analysis \*

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**Abstract** This paper explores the characteristics of Chinese media activism through the research methods of virtual ethnography such as online participatory observation and in-depth interview. This article points out the problems brought by cyber-action to the government's network social governance: (1) Public Instrument are frequently used by private people; (2) rumors spread repeatedly. Finally, this paper puts forward the following Suggestions: (1) Changing the government's traditional governance thinking, from "blocking" to "sparse", under the appropriate circumstances to give Participants certain rights to ensure social harmony and stability; (2) the managers of the cyber actors should also cooperate with the Government to work well before the action.

**Key words** Media activism, D8 expedition, Social governance, Jiwers xx

### 1 Introduction

Liyi Bar, also called Emperor Bar, D bar, with Baidu's first big network community title. As of July 1, 2017, the total amount of attention has reached 27 million, and the cumulative number of posts has reached 96.2 million, which has a powerful influence among Chinese netizens. As an important form of social struggle for Chinese Internet users, the emperor has become a social force that can not be ignored. Although it is not the earliest form of Chinese grassroots struggle, it is the latest, most dynamic and new mode of action. It is divided into two types: domestic action and international action. The former is full of abusive and non-theoretical remarks, which is a heap of loose sand manner. But from the latter, it is an organized, planned and rational mode of action. During the Spring Festival of 2016, the D8 attacked the Facebook page of Taiwan independence activists, showing strong vitality and creating a good reputation. According to this action has been over 1.5 years, after this period of development and evolution, the D8 is still a strong influence? What kind of trouble does it cause to our country's social governance? These are the issues to be solved in this article. Today, China's network governance has entered the virtual world from the real world, the Chinese government is also eager to find a new way of social governance, which has become an important driver of this study.

### 2 Theoretical framework

Social governance theory. Social governance is the management of social implementation by the main body of governance. Broadly speaking, it refers to the government, social organizations, enterprises and institutions, communities and individuals and other subjects under the basic principle of law, through communication, consultation, dialogue and cooperation in the way of social management (Jiang Bi-xin and Li Mo<sup>[1]</sup>). In this way, we should standardize and guide social affairs, social organizations and people's daily life so as to realize the maximization of social public interest. The governance of network society is the integration of government, industry, organization and even individual power in cyberspace, which constrains and regulates people's daily online behavior. In fact, the D8 expedition is a restrained and regulated object. Social governance theory is a concept derived from the Western academy, in order to "give priority to me, make foreign things serve China", can not be separated from China's local cultural context and social background. Xiang De-ping and Su Hai believes that "the traditional Chinese culture contains the mean, Datong and family collaboration and other ideas with social integration function, can be a unified integration of different social groups in the

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family, clan and national. This can provide ethical norms and value guidance for the normal operation of social order, which is conducive to social governance and social progress(Xiang De-ping and Su Hai, 2014<sup>[2]</sup>).

Media activism theory. Media activism is a broad category of activism that utilizes media and communication technologies for social and political movements. Methods of media activism include publishing news on websites, creating video and audio investigations, spreading information about protests, and organizing campaigns relating to media and communications policies(Wikipedia<sup>[3]</sup>). In the age of intellectual media, media activism has developed into a cyber activism within the framework of the law that calls on Internet users to take action to solve all kinds of social problems. It is the concrete manifestation of this new form, which aims to express the political, economic and cultural demands through the online protest.

### 3 Research methods

The development of the network has brought challenges to the traditional ethnographic research. The “field” survey has expanded from the traditional geographical space to the “social political region” and extended to cyberspace(BoYu-mei,2012<sup>[4]</sup>). This study is based on the “Jiuers xx” QQ Group more than a year of virtual ethnography observing (on May 11, 2016 - June 11, 2017, a total of 13 months), won a total of 300 MB of raw materials (mainly include text, pictures, charts, short video), supplemented by online depth interview method to obtain a large amount of research data. Before the study, the researchers did a previous coding process (e.g. the web name of the research object was expressed in the first letter of Hanyu Pinyin). In order to protect the personal privacy of the research subjects, this study hides other identifiable content. In addition, in order to ensure the original ecology and accuracy of the chat language, this study does not make grammatical changes to the collected chat data, and retains its colloquial form. This study is a qualitative analysis of the content.

“Jiuers xx” QQ group is a network of collective action places, established in February 22, 2016, by a group of patriotic youth members, in addition to the main group, the group have four administrators. The group’s managers have never been changed and have strong stability. They are mainly students, including young white-collar workers, employees of enterprises and institutions, and self-employed workers. Most of them are between the ages of 18 and 35, and have more leisure time. In order to ensure the normal conduct of the research, the author did not disclose their true identity and research purposes, but to the group owners and two administrators explained the specific situation.

### 4 Characteristics of D8 expedition

Are the participants real national champions or a ragtag group of people? Through Virtual Ethnography of investigation for a year, we find it has the following characteristics.

#### 4.1 Strict discipline and coordination

China’s cyber activism has gone through three stages: the embryonic stage, the formative stage and the developing stage. The first phase was accompanied by the spread of the Internet in mainland China, some of the participants began to voice on the Internet, showing the voice of Chinese folk. For example, in 1998, after the “operation in black may” in Indonesia, the students of Peking University organized and offline demonstrations on BBS. The second stage is the “anti-CNN” website period, China’s cyberactivism has officially been unveiled. From the point of view of action objects, the anti-CNN Web site focuses on CNN and the global audience, so that the world’s netizens can hear the real Chinese voice and distort the coverage of CNN. At this stage, Chinese participants are gathered together, they have a stable action “stronghold”, and the struggle is no longer in the form of stragglers. But the organizers have poor control over the participants. It is the latest stage of the development of cyber activism in China, which has the characteristics of strict discipline and cooperation. On the eve of each expedition, the group will release the top message, stipulating the form and rules of action, restricting and standardizing the online behavior of the participants. For example, in January 2017, the group launched a mission to the Japanese right-wing hotel APA. The administrator arranged specific time for the departure, the location of the tour (the Japanese APA hotel’s home page of Facebook and Twitter), the form of the attack and the “offensive strategy”, and the participants in the violation of the



requirements were “please out” the group. In order to enhance the momentum and expand the impact, the group of members to address the comrades. The group posted the special software for the group friends for free download, and someone taught how to install and use. In addition, the teams cooperate with each other to increase the impact of the action itself.

#### **4.2 The rational expression of subculture**

Subculture refers to a cultural that is contrary to the mainstream culture and is a unique way of life and idea in a certain group or region. Group members interact to build collective identities (Hanspeter Jacky, Ruder Koopmans, William Duwyndack and Mark Jugny, 2006<sup>[5]</sup>). As a sub cultural movement, its members formed the collective identity of “Jihad fighters” in the previous campaigns, and formed a collective habit of “big event will be bound”. This also reflects the characteristics of subculture. The D8r’s trip provides a new model for such actions, showing a kind of “rational anger”. Different from the traditional way of fighting, this non-mainstream type of rational expression has two main forms. The first is through the expression package, with humorous words and expressions to express the appeal of action. Such facial expressions include posters with a sense of age + propaganda slogans or Internet buzzwords. Such as Virgin Aviation events, a facial expression bag is a young pioneer wearing a red scarf to beat the hostile elements of the drowning. The map with the text: “D8 and the whole nation beat Virgin aviation imperialism.” The second way of expressing “rational anger” comes from conscious action with netizens, expressing the demands in the form of bilingual crosses. As netizens commented that Virgin Airlines must apologize. The Chinese are very united and patriotic. Do you British pigs think the Chinese are not united? You are wrong, the Chinese people are very powerful. If you don’t apologize, you will be expelled from the Chinese market (The original is Chinese). Then you are wrong, the Chinese people are very strong. If you do not apologize, you will slowly be expelled from Chinese market. Although there are obvious grammatical errors in such an expression, it is the voice of the folk, which shows the power of the grassroots in China. This kind of subcultural rational expression can be seen everywhere in action.

#### **4.3 Cyber nationalism and entertainment color**

After the 2001 Sino-US South China Sea collision incident, a part of the domestic netizens went to the streets to complain about the dissatisfaction of American crimes. At that time, in the embryonic stage of the development of China’s cyber activism, some netizens organized themselves and sent out voices from Chinese folk. Patriotism is the cornerstone of their collective action. With the development of network technology and China’s cyber activism, patriotism has risen to the height of cyber nationalism. This online nationalism can be shown in the event of the APA Hotel in Japan. Network nationalism is the combination of network and nationalism. Network nationalism is the organic combination of network and nationalism. It is the development of nationalism in the Internet era. Therefore, the Internet has become the platform of nationalism and has promoted the achievement of relevant goals (Lo Di, Mao Yu-xi, 2006<sup>[6]</sup>). Hostile attack, network boycott and network signature become D8’s usual way of action. For example, in the event of the APA Hotel in Japan, some netizens launched the “refused the APA hotel” statement, and received a positive response. This is the way the network boycott mentioned above. In the process of observation, the researchers also found that the D8 is also marked with a clear entertainment color. In the case of Virgin Atlantic, the D8 released the post of “second season of facial expression package wars”, showing the characteristics of cyber culture. It is a sign of cyber culture that the battle is a way of solving problems in the process of playing. This playful and entertaining way of action has lowered the threshold of the fight and ruled out the dominance of the traditional way of war, attracting more users to participate. In addition, the group also has some netizens for purely recreational purposes to participate in the operation. The study object A told the researchers that her participation in the expedition was just fun.

## **5 The problems brought by the action**

### **5.1 The problem of “public instrument” is frequently used as a tool for some people**

The news concept of Western liberalism holds that mass media is a public instrument, which plays an important role in serving democratic politics, safeguarding public rights and guiding social public

opinion(Gao Wei,2008<sup>[7]</sup>). D8's expedition, especially its international action, as a form of Chinese Internet network collective struggle, in the maintenance of the interests of the Chinese people, guide the correct international opinion, like the mass media, also play the role of a "social utility". As a scarce resource in society, "social utility" requires it to be implemented. Through a year of virtual ethnographic analysis, it has been found that "social utility" has been invaded by private interests, which has become a tool for some people to seek profit. If a member has a verbal conflict with someone, in retaliation, he gathers a group of friends in the QQ group of "Jiuers xx", attacking other people's web home page. This is a typical case of public utility used as a tool for some people. If not stopped, the justice of action will be greatly reduced.

### 5.2 Rumor spread

D8's expedition is a new form of network collective action with the development of new media and Internet technology, and we know it is a gradual process, however, from the current point of view, the academia and the industry have not given their due attention. The low degree of attention leads to a lack of awareness of the problem. From the present point of view, rumor spread becomes a prominent problem. Allport was studying rumors, proposed a formula for calculating the amount of rumors:  $R=i*a$ (Allport, 2003<sup>[8]</sup>). R is the intensity of rumors, and I represents the importance of the problem, A refers to the ambiguity of the event. The formula is also consistent with rumor diffusion. Generally speaking, the D8's expedition is aimed at patriotism and nationalism, and its importance can be imagined. In addition, the information given by the participants is vague, and in most cases they are not ready to join the ranks. Rumor makers use this feature to spread false information to achieve their goals. For example, in the case of the United Airlines, a netizen claimed that the battered passenger was a Chinese-American, which sparked nationalist sentiment among netizens in China. The Jiuers xx qq group also launched a call to attack United Airlines's Facebook and Twitter. As the events were fermented, the battered passengers were confirmed to be Americans of Vietnamese descent. The enthusiasm of the expedition was gradually cooled by the revelation of the truth of the event. It can be said that this is a rumor-misled conduct of the expedition. If the organizers of the expedition identify and confirm the authenticity of the event before the action, it will reduce the embarrassment.

## 6 Strategies to solve the problem

The D8's expedition has given the Chinese netizens a patriotic and nationalistic appeal and strengthened the network cohesion, which has brought some new problems for the government's social governance. In this regard, the government should treat the D8 in an inclusive and open manner and adapt to the current new forms of China's network democracy and formulate the correct countermeasures.

### 6.1 Give them a certain right in the right circumstances

The government should change the traditional "high pressure" mode of network governance, and take a positive and open attitude towards the D8 and the D8 's expedition. Changing the government's traditional governance thinking, from "blocking" to "sparse", under the appropriate circumstances to give Participants certain rights to ensure social harmony and stability. In fact, the D8's expedition is a way for Chinese netizens to protest and express their patriotic sentiments on the internet, which can relieve the pressure of netizens' daily life and hatred of "hostile" countries. This hostility is evident in the campaign against the APA hotel in Japan. If the government blocked the voice of netizens, it could cause them to express their demands in a radical way, which will bring greater difficulties to the government's social governance.

### 6.2 Play the role of gatekeeper

Governing the D8, in addition to relying on the government, but also take into account the role of various social forces. This particle believes that the self-management and self-regulation of D8 will be a feasible strategy. Through the "Jiuers xx" QQ Group One years of observation can be found that a lot of "mistakes" related to managers. Due to the large number of students in this group, they are easily misled by false information and making blind behavior. Therefore, the managers of this group should take the initiative to take responsibility, actively guide and standardize the operation of the group members, so as to achieve the source governance. First of all, the management of the group should consciously act as gatekeeper, actively examine and differentiate the authenticity of all kinds of

information, in order to reduce the occurrence of wrong behavior. Secondly, in the face of a wide range of clues, we should screen high value of the target, to achieve the maximum value of the action. Once again, the administrator should step up the examination and resolutely kick out the black sheep in the group, and reduce the occurrence of “private use of the social utility”.

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## A Study on the Spread and Governance of Rumors through the “Relational Network” in Social Media in China

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**Abstract** The rapid development of the Internet and social media maps the interpersonal relationships in reality to the cyberspace and builds a “relational network” in social media. Not only is the social life of people profoundly influenced, but also rumors spread. The public panic caused by rumors can greatly affect the daily life of the Chinese people. Therefore, it is important to study the spread of rumors through social media in China. Based on the national conditions of China, this paper explores whether the “relational network” contributes to the communication through social media and whether it is an important factor in the dynamic spread process of rumors. This paper reveals the spread mechanism of rumors through the “relational network” in social media and puts forward suggestions from the perspectives of technical means, legal system, rumor quelling and the quality of Internet users.

**Key words** Rumor, Chinese society, Social media, Relational network

### 1 Introduction

Nowadays, social media represented by WeChat and microblogging are widely welcomed by the people. They speed up the flow of information, break the boundaries of traditional interpersonal relationships, and create a huge “pseudo-environment”. This allows rumors to grow rapidly. Some scholars believe that rumors are spread as a result of the rapid and wide dissemination of false information by opinion leaders in social media to stir panic or cause economic losses due to accidents among the public.

For example, there was a well-known typical case: On March 11, 2011, due to a severe earthquake in Japan and the subsequent tsunami, the nuclear power plant in Fukushima exploded and nuclear leakage pollution occurred. Later, a rumor that claimed iodized salt could prevent nuclear radiation was spread in the Internet and led to a boom of salt purchase all over the country. Within four days, the average price of ordinary iodized salt in China increased tenfold. This event triggered a huge social panic and enormous economic losses. Similar events of rumor dissemination are numerous. Thus, in the contemporary social context of China, studying the spread mechanism of rumors and the impact of social media on it is undoubtedly an important subject for both the present and the future.

### 2 “Relational network” in the Chinese society

“Relation” means “connection”. The relationships between people in a certain relational circle are the “relational network”<sup>[1]</sup>. In the Chinese social life, the extensive personal relationships and subtle interpersonal relationships in the “relational network” reflect a dissemination model under which every individual plays a central role in his or her relational network. As part of the unique cultural background of China, relational network has a profound impact on the social life of people.

Western scholars suggest that everyone is an independent individual who has independent behavior in the community<sup>[2]</sup>. In the traditional Chinese Confucianism, man is essentially “a relationship”. Fei Xiao-tong, a Chinese sociologist, created a “differential pattern” based on relational networks. He argued that “Social relations are increment of individual contacts as individuals get connected to others more and the social sphere is a network of private connections,” and “It is like the ripples of water when a stone is thrown into it”<sup>[3]</sup>.

Thus, each person is an independent individual at the center of a relational network and is not separated by clear boundaries from other individuals involved. They keep evaluating and managing

this relational network<sup>[1]</sup>. The individual will in Chinese society is considered to be an entity in the relational network and form closely connected social ecology<sup>[4]</sup>.

### **3 Impact of relational network on the spread mechanism of rumors**

Rumor is an unavoidable social phenomenon. According to Warren Peterson and Noel Gist, rumor is an unconfirmed event that is spread between people, indicating public concern about an object, an event or a problem<sup>[5]</sup>. It seems that rumor is a form of social communication and information transmission. However, in the social public sphere, the dynamic process of rumor spread can be distorted.

Interpreted by Rogers' model of diffusion of innovations (1983), in addition, the communication channel of mass media is often the fastest and most effective one, and the interpersonal communication channel is more effective in persuading a person to accept new ideas, especially when two or more close individuals are connected<sup>[6]</sup>.

Under the unique social context of China, the relational network will act on the spread of rumors, mainly in the following aspects:

#### **3.1 Group orientation**

People tend to follow a group's opinions in the network rather than stick to their own. People are heavily dependent on relations to adapt to the changing environment at all times<sup>[4]</sup>. The tendency of "not to be isolated from the mainstream" allows people to feel safe in the relational network as in this way they can express themselves in public in anonymity. However, the opinions of a group may be untrue. Since living in a group people often face the pressure from the group, they tend more to believe the opinions of the group and spread them.

#### **3.2 Reliability**

At present, the political and social environment of China is characterized by the lack of social infrastructure and a weak legal system. Under this context, a private agreement ruled and enforced by a trusted third party is impossible. In order to live in a society that feels safe, people have no choice but a relational network of trust and being trusted. In Chinese society, "relations" are valued because they are stable and reliable. People are more willing to believe the information from reliable "relations".

#### **3.3 Affection**

People rely on common sense rather than scientific evidence to decide whether the information they receive is rumors<sup>[4]</sup>. People believe what "others" tell them and the "others" means those who are part of their relational network. When the Chinese follow the pattern of "others", they can hide themselves in the public. Be the pattern right or wrong, this is a more secure behavior. In any Chinese "relation", the bond of affection between people is valued and this is the very essential element of the so-called "relation". In this network, people will judge the authenticity of information by their subjective feelings instead of objective sense.

#### **3.4 Bidirectionality**

Rumors must be believed to be spread. Instead of simply receiving a message and transmitting it to another person; the spread of rumor is a two-way interaction between the sharing sender and the evaluating recipient. The content should not be regarded as a subject of communication, but the remodeling of form can strengthen a series of communication behavior<sup>[7]</sup>. During the dissemination process of information, the influence of rumors in the relational network under the Chinese context will be reinforced if the two sides reach a consensus.

### **4 Relational network expanded by the social media**

People live in a network of relationships. Relational networks exist before the emergence of social media, and it is expanded by the emergence and development of social media, resulting in the spread of rumors.

Under the specific social context of China, the emergence and development of social media not only subverts the traditional communication mode of traditional media, but also expands the influence of relational network and provides a new media environment for rumor generation and dissemination. Users receive, share and produce information through social media where they can not only have

access to the information they need but also maintain their social relations<sup>[8]</sup>.

#### **4.1 Expanding media discourse and difficulty in telling the authenticity of information**

In the new media era, UGC-User is a core concept of content generated under WEB 2.0. As Peters claimed, we live in an era of dialogue<sup>[9]</sup>. He further pointed out that dialogue may have turned into arbitration if the discourse of media kept growing in the past century<sup>[9]</sup>. Internet users not only receive information passively as readers, but also create and disseminate information through the Internet. Thus, distorted information is mostly likely to occur and rumors are spread consequently in such a new media environment.

#### **4.2 Expansion of the right to access to media leads to rumors**

The emergence of social media like microblogging and WeChat allows Internet users to publish, share and receive all kinds of information easily and their right to access to the media is expanded. However, because social media emerged much later in China than in Western countries, the absence of watchdog, the fragmented expression, and the varying quality of users have made social media the “hardest hit” breeding ground for the generation and spread of rumors<sup>[9]</sup>. G.W. Allport and L. Persian Turman, two American sociologists, summarized a rumor formula in 1947:  $R (Rumor) = I (Important) \times A (Ambiguous)$ . It can be concluded that rumors will not happen if either I or A is low enough to a certain extent; if an event is both important and expressive, rumors will prevail.

#### **4.3 Active transmission by “opinion leaders” to speed up the spread of rumors**

Nowadays, social media like microblogging and WeChat play an increasingly important role in the field of public opinion, and a number of “opinion leaders” that have many “fans” in the Internet-based social media appear. The so-call “Big V” class of commentators on microblogging is an example. Although the identity verification (authentication) system of microblogging at Sina helps users discover high-quality and legitimate sources of information, the microblogging also gives the public figures the right to speak and enables the “Big V” class to appear in the public domain on behalf of their fans. However, once any unconfirmed news is transmitted by this class of public figures, Internet users would further disseminate it without confirming it and no matter whether the senders are professional in the area concerned or not. In this case, rumors are inevitable in microblogging. For example, Dong Wenhua, a famous singer, released the untrue news of the death of Yan Su, a prestigious composer, in her microblog on October 27, 2015.

#### **4.4 “Accelerator” of rumor spread: “group pressure” in the relational network**

In the traditional social network, the members are basically strangers due to mobility and instability. Thus, they can freely discuss, support or oppose any topics or even rumors, without having to face the pressure from other individuals in the social network. The emergence of Microblogging, WeChat and other social media continues and expands the relational network in realistic society and the relational network mapped to the social media is still composed of acquaintances. Group pressure and conformist mentality reduce much resistance to the spread of rumors<sup>[9]</sup>.

## **5 Prevention and management of rumors in the relational network in social media**

### **5.1 Increase the technical level of social media to suppress rumors**

In the new media era, technology is a key tool. Developers of online social media technology should improve the technical level of suppressing, identifying and tracking rumors, and should come up with methods to supervise and govern Internet users who produce and spread rumors.

At present, the information flow in microblogging and other social media in China is much slower than it is in foreign social media like Twitter, because the comment feature of Sina microblogging lowers the speed of information flow. Sina microblogging activates both the comment and forwarding function, and the original post occupies the dominant position in this framework. The comment function “balances” the information flow. However, the comments are affiliated to the post. Once the post is deleted, the comments are invalid. They will not be displayed automatically, and only limited comments are visible even when the comment button is hit.

On Twitter, the only way to display a public timeline for a user to publish a content post is to share the comments. In this framework, all the information has the same opportunity to be followed.

In the Chinese social media, therefore, the features of a platform need to be improved through

technical means to speed up the flow of information and prevent the spread of rumors through social media.

### **5.2 Establish and improve the law and regulation system for Internet-based social media management**

The Internet development started late in China, and the relevant laws and regulations are not perfect. In order to regulate Internet-based communication, the *Decision of the NPC Standing Committee on the Maintenance of Internet Security* and the *Management Approach to Internet Information Services* were introduced this year. The Supreme People's Court and the Supreme People's Procuratorate issued the *Interpretation of Several Questions Concerning the Applicable Laws to Process Criminal Cases Such as Committing Defamation Through Information Network* to provide a legal basis for punishing online "opinion leaders" who spread rumors recklessly.

Problems like low level of legislation, imperfect laws and lack of power restriction, however, are unavoidable during the legislation process, while problems like lack of legal basis, random punishment, and insufficient attention to Internet rumors often appear during the law enforcement process. Thus, the relevant authorities should constantly improve the supervision and management system of Internet rumors.

### **5.3 Strengthen the authenticity of sources and build a "rumor crusher"**

One of the important reasons for the spread of rumors is that ordinary Chinese Internet users do not master sufficient scientific knowledge. Thus, it is necessary to strengthen the authenticity of sources and build a "rumor crusher". Guokr.com, a network technology company, provides a new way to deal with rumors in the Chinese Internet.

Guokr.com was founded in 2011 as a scientific type of social media. Its slogan is "make science and technology interesting" and its users are young Chinese Internet users. At Guokr.com, the most popular section is "Rumor Crusher". The most objective or the most influential part of the living experiences collected from Internet users is used to clear rumors. Thus, the information in this section is always up to date and provides more accurate views for Internet users. Many of the articles written by the editors at Guokr.com are intended to clear rumors and benefit more Internet users. Essentially, this is the core value of Web 2.0 - UGC.

The contents published at Guokr.com are subject to strict editorial specifications. For example, they come from standard sources such as authority scientific papers in order to reduce rumors. Guokr.com eliminates the influence of "opinion leaders" and the sources of the contents are easily traced.

### **5.4 Attach importance to the quality education of Chinese Internet users**

The lack of rational thinking and judgment in Internet users is an important reason for the spread of rumors. This requires us to evaluate the information in online social media and improve our rational critical ability. We should enhance the sense of civic responsibility, keep in mind the responsibilities and obligations as citizens when we publish our comments freely in social media, fully evaluate the information in social media while having access to useful information, keep a clear mind when being exposed to strong public opinions, maintain independent thinking, and avoid "creating and spreading rumors".

## **6 Conclusions**

The Internet is a new paradigm that has changed our way of exploring the world while accelerating the flow of social information, expanding the relational network and creating a huge virtual community. Therefore, the spread of rumors is inevitable in this virtual community. In China, the emergence of social media not only influences the way that Chinese Internet users communicate with each other, but also expands the social "relational network" with Chinese characteristics. Based on the current national conditions of China, the "relational network" is more deeply rooted in social media, which accelerates the spread of rumors. However, "Rumors end with sage". In short, while the "relational network" accelerates the spread of rumors in social media, we can fix it by improving technical means, perfecting the legal system, building a "rumor crusher", and increasing the quality of Internet users in the dynamic spread process of rumors.

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## Analysis on Regional Disparity among the Supply Efficiency of Public Employment Service in China

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**Abstract** The supply efficiency of public employment service directly affects the level and quality of public employment service. Through constructing the efficiency evaluation index system of public employment service, based on DEA-BCC model, this paper conducts an empirical analysis on disparity among the supply efficiency of public employment service in 28 provinces (cities, districts) of China in 2015. The study shows that there are 16 provinces (cities, districts) that the public employment service reached the effective level of DEA in total, and there are significant differences in terms of combined efficiency, technical efficiency and scale efficiency between them. From the perspective of regional location, the supply efficiency of public employment service is the highest in the eastern region, the efficiency gap between the western and central regions is very small, and the northeast region has the lowest efficiency. Based on this, the paper suggests that the investment scale of public employment service should be optimized for non DEA effective regions, focus on technological innovation in the field of public employment service and strengthen the construction of performance evaluation mechanism within the public employment service institutions.

**Key words** Public employment service, Supply efficiency, Disparity, Redundant status, DEA method

### 1 Introduction

Public Employment Service (PES) is a special quasi-public product, refers to the government led, social parties to participate in and in order to achieve full employment for the purpose. It is a vital part of public service. The construction of China's public employment service system was late and began in 1980s. After more than 30 years of reform and trial, the functions and supply levels of China's public employment service have been greatly promoted, and the public employment service system has been continuously improved, which has eased the employment pressure to a certain extent. Government investment in public employment service has also increased year by year. From the year 2007 to 2015, social security and employment expenses has risen from 544.72 billion to 1901.87 billion. Increase capital investment is very important, but it will be detrimental to the supply efficiency of public employment service if we only rely on the investment and not pay attention to the output efficiency of public employment service.

Put "China national knowledge internet" as the source database, "public employment service" and "efficiency" as the keyword, a total of 116 literatures were retrieved. Among them, there are 53 doctoral thesis, 60 journals (15 core journals, 45 other journals), 1 conference paper, and 2 newspapers. Through reading these literature, it is found that the current research on China's public employment service mainly focuses on two aspects: system construction and index system construction. In the aspect of system construction, Zhu Shu-qin (2006) studied the construction model of public employment service of Australia, pointing out that its public employment service is not monopolized by the government, but by the social parties to participate in the construction. Kong Wei-wei,<sup>[1]</sup> Liu Shuang (2005) systematically analyzes the advantages of public employment service in western countries, and draws there has perfect legal rules and regulations in Germany to guarantee the implementation of vocational education. The American public employment service system has complete data network platform and "one-stop" employment service institutions.<sup>[2]</sup> In the construction of the index system, Shi Wei (2010) based on the principle of 3E, by setting the input, process, output, results in four directions to establish a comprehensive index system.<sup>[3]</sup> Wang Fang (2011) from efficiency, quality and satisfaction three dimensions to designs the index system.<sup>[4]</sup> Chen Bin (2012) constructs the decision model of supplier selection by using intuitionistic fuzzy theory, and constructs the index for selecting the providers of public employment service, which has strong practicability.<sup>[5]</sup>

There are few studies on the supply efficiency of public employment service in the existing literature, especially the research on disparity among the supply efficiency of public employment service in China. On the basis of the existing research results, this paper uses DEA method (Data Envelopment Analysis, thereafter DEA) to measure the supply efficiency of public employment service in China, and analyzes from three aspects which are discrepancy between provinces, disparity between regions and redundancy status. Finally tries to explore ways to improve the supply efficiency of public employment service in non DEA effective regions.

## 2 Model selection and the establishment of index system

### 2.1 Model selection

At present, there are mainly satisfaction evaluation, matching degree analysis and DEA method to evaluate the supply efficiency of public employment service. Among them, the DEA method is proposed by American famous operations scientist A. Charnes and Cooper in 1978. Based on multiple input and output indicators, using linear programming method to establish the corresponding evaluation model, and evaluate the effectiveness of each DMU (decision-making units) in the same system.<sup>[6]</sup> The combined efficiency value of all DMU are between 0 and 1, if the combined efficiency value is 1, indicating that the DMU has reached DEA valid; if the combined efficiency value is less than 1, indicating that the DMU is non DEA valid and the combined efficiency value also have improved space. The biggest characteristic of the method is that it is suitable for evaluating the relative effectiveness of multi input and multi output DMU, and the problem of the disunity dimension of input and output indexes is not considered.<sup>[7]</sup>

CCR and BCC models are two basic models to measure the relative efficiency. CCR is a model to measure if production scale and its technology are effective. Its prerequisite of assumption inquires DMU should be invariable in scale benefit. And BCC is a model based on variable scale benefit, which can measure the technology effectiveness of DMU.<sup>[8]</sup> When DEA is invalid, the CCR model cannot judge whether the technical efficiency is invalid or the scale efficiency is invalid, but the BCC model increases the constraint condition finally can gets the corresponding technical efficiency and scale efficiency. Therefore, based on the characteristics of comprehensive public employment service and the characteristics of various evaluation methods, this paper uses the output orientated of DEA-BCC model to evaluate the disparity among the supply efficiency of public employment service in China. The model is as follows:

$\min \theta$  ( $\theta$  is unconstrained)

$$s.t. \begin{cases} \sum_{j=1}^n \lambda_j X_j + s^- = \theta X_0 \\ \sum_{j=1}^n \lambda_j Y_j - s^+ = Y_0 \\ \sum_{j=1}^n \lambda_j = 1, \lambda_j \geq 0, j = 1, 2, 3, \dots, n \\ s^- \geq 0, s^+ \geq 0 \end{cases}$$

In the model,  $X_0$  and  $Y_0$  respectively represent the original input value and output value of the evaluated DMU.  $\theta$  represents the combined efficiency value of the evaluated DMU,  $s^-$  and  $s^+$  respectively represent the slack variables of input and output,  $\lambda_j$  is the unit combination coefficient.

### 2.2 The establishment of index system

Essentially, the supply efficiency of public employment service is to reflect the relationship between input and output of public resources, and the evaluation of its efficiency involves multiple inputs and outputs indicators. In order to reasonably evaluate its efficiency, this paper constructs the evaluation index system of public employment service supply efficiency (as shown in Table 1) which is based on the principle that indicators representative and data availability. The input index is composed of human input, material input and financial input. The human input index is  $X_1$ : number of staff members in training institutions. The material input index is  $X_2$ : number of vocational training institutions. The financial input index is  $X_3$ : vocational training subsidy;  $X_4$ : per capita social security and employment expenditure. The output index is composed of direct output and spillover output. The

direct output index is  $Y_1$ : number of people receiving employment guidance;  $Y_2$ : number of people receiving business service;  $Y_3$ : number of successful career introductions. The spillover output index is  $Y_4$ : number of re-employed after training;  $Y_5$ : number of obtain professional titles after training;  $Y_6$ : average wages of workers.

Combined with the above research model and index system, this paper chooses the original cross sectional data of 28 provinces (cities, districts) in China as the research object .Because of the partial data missing of Shanghai ,Tibet and Yunnan provinces, this paper does not count it into consideration. The original data comes from *China Statistical Yearbook* and *China Labor Statistical Yearbook* of 2015.

**Table 1 The evaluation index system on supply efficiency of public employment service**

Evaluation index			Code
First level index	Second level index	Third level index	
Input index	Human input	Number of staff members in training institutions( people)	$X_1$
	Material input	Number of vocational training institutions( unit)	$X_2$
	Financial input	Vocational training subsidy(100 million yuan)	$X_3$
		Per capita social security and employment expenditure( yuan)	$X_4$
Output index	Direct output	Number of people receiving employment guidance( people)	$Y_1$
		Number of people receiving business service( people)	$Y_2$
		Number of successful career introductions( people)	$Y_3$
	Spillover output	Number of re-employed after training( people)	$Y_4$
		Number of obtain professional titles after training( people)	$Y_5$
		Average wages of workers(yuan)	$Y_6$

### 3 Empirical analysis results

#### 3.1 Analysis on the disparity between provinces

By collecting the input and output index data, using DEA-BCC model to calculate, Table 2 shows the value of the supply efficiency of public employment service of 28 provinces (cities, districts).

##### 3.1.1 Combined efficiency (crste) analysis

As can be seen from Table 2, in 2015, the supply efficiency of China's public employment service was at the medium level, the average of combined efficiency was 0.885, and the waste rate of resources was 8.3%. A total of 16 provinces (cities, districts) combined efficiency value is 1, accounting for 57.1%, indicating that the supply efficiency of public employment service in these regions have reached DEA valid. In the eastern region there are 8 provinces with a combined efficiency value is 1, indicating that there is a certain correlation between the level of economic development and the supply efficiency of public employment service. In the 12 provinces where the DEA is invalid, the combined efficiency value of Shaanxi, Gansu and Hubei are also higher, and DEA is slightly invalid. The combined efficiency value of Inner Mongolia, Guangxi, Shanxi, Anhui, Liaoning, Jilin and Heilongjiang is lower, and DEA is moderate invalid, ranked the final value of the combined efficiency of Liaoning Province is only 0.613, indicating that there is a serious waste of public employment service resources.

##### 3.1.2 Technical efficiency (vrste) analysis

Technical efficiency can reflects the management level and the control ability of public employment service. When the technical efficiency is equal to 1, it shows that the input elements have been highly efficient used, and the management ability is strong. When the technical efficiency is less than 1, indicating that the input resources are not fully utilized. As can be seen from Table 2, the average technical efficiency of China's public employment service in 2015 was 0.954, quite close to 1, indicating that the capacity of resources utilization and the management level of public employment service were very high in 2015. Specifically, there are 18 provinces technical efficiency value is 1, this shows that the utilization rate of resources in these provinces is high, while the other 10 provinces are ineffective in technical efficiency. Especially in Jilin province, the value of technical efficiency is at the bottom, which shows that the allocation of resources is relatively poor.

### 3.1.3 Scale efficiency (scale) analysis

Scale efficiency refers to the gap between the existing scale and the optimal scale at a given level of management. When the scale efficiency is equal to 1, it indicates that the DMU is scale valid; and when the scale efficiency is less than 1, it indicates that the scale is invalid and is divided into two cases: increasing and decreasing returns. As can be seen from Table 2, a total of 16 provinces (cities, districts) scale efficiency of public employment service is valid. Indicating that in these regions the investment of public employment service has reached the optimal level, and only need to maintain the status quo. While the scale efficiency of public employment service is invalid in 12 provinces (cities, districts), such as Inner Mongolia, Guangxi, Shanxi, Gansu and so forth. And they are both in a state of decreasing returns to scale, indicating that these regions should not to increase the investment of resources, but should to improve the supply efficiency by promoting the efficiency of resource utilization.

**Table 2 The value of the efficiency of public employment service**

Province	Crste	Vrste	Scale	Return to scale	Level of crste
Inner Mongolia	0.742	0.938	0.792	Decreasing	DEA moderate invalid
Guangxi	0.754	0.902	0.836	Decreasing	DEA moderate invalid
Chongqing	1.000	1.000	1.000	Unchanged	DEA valid
Guizhou	1.000	1.000	1.000	Unchanged	DEA valid
Shaanxi	0.818	0.971	0.842	Decreasing	DEA slightly invalid
Gansu	0.865	0.945	0.915	Decreasing	DEA slightly invalid
Qinghai	1.000	1.000	1.000	Unchanged	DEA valid
Ningxia	1.000	1.000	1.000	Unchanged	DEA valid
Sichuan	0.684	1.000	0.684	Decreasing	DEA moderate invalid
Xinjiang	1.000	1.000	1.000	Unchanged	DEA valid
Shanxi	0.637	0.793	0.804	Decreasing	DEA moderate invalid
Anhui	0.711	0.854	0.833	Decreasing	DEA moderate invalid
Jiangxi	1.000	1.000	1.000	Unchanged	DEA valid
Henan	1.000	1.000	1.000	Unchanged	DEA valid
Hubei	0.828	0.844	0.981	Decreasing	DEA slightly invalid
Hunan	1.000	1.000	1.000	Unchanged	DEA valid
Liaoning	0.613	0.838	0.731	Decreasing	DEA moderate invalid
Jilin	0.622	0.760	0.818	Decreasing	DEA moderate invalid
Heilongjiang	0.690	0.873	0.790	Decreasing	DEA moderate invalid
Beijing	1.000	1.000	1.000	Unchanged	DEA valid
Tianjin	1.000	1.000	1.000	Unchanged	DEA valid
Hebei	1.000	1.000	1.000	Unchanged	DEA valid
Jiangsu	1.000	1.000	1.000	Unchanged	DEA valid
Zhejiang	1.000	1.000	1.000	Unchanged	DEA valid
Shandong	1.000	1.000	1.000	Unchanged	DEA valid
Guangdong	1.000	1.000	1.000	Unchanged	DEA valid
Hainan	1.000	1.000	1.000	Unchanged	DEA valid
Fujian	0.809	1.000	0.809	Decreasing	DEA slightly invalid
Average	0.885	0.954	0.923		

### 3.2 Analysis on the disparity between regions

China has four major economic regions: the eastern, central, western, and northeastern. There are differences between the four regions in terms of natural conditions, economic basis and social environment. It is precisely because of these differences that have led to significant differences in the supply efficiency of public employment service between regions.

Table 3 presents the mean of the supply efficiency of public employment service in the eastern, central, western, northeast and the whole country in 2015. First of all, the eastern region has the highest value of the supply efficiency of public employment service. Whether in the combined efficiency, technical efficiency or scale efficiency, eastern region were significantly higher than other

regions. Indicating that the supply efficiency of the public employment service in eastern region is very high, almost close to the optimal state. Secondly, it can be seen from Table 3 that the gap between the mean of the three efficiency in the western and central regions is very small, indicating that there is little difference among the supply efficiency of public employment service in the central and western regions. But sometimes lower than the national average, there exists a phenomenon of wasting resources. Therefore, should pay attention to improve the management lever of the public employment service. Finally, the supply efficiency of public employment service of the northeast is the lowest, and there is significant gap when compared with other regions. The scale returns in Heilongjiang, Jilin and Liaoning province are decreasing, indicating that the reason why the efficiency of public employment service is invalid mainly because the excessive investment and the serious waste of resources.

**Table 3 The disparity of supply efficiency of public employment service between regions**

Region	Mean of crste	Mean of vrste	Mean of scale
Eastern	0.979	1.000	0.979
Western	0.886	0.976	0.907
Central	0.863	0.915	0.936
Northeast	0.642	0.824	0.780
Nationwide	0.885	0.954	0.923

### 3.3 Analysis on the redundancy status

DEA model can not only measure the efficiency of each DMU, but also can calculate the optimum value of input and output. And through compared with the actual value of input and output to obtain the slack variables ( $s^-, s^+$ ) of invalid DEA. Then use the formula (1) and (2) to appropriately adjust the input and output value of DMU to make the invalid DEA to valid DEA.

$$\Delta x_0 = (1 - \theta)x_0 + s^- \quad (1)$$

$$\Delta y_0 = s^+ \quad (2)$$

**Table 4 The adjusted value of input and output with non DEA valid provinces**

Province	$\Delta y_1$	$\Delta y_2$	$\Delta y_3$	$\Delta y_4$	$\Delta y_5$	$\Delta y_6$	$\Delta x_1$	$\Delta x_2$	$\Delta x_3$	$\Delta x_4$
Inner Mongolia	150790	6695	58877	0	33204	0	141	63	547	1917
Guangxi	293184	18155	0	5266	10040	0	219	12	287	757
Sichuan	0	0	0	0	0	0	309	37	1069	429
Shaanxi	280943	18523	219121	5723	0	0	758	50	1078	1700
Gansu	181515	38207	296764	0	3522	0	870	10	364	413
Shanxi	350571	101618	0	0	45067	0	1312	41	922	1348
Anhui	224449	37994	0	0	9669	0	1579	19	712	645
Hubei	481244	111839	356101	0	2995	2744	294	20	2051	659
Liaoning	515986	125247	0	0	29951	10935	1033	48	1274	2186
Jilin	0	0	39117	0	959	2523	243	30	345	1780
Heilongjiang	0	53189	0	0	22669	2120	320	75	861	1551
Fujian	0	0	0	0	0	0	82	10	186	172

From the above analysis we can see that in the 28 provinces, a total of 16 provinces DEA is valid. In these regions, there was no input redundancy and output shortage, the slack variables was zero. It shows that the input elements for public employment service were fully utilized and the level of output was optimal. However, in regard to the invalid DEA regions, there are troubles about the input redundancy and output deficiency, which can be made effectively by adjusting the value of input and output. Table 4 lists the adjusted value of input and output with non DEA valid provinces, we can see that in Sichuan and Fujian province, the value of output adjustment ( $\Delta y_0$ ) were 0, this is because the technology efficiency of two provinces were 1 (see Table 2), shows that DEA is invalid due to the scale efficiency is less than 1, so the two provinces want to achieve DEA valid only need to work on the four input indexes. For example, Sichuan Province can reduce the number of training staff ( $X_1$ ) by 309, and

also can reduce the number of vocational training institutions ( $X_2$ ) by 37. In terms of output, the adjusted value of the number of people receiving employment guidance ( $Y_1$ ), the number of people receiving business service ( $Y_2$ ), the number of re-employed after training ( $Y_4$ ), and the number of obtain professional titles after training ( $Y_5$ ) were significant, indicating that if these regions were under the same situation, the output has many spaces for growth. In terms of input, these provinces are in a state of decreasing scale, the key to achieving valid DEA is to reduce the amount of input under the premise of the existing production. Especially Liaoning Province, excessive investment redundant and lack of output is particularly evident.

## **4 Suggestions for the non DEA effective regions in China**

### **4.1 Optimize the scale of the investment of public employment service**

It can be seen from the above research that the return to scale of the public employment service are in a state of decreasing in the 12 non DEA effective regions, indicating that in the current level of input, there is a gap between the actual output and the optimal scale, a lot of resources have not been fully utilized. As can be seen from the data of the input and output adjustment value in the Table 4, the gap between the output and the optimal output is still very large. If these regions continue to increase the amount of input will make the gap wider and wider, and the waste of resources is more and more serious. Therefore, the non DEA effective regions should be appropriate to reduce the scale of investment in the public employment service. The number of staff members in training institutions, the number of vocational training institutions, vocational training subsidies, as well as per capita social security and employment expenditure subsidies and other aspects to make adjustments synchronization to avoid numbness expansion. On the other hand, keep the input level unchanged, and increasing the output of public employment service, especially for the number of people in the aspects of accepting employment guidance, accept the innovation service, introduces the successful occupation should be increased. Especially in Sichuan and Fujian Province, the DEA is invalid mainly because of the excessive scale of investment, so these two regions can adjust the scale of public employment service to achieve DEA effective.

### **4.2 Focus on technological innovation in the field of public employment service**

The level of combined efficiency of public employment service is not only affected by the scale efficiency but also by the technical efficiency, they are both positive relations. The technological progress is mainly embodied in two aspects, that is, the informatization and management level of the public employment service. On one hand, the non DEA effective regions should pay attention to improving the technology development of public employment service and the level of information, building public employment service online platform, establishing the nationwide public employment service information network, seeking diversified ways to providing public employment service, providing more efficient services for workers to seek work; On the other hand, attach great importance to enhance the management level of the public employment service institutions and improve the service level and quality through the occupation skill training for practitioner, to ensure the team of the public employment service professional. It can be seen from the empirical analysis, the mean value of the 28 provinces technical efficiency is 0.954, at a high level. Among the 10 provinces of the invalid technical efficiency, Shanxi and Jilin province was less than 0.8, so these two provinces can improve the level of informatization and management to enhance the supply efficiency of public employment service.

### **4.3 Strengthen the construction of performance evaluation mechanism within the public employment service institutions**

The government is a dual role of public employment service provider and job market manager, which makes the government often have serious waste of resources in the supply of public employment service. It leads to the supply efficiency of public employment service is low. It can be seen from Table 2 that the mean value of the efficiency of public employment service in 2015 is less than the mean value of technical efficiency, indicating that the investment of the public employment service institutions in China is too large and the waste is relatively serious. From the input and output adjustment value of Table 4, the redundancy analysis shows that the function of the public employment

service institutions has not been fully exploited. Therefore, it is of vital importance to strengthen the performance evaluation mechanism of public employment service institutions. At present, many western countries have established the expenditure evaluation mechanism of public employment service, there are a lot of successful experience for reference. And based on this, to establish a public employment service evaluation mechanism which in line with national reality and flexible, give full play to the service function of public employment service institutions, improve the supply efficiency of public employment service.

## 5 Conclusions

Based on the DEA-BCC model, this paper analyzes the disparity between provinces, the disparity between regions and redundancy status of the supply efficiency of public employment services of 28 provinces in China, and draws the following conclusions: The efficiency exists significant discrepancy between different provinces and regions. A total of 16 provinces supply efficiency of public employment service is valid, and the remaining 12 provinces of the supply efficiency of public employment service is DEA invalid. The efficiency of the eastern region is the highest and close to the optimal state, the difference of the mean efficiency is very small between the western and central regions, and consistent with the national average level, the efficiency of the Northeast was the lowest, indicating that the waste of resources in public employment service is serious. At the same time, for the non DEA effective regions, this paper also calculates the input and output adjustment value. According to the adjustment value, the non DEA effective regions can find the direction of the input and output adjustment of public employment service.

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## The Causes Analysis of Job Burnout of Grassroots Civil Servants in China: Based on Organizational View

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**Abstract** Grassroots civil servants as a direct provider of public services, their working conditions on the quality of government services have a great impact. Reducing the degree of job burnout in this group is of great significance to provide an efficient model of government service innovation. Through the survey of 107 grassroots civil servants in Sichuan Province of China, found that they have widespread occupational burnout, which shows the highest degree of burnout in emotional exhaustion. Gender, age and education and other individual characteristics have impact on job burnout. From the organizational level of research, found that heavy work, promotion difficulties and low salary are 3 important factors leading to job burnout of grass-roots civil servants. Finally, raise specific measures from scientific and rational division of labor, improve the promotion system, improve the level of salary three aspects to alleviate job burnout of grass-roots civil servants.

**Key words** Grassroots civil servants, Organizational view, Job burnout, Causes of burnout

### 1 Introduction

Grassroots government departments Civil servants are the direct providers of public affairs, their working state directly determines the government's administrative efficiency and level. In recent years, Chinese civil servants are faced with serious job burnout, resulting in lower efficiency of national policy implementation, lower quality of public services, impaired government image and diminished credibility. More and more scholars are concerned about civil service job burnout problem.

In 1974, American psychoanalyst Freudenberger first proposed "job burnout". International uses Maslach's theoretical model to measure job burnout from emotional exhaustion, depersonalization, reduced personal accomplishment of the three dimensions. Civil service job burnout refers to the civil servants individual in the context of interpersonal stress under the long-term work and gradually form a syndrome which appears emotional exhaustion, depersonalization, reduced personal accomplishment (Miao Guo-shu and Xu Hui-hui, 2012<sup>[1]</sup>).

From the different theories on the causes of civil service job burnout, Moore found that workload and job burnout has a significant relevance, especially the emotional exhaustion dimension(Moore JE, 2000<sup>[2]</sup>). Some scholars based on JDCA (Job Demand-Control-Support) model, that the main causes of civil service job burnout are work pressure, limited personal ability, inadequate participation of autonomy(Zheng Li-mei and Zhang Feng-jun, 2009<sup>[3]</sup>). Some scholars based on the perspective of ERG (Existence-Relatedness-Growth) demand theory to analyze the needs for existence, relatedness and growth how to lead to the occurrence of job burnout (Lv Jia-hui, 2016<sup>[4]</sup>). These studies are in the theoretical level in-depth discussion of the causes of civil service job burnout.

From the different perspectives on the causes of civil service job burnout, Maslach found the individual characteristics, job characteristics, organizational level characteristics, occupational characteristics are the main causes of civil service job burnout(Maslach and Harter, 2001<sup>[5]</sup>). Cherniss argues that job burnout is likely to arise when workers feel that their work is not matched with the remuneration (Cherniss C, 1980<sup>[6]</sup>). Some scholars believe that the cause of civil service job burnout is mainly due to their own dual role values conflict (Ni Fen, 2009<sup>[7]</sup>). There are some scholars agree that, resulting in civil service job burnout because of individual factors, organizational factors and social factors(Liu Hong-yan ,Ding Lei, 2006<sup>[8]</sup>).

In summary, on the one hand, China's civil service job burnout research is mainly theoretical research. On the other hand, analysis the causes of civil service job burnout from the individual, organization, social aspects, the lack of in-depth study from the organizational perspective. Therefore, this paper starts from the special group of grassroots civil servants, obtains first-hand information by



issuing questionnaires, and analyzes the organizational factors that affect the job burnout of grassroots civil servants.

This paper mainly analyzes the present situation and individual characteristics of the job burnout of grassroots civil servants, and discusses the causes and measures of civil service job burnout from the perspective of organization. The second part of the article is used to explain the data and data analysis methods used in this paper. The third part analyzes the survey data, explores the status quo, individual characteristics of civil service job burnout. The fourth part analyzes organizational causes of civil service job burnout. The fifth part puts forward the suggestion of alleviating burnout from the organizational point of view.

## 2 Data and research methods of job burnout for grassroots civil servants

The questionnaire mainly investigates the job burnout of grassroots civil servants. A total of 112 questionnaires were sent to the grassroots civil servants in Sichuan Province, China, 107 valid samples were obtained, and then descriptive analysis and correlation analysis were carried out by SPSS. The design of this questionnaire mainly uses the Likert scale to measure the civil service burnout. In the 5-level score, the average in the “1-2” as low burnout, “2-4” as moderate burnout, “4-5” as a high degree of burnout.

## 3 Analysis on current situation of job burnout for grassroots civil servants

The mean in emotional exhaustion, depersonalization, reduced personal accomplishment of the three dimensions of China’s Sichuan provincial grassroots civil servants are 2.75, 2.53 and 2.14 and the mean in emotional exhaustion dimension 2.75 is the largest. The mean of three dimensions are in the range of 2-4, indicating that grassroots civil servants have moderate burnout, and the degree of burnout is low. Secondly, there are 36.4%, 39.6% and 17% of grassroots civil servants who have job burnouts in the aspects of emotional exhaustion, depersonalization, reduced personal accomplishment. The number in depersonalization dimension is the largest, followed by the emotional exhaustion dimension.

From the analysis of data results, first of all, grassroots civil servants have job burnout, but the overall degree of job burnout is not high, the burnout degree in emotional exhaustion is the highest. Secondly, there are more people who have burnout problems in emotional exhaustion dimension and depersonalization dimension. Indicating that a considerable part of the grassroots civil servants easy to feel tired, nervous, lack of enthusiasm and investment in the work, always passive to complete the task, but the business ability is strong, can effectively solve the problems in the work.

The degree of job burnout of civil servants under different gender, age and academic qualifications is as follows (see Table 1):

**Table 1 Proportion of individual characteristics in the distribution of job burnout (%)**

Individual characteristics		Job burnout				
		1 point	2 point	3 point	4 point	5 point
Gender	Man	2	5	8	71	14
	Woman	8	14	9	64	5
Age	20-30 years old	5	5	14	68	8
	31-40 years old	3	5	11	70	11
	41-50 years old	9	10	12	64	5
	Over 50 years old	14	17	12	57	0
Education	Secondary school student	25	20	15	40	0
	College student	12	0	18	59	6
	Undergraduate	5	8	6	70	11
	Postgraduate	5	18	9	64	5

From the gender point of view, 85% of male civil servants job burnout scores higher than 3, 69%

of female servants job burnout scores higher than 3. Men are 16% more than women, indicating job burnout of male grassroots civil servants is higher than female. In overtime civil servants, men are 30% more than women, indicating that male civil servants bear more work. Heavy work is an important reason for job burnout.

From the age point of view, in 31-40 years old, civil servants whose job burnout scores higher than 3 accounted for 81%. Job burnout is the most serious. Followed by 20-30 years old's civil servants accounting for 76%. In 31-40 years old, the position of most civil servants is low and 18% of them have served for more than six years. In 20-30 years old, lots of civil servants (43.6%) think job burnout comes from difficult work. This may be due to they go into the workplace firstly, lack of experience, not enough to adapt to the work.

From the education point of view, in undergraduate education, there are 81% of civil servants job burnout scores higher than 3, the remaining educated civil servants, the proportion burnout scores higher than 3 no more than 70%. Job burnout of undergraduate civil servants is much higher than secondary school students, college students and postgraduates. Many undergraduate civil servants (62.5%) agree that job burnout comes from the promotion. According to the "new appointed civil servants grading regulations", postgraduate entry position is higher than undergraduate (Central Organization Department, Ministry of Human Resources and Social Security, 2008<sup>[9]</sup>). Compared with postgraduate civil servants, entry position of undergraduate civil servants is lower and they have no advantage in promotion, so job burnout is heavier.

#### 4 Causes analysis of job burnout for grassroots civil servants

This paper analyzes the relationship between overtime situation, working seniority, salary and job burnout, and explores the organizational factors that cause the job burnout of grassroots civil servants.

**Table 2 Proportion of distribution of different organizational factors in job burnout (%)**

Organizational factors		Job burnout				
		1 point	2 point	3 point	4 point	5 point
Overtime situation	Don't overtime	10	13	10	63	4
	Every month	6	6	13	62	13
	Every week	0	5	5	74	16
	Every day	0	0	0	75	25
Working years	Below 3 years	25	0	12	50	13
	4-6 years	7	11	2	73	7
	7-10 years	5	5	16	60	14
	Over 10 years	0	9	9	69	13
Salary	Below 50 thousand	7	4	4	70	15
	50-70 thousand	3	13	13	59	13
	70-90 thousand	3	3	10	73	7
	Over 100 thousand	12	12	6	64	6

##### 4.1 Grassroots civil servants heavy work

Overtime situation is an important factor in reflecting the heavy workload. Doing correlation analysis between overtime situation and job burnout status, job burnout and overtime situation correlation coefficient is 0.333, the correlation is significant. All Job burnout scores of civil servants who overtime everyday are higher than 3, job burnout is the heaviest. In these civil servants who don't overtime, the proportion of job burnout scores higher than 3 is the lowest, only 67%, job burnout is the lightest. Indicating that with the increase in overtime, the degree of job burnout has gradually increased. In overtime civil servants, 68.6% of civil servants think that job burnout from heavy work, proved that the heavy task is an important cause for job burnout.

50.5% of grassroots civil servants work on time daily and don't work overtime on weekends. But there are 49.5% of grassroots civil servants have varying degrees of overtime. It can be seen that part

of civil service tasks are easy, while the other part are heavy, civil servants need to overtime to complete. Indicating the distribution of the workload is not enough scientific. In the civil servants who overtime, the number of male and undergraduates is significantly higher, accounting for 70% and 52% respectively. It can be seen that the work of male and undergraduate students is more arduous in their work. In this survey, 73.8% of the civil servants said the organization don't have a reasonable division of tasks.

#### **4.2 Grassroots civil servants promotion difficulties**

Through descriptive analysis, statistics the number of civil servants whose job burnout scores higher than 3, it was found that the proportion of civil servants who served over 10 years in current position is the highest, accounting for 82%; followed by civil servants who served 4-6 years, accounting for 80%; the proportion of civil servants who served below 3 years in current position is the lowest, accounting for 63%. On the whole, the job burnout of grassroots civil servants has been increasing with the increase of working years in current position. Job burnout degree is prominent of civil servants who served 4-6 years. In grassroots civil servants who have served more than 10 years, 77% have been at least 40 years old, and the retirement age of civil servants whose position is below the Chu level is 60 years old. The future promotion space is very small. Therefore, the more longer of working years in current position, the more difficult of promotion, the more limited of career development, the more serious of job burnout.

In civil servants who served for 4-6 years, 63% said that job burnout comes from promotion difficulties. According to "provisions on the appointment and removal of civil servants and the promotion (Trial)", civil servants to be promoted to the level of leadership positions at least 5 years (Central Organization Department, Ministry of Human Resources and Social Security, 2008<sup>[10]</sup>). Then the civil servants who served 4-6 years in current position is facing a critical period of promotion, if not yet promoted, future promotion opportunity will be less, so they are easy to produce heavier job burnout.

#### **4.3 Grassroots civil servants low salary**

Through descriptive analysis, statistics the number of civil servants whose job burnout scores higher than 3, it was found that the proportion of civil servants whose salary is below 50 thousand is the highest, accounting for 85%; followed by civil servants whose salary is 70-90 thousand, accounting for 80%; the proportion of civil servants whose salary is over 100 thousand is the lowest, accounting for 67%. On the whole, the job burnout of grassroots civil servants has been decreasing with the increase of salary. However, job burnout of civil servants whose salary is 70-90 thousand also is high. In civil servants whose salary is below 50 thousand, more than half (52%) agree job burnout comes from low salary. Because of the low salary, the basic needs of grassroots civil servants are not met, civil servants are tired of work and the job burnout is more serious.

In civil servants whose salary is 70-90 thousand, 43% of them have served 4-6 years in current position. Now, they are in a critical period of promotion, the pressure of promotion is easy to cause job burnout. Besides, 53% of them have overtime phenomenon, they are busy with work. Therefore, although their salary isn't low, the pressure of promotion and overtime also cause serious job burnout.

### **5 Conclusions and suggestions**

Through the survey of 107 grassroots civil servants in Sichuan Province, found that they have widespread job burnout. The degree of burnout in the dimension of emotional exhaustion is the highest, and the largest number of burnout in the dimensionality dimension. Gender, age and education and other personal characteristics have impact on job burnout: male civil servants overtime more than female, male civil servants burnout higher than female; the position of civil servants who is in 30-40 years old is not high, and they face promotion difficulties commonly, so they have the most serious job burnout. Followed by 20-30 years old civil servants, because they go into the workplace firstly, not enough to adapt to the work; Job burnout of undergraduate civil servants is much higher than other educated civil servants. Compared with postgraduate civil servants, undergraduate civil servants have no advantage in promotion.

From the organizational level of research, found that heavy work, promotion difficulties and low

salary are 3 important factors leading to job burnout of grass-roots civil servants. On the one hand, the job burnout of civil servants who overtime every day is most serious. Grassroots servants who overtime longer and have more arduous work, their burnout degree is higher. On the other hand, the allocation of work tasks is unreasonable, the overtime phenomenon of men and undergraduates is more serious; the promotion of civil servants who served over 10 years in current position is the most difficult, and their job burnout is the highest. Followed by civil servants who served 4-6 years, because they are in the critical period of promotion, job burnout is also higher. On the whole, the more difficult of promotion, the higher of job burnout degree; Civil servants whose salary below 50 thousand maintain the needs of life barely and their job burnout is the highest. Followed by civil servants whose salary is 70-90 thousand, they overtime for a long time and most of them in a critical promotion period. Civil servants whose salary over 100 thousand have the lowest job burnout degree. In general, the lower of salary, the higher of job burnout degree.

From the perspective of organizational factors, raise specific measures from scientific and rational division of labor, improvement the promotion system, improvement the level of salary three aspects to alleviate job burnout of grassroots civil servants. Firstly, division labor scientific and rational. Arranging daily workload and allocating human resources rational. The civil servants of different gender and education have reasonable arrangements for the workload, so that everyone has enough work. Second, improve the promotion system. The organization should announce the promotion regulations as soon as possible, give priority to inspect whether the civil servants who have served for 4-6 years have been able to meet all the conditions for promotion. Helping civil servants who have not yet been promoted for more than six years and guiding them to carry out reasonable career planning. Finally, raise the salary level. Government should establish a flexible salary system, follow-up social consumption levels to adjust salary, raise the minimum salary level. According to their work content and quality, issue appropriate subsidies to some heavy-duty grassroots civil servants.

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## Transformation and Innovation: Evaluation Index System Construction in Basic Educational Public Service Equalization in China \*

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**Abstract** Basic Educational Public Service Index System is considered the key component in considering the performance level of education public service. It is of great importance to establish a relatively complete index system that measures the level of education public service in a region. For the index system to reflect the current status of educational public service, and to guarantee quantitative measurement of the equalization effect of the service, this paper have proposed the construction process of education public service equalization evaluation index system. Based on the two information sets in this process, construct the evaluation index system that is able to objectively reflect the current state of the equalization of public services of education in China. The construction and dynamic adjustment of the basic education public service index system is beneficial to the educational reform, even the inevitable requirement of the Wisdom Governance in the information age.

**Key words** Evaluation index system, Evaluation index system construction, Basic Educational Public Service (BEPS), Basic Educational Public Service Equalization

### 1 Introduction

As the core of basic public service, Basic Educational Public Service (BEPS) is currently the major focus of public bodies and academic circles. With the quality level of education public service in mind, the academic community has produced several directives, such as “education equalization”(Fan Xian-zuo, Guo Qing-yang,2015<sup>[1]</sup>), “the equalization of education public service”(Liu Xin-yuan, Yao Yu-xiang, 2017<sup>[2]</sup>) and “solving the education differences between urban and rural areas”(Yin Zhen, 2013<sup>[3]</sup>). Being the core issue of the public service level of service quality and measuring problem, solving equal education and service level differentiation and other issues involved in basic education requires the study of BEPS measurements, and measure the quality of service from quantitative Angle. Currently the most used method among academic community in measuring the level of BEPS is through the education index system, which measures the quality of service, and establishes further quantitative calculation on the basis of the index system. Therefore, building the basic education public service evaluation index system is the core and foundation of solving the basic education public service quality problem.

Although many scholars are devoted to the research of BEPS index system, we can find that there are still some problems in the study: 1. It violates the adaptability principle of the index system: BEPS usually approach educational problem from the perspective of the public sector, therefore, it is inappropriate to replace BEPS index with international education quality indicators, at least not in the developing environment of current Chinese educational public service, because it cannot be measured; 2. Ignored the application value of index system: The construction of index system is related to the evaluation of quantitative calculation, yet most research in China stayed in the construction stage, whether the index can be obtained or used in the actual evaluation is not guaranteed, therefore lacks the process of data matching with reality; 3. Ignored the comprehensive principle of the index system: Many research use very few data to reflect the present state of BEPS, index of single dimension and insufficient indicators do not reflect the service level, on the contrary may result in significant

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differences between the evaluation results and the actual situation.

Based on the above thinking, this study rebuilt the equalization of BEPS index, on the basis of widely collecting index information, set forth, for the first time, “Index Information Set of Basic Educational Public Service Equalization” (referred to as “the index information set”). Building the equalization of BEPS index system through synthesizing the content of basic education public service equalization, educational index system of international organizations, BEPS research, and the government’s practice of basic education public service equalization in China, ensure the basic education information to comprehensively measure the equalization of public service, meanwhile, distinguish between the education and basic education equalization of public services. Finally, to ensure the index is practical, this paper suggested the construction of Statistical Data Set of BEPS ensure index system is universally adaptive through date matching between public data and each index.

## **2 The principle of the construction of basic educational public service equalization index system**

To ensure the BEPS equalization index system can objectively reflect the current situation of BEPS, a set of principle must be established before building the index system, and follow the principle of index system building at present stage. Scientific principle is the primary principle in the index system establishment principle, it requires scientific reflection of the level of PEBS equalization, and the contents of the index and the choosing of each index must be scientific and reasonable. Adaptive principle, which requires the BEPS index system consistent with China’s education level of public service at present stage, with public service in mind, also pay more attention to the education input and product index, as well as the performance of the relevant indexes, and ensure matching between index and current situation. Generality principle is the core of this study, ensure quantity of indexes and be as comprehensive as possible.

## **3 Basic educational public service equalization index system construction process**

According to the principles above, it is obvious that two data sets complete the construction of index system, constructing three-level index system through the “Index Information Set of Basic Educational Public Service Equalization”, matching data and indexes through the “Statistical Data Set of Basic Educational Public Service Equalization”.

## **4 Basic educational public service equalization index system construction**

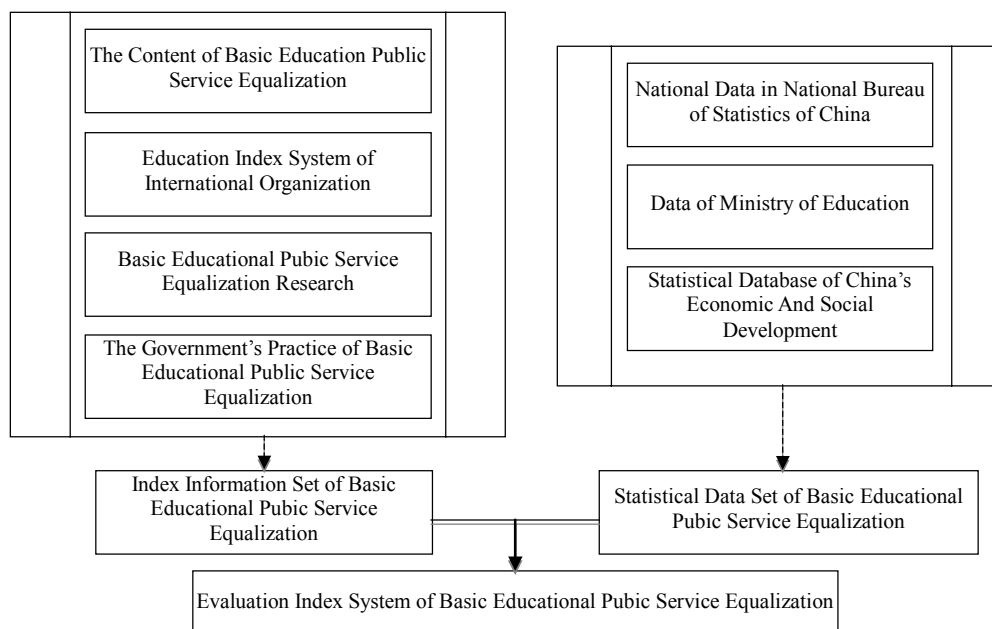
Based on the process above, we can find that the system of “two information sets” can complete the construction of BEPS equalization index system.

### **4.1 Index information set of basic educational public service equalization**

The construction of such index system requires a great deal of academic records. The concept of “basic educational public service equalization” is a combination of multiple concept, its research involves the Chinese government, international organizations, current domestic situation of the basic educational public service, and domestic scholars in the field of education and public management, based on the “two set”, integrate all requirements into one index system that is comprehensive and representative.

The content of Basic Educational Public Service Equalization is of the highest priority in the index system construction process, for it basically determines the scope of the index. In terms of content, the Basic Educational Public Services can be divided into two aspects: static research and dynamic research. The static research mainly reviews the present situation of education basic public services; therefore most of the research is focused on the problem of education inequality during the compulsory education period (Zhang Wan-peng, 2010<sup>[4]</sup>) On the other hand, Dynamic research focus on the public finances, the study clearly points out that: the research on Basic Educational Public Services equalization is essentially the study of education financial allocation problem, realize equalization of education in all regions. Most of the study in this category aim to realize education equalization through rational allocation of public finance (Guo Hong-bao, 2008<sup>[5]</sup>). In addition, Dynamic research also requires equal education not limited to the content of the compulsory education;

its content may be further expanded to high school education, special education, pre-school education, etc. Over all, Evaluation index system must include compulsory education indexes, and in order to maintain dynamic equalization, the system must also include high school, vocational school, and special education indexes.



**Figure 1 Basic education public service equalization index system construction flow chart**

The construction of the educational index system of international organizations, is also an important reference factor, the choosing of index dimension and relevant indexes, has important reference value and significance. The OECD dynamic index system is authority in education, although education index system is different from BEPS equalization index system, some of these indexes of education are worthy of reference and reference. International index system emphasis more on the ability obtained by students, measure education level through proficiency of students (OECD, 2015<sup>[6]</sup>), although the high standard of such evaluation index is currently difficult to generalize domestically in large scale, such system, from the perspective of proficiency, is the flagship of all future domestic Basic Educational Public Service equalization. In addition, index of international organizations is also worth learning and reference. The OECD in “*Education at a Glance*” uses the Input-Product model of economics, formed the Context-Input- Process-Product index dimension, referred to as the CIPP model (OECD, 2016<sup>[7]</sup>). In conclusion, although the international index system of education is not the same as Chinese education index system of public service, but learning from the international education index system can increase index of product and performance of educational public service, such as graduation rate, further education rate, etc. In addition, it can be used in the indicator dimension to use the CIPP model to cluster the indexes.

The government’s practice of basic education public services equalization in China is an important factor that influences the construction of the evaluation index system of BEPS equalization. Policy bills are the most direct tools for public sector governance in China, and the most representative ones should be national-level planning documents. The State Department issued “*Direction of National Basic Public Service System in The Twelfth Five-Year Plan*” in 2012, and “*Notice on ‘The Thirteenth Five-Year Plan’ in Promoting Equalization of Basic Public Services*” in 2017. The two important policy bills show that compulsory education is the core content of the basic educational public service, yet requests for high school education and special education are also present, which made clear that compulsory education needs to strengthen the construction of infrastructure as the main content of standardized development. High school education must focus on school operation in

underdeveloped region. While for special education, the policy categorized it into BEPS equalization index system. To sum up, based on the national policy, BEPS equalization index system should include compulsory education, high school education, and special education. At the same time, the index construction should be built around the input index as much as possible, more importantly, adding indexes that can reflect educational infrastructure construction.

Large number of research has been done in BEPS equalization index system, two categories have formed: content oriented index system, and regional index system. The former focuses on one or more aspects of BEPS equalization, such as compulsory education (Bao Chuan-you, Xi Seng-nan, 2008<sup>[8]</sup>) and medium vocational education (Li Yu-jing, 2013<sup>[9]</sup>), the latter on the imbalance of BEPS between regions, establish the relationship between BEPS and economy. Liu Fuquan, Xu Ya and Liu Peng constructed BEPS equalization index system in Beijing, Tianjin, and Shanghai, system of this category shows obvious regional characteristics. (Liu Fu-quan, 2008<sup>[10]</sup>; Xu Ya, 2001<sup>[11]</sup>; Liu Peng, 2013<sup>[12]</sup>) To sum up, due to regional imbalance, the index system needs to extract universal index that can reflect regional problems, guarantee indexes' representativeness, so that unified measurement can be obtained in different regions.

#### 4.2 Statistical data set of basic educational public service equalization

The BEPS equalization index system statistical data set is the auxiliary set of the index system; it has a great influence on the later measurements of the index. The construction of Index statistics set mainly solved two problems: first, matching actual data with index. Second, reverse selection of index through data, the indexes that lacks data are removed to ensure the smooth operation of the equalization measure. To ensure comprehension of the index data, this study chose the following databases and statistics as the content of the statistical data set: Provincial data of The National Bureau of Statistics Data, Data of The Ministry of Education, Statistical Database of China's Economic And Social Development. Above databases are to be included in the statistics data set for the following reasons: first, they can comprehensively reflect the Chinese BEPS current state, which includes three aspects: government, education, and academia. Second, they have absolute authority at present stage. Finally, they have great coverage over regional BEPS data, provincial data and data of each individual city can be easily obtained in these databases.

### 5 Evaluation index system of basic educational public service equalization

Based on the index construction system above, finally construct the Equalization of BEPS index system. It contains input product and performance indexes, which is divided 3 levels. Then removing the indexes which data cannot be found in Statistical Data Set of Basic Educational Public Service Equalization. Eventually forming the evaluation index system of BEPS equalization. (see Figure 1)

**Table 1 Basic education public service equalization evaluation index system**

First-level	Second-level	Third-level
A Input	A1 Public Sector Education Financial Investment	A1.1 Financial expenditure per student
		A1.2 Education expenditure-GDP ratio
		A1.3 Private Education Investment-Public Education Investment ratio
	A2 investment in human capital	A2.1 Student-teacher ratio in primary school
		A2.2 Student-teacher ratio in secondary school
		A2.3 Student-teacher ratio in high school
	A3 Capital input	A3.1 New fixed assets investment-budget ratio
		A3.2 New fixed assets investment-fixed asset investment ratio
	A4 School scale	A4.1 Class capacity per school
		A4.2 Students-headmaster ratio
		A4.3 Classroom area per student
		A4.4 School public activity area per student
		A4.5 Computer per student
		A4.6 Books per student



First-level	Second-level	Third-level
B Product	B1 Transformation rate of educational resources	B1.1 Fixed assets per student
		B2 Recruit students
	B2.2 Recruit-graduate ratio in secondary School	
	B2.3 Recruit-graduate ratio in high school	
	B2.4 Recruit-graduate ratio in special school	
	B3 Graduation	B3.1 Graduation rate in primary school
		B3.2 Graduation rate in secondary School
		B3.3 Graduation rate in high school
		B3.4 Graduation rate in vocational school
		B3.5 Graduation rate in special school
C Performance	C1 Compulsory education	C1.1 Enrollment rate for school-age children
		C1.2 Upgrading ratio in compulsory education
		C1.3 Sex ratio
	C2 High school	C2.1 Enrolment rate from junior to high school
		C2.2 Students-school-age teenager ratio
		C2.3 Sex ratio
	C3 Vocational school	C3.1 Vocational school-high school ratio
		C3.2 Vocational schools- public school ratio
	C4 Special education	C4.1 Special school-public school ratio
		C4.2 Sex ratio

## 6 Conclusions

In the era of big data, the performance of BEPS equalization requires a more complete index system to measure the performance of BEPS equalization and public sectors in each region, which will help to improve the current situation of education from the policy side, according to the actual situation, gradually realize the BEPS equalization. Scientific, comprehensive, and adapt to the present basic education index system not only requires the development of the public service index can fully reflect the service content, at the same time also need to ensure the index data can be obtained. The index system constructed according to the method of this paper facilitates the calculation of the equalization of basic education public service services in the later period, and facilitates the dynamic adjustment of the index itself. The construction and dynamic adjustment of the basic education public service index system is not only beneficial to the educational reform, but also the inevitable requirement of the Wisdom Governance in the information age.

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## Research on the Modern Governance Path of Higher Vocational Colleges from the Perspective of System Theory \*

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**Abstract** With the deepening of government governance, education is changing from management to governance. As an important part of government governance, modern governance of higher vocational colleges is a complex systematical engineering, so the review and analysis should be carried out by using the system theory from the perspective of macro vision, the level and structure, internal and external dimensions and other dimensions. Based on this, the author tries to find out the problems of modern governance in higher vocational colleges from the perspective of system theory, analyze the causes of formation, and analyze the system attributes of modern governance in higher vocational colleges. Respond to internal and external demands, build a modern governance system structure composed of organization level, rule level, behavior level and environment level of higher vocational colleges, and innovate the modern governance path of “internal and external enhancement, with pluralistic governance”, to promote economical and social development.

**Key words** System theory, Vocational colleges, Modern governance, Structural system, Model reconstruction, Decentralization

### 1 Introduction

In recent years, with the deepening of government governance, education is gradually changing from management to governance. Vocational education is a type of education with closest link with economic and social development in the new normal. In the process of governance, the construction of a set of theory on vocational education system and its execution ability with people as a logical guide, law and rules as the premise, co-governance as a path strategy, and good governance as the ultimate goal is the manifestation of national governance modernization in the field of vocational education. Therefore, the modern governance of higher vocational colleges is particularly important. As a complex system engineering, the modern governance in higher vocational colleges must use the system theory to view and analyze with the macro vision. Based on this, this paper attempts to analyze the problems existing in the modern governance of higher vocational colleges from the perspective of system theory, clarify the system properties of modern governance in higher vocational colleges and construct the modern governance system structure of higher vocational colleges.

At present, the research on the modern governance path of higher vocational colleges at home and abroad mainly focuses on three aspects: first, the research on the subject of governance. Russian scholar Pugacheva, N.B (2010) and Yuliya LK (2016) argue that the governance of vocational education is seen as the effective interaction between the government, education ministries, vocational institutions, enterprises, business organizations, and non-governmental organizations, and it should integrate different types of resources, develop various forms of social partnership, and form “industry-education” clusters. Second, it is the research on governance method. Alison Wolf (2011) analyzed and argued in “*Vocational Education Review: Wolf Report*” that British government was too intervening in vocational education micro-governance, with serious bureaucracy, and pointed out that the vocational education system needs to be simplified, teaching resources should be released, and the government should withdraw from the key role in micro-governance. Third, it is the research on governance structure. Wang Weihua (2014), a scholar of China, argues that the governance structure of modern vocational colleges has a dissipative nature and should open the framework of governance system in modern vocational colleges; Chadid (2015) argues that the governance structure of modern institutions should be established and the governance model of pluralistic stakeholder governance should be

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established based on the market mechanism; Sun Xiao-qing (2015) explores the governance structure of higher vocational colleges in Germany, the United States, Australia and Japan from the perspective of international comparison. There are few studies on the application of system theory to modern governance in higher vocational colleges. From the existing information, it mainly focused on vocational training, modern vocational education system, and school-based quality evaluation standards. For example, Melphon Mayaka and John S. Akama (2005) took Kenya as example, analyzed the application of system theory in tourism education and training, and provided an improved framework based on system theory. David J. Spielmana, Javier Ekboirb et al. (2008) studied how to strengthen agricultural education and training in sub-Saharan Africa from an innovative system perspective. Yang Zhi-yong, Zhu Li-jia, Chen Pei-shi (2013) explained the connotation of modern vocational education system from the perspective of system theory. Yang Jin (2013) further reviewed and observed the construction of modern vocational education system from the perspective of complex adaptive system, and paid attention to the aggregation effect of system; Wang Guo-guang (2016) put forward the school-based quality evaluation standard of constructing higher vocational colleges.

System theory is the science to study the integrity and the environment, but also the methodology with philosophical value. Its founder, L. Von. Bertalanffy, an American Austrian, argues that system is the way of material existence, and anything can be seen as a system. Modern governance in higher vocational colleges is an important part of government governance, and it is also an independent system, which has the basic attributes of the system. Therefore, vocational colleges should follow the guidance of the basic attributes of the system to promote modern governance, to ensure the correct direction and path of the application.

The possible contributions of this paper are mainly reflected in the following points: First, the research on the modern governance system of higher vocational colleges from the perspective of system theory has been added. Although the researchers have taken into account the individual aspects of modern governance, such as governance structure or governance method, they were relatively simple, ignoring the importance of the whole governance structure system for the modern governance of higher vocational colleges. This paper attempts to construct the structural system of modern governance system in higher vocational colleges, which is based on the analysis of system theory, it can provide a new perspective for the study of modern governance in higher vocational colleges. Second, this paper provides theoretical practice ideas and policy development theory inspiration. Higher vocational education has its own unique development law, but its close relationship with the socio-economic development determines that the research on it can't simply treated from the perspective of education. This paper introduces the "system" in the field of systematics, the "governance" in the field of management, explores the modern governance path of higher vocational colleges from the perspective of system theory, enriches the theoretical connotation of higher vocational education, as well as operation and management ideas, which can provide practical guidance for the modern governance of higher vocational colleges, and help the Chinese government to formulate corresponding reform policies more directionally.

The rest of this article can be divided into the following sections: the first part is the current situation analysis, to find the existing problems in modern management of vocational colleges, and analyze the factors for the formation; the second part is the model reconstruction, to analyze the system attribute of modern governance in higher vocational colleges, construct the structural system of modern governance system in higher vocational colleges, and put forward the strategy choice; the third part is to draw the conclusion.

## **2 Realistic reflection**

### **2.1 The "one-direction" management tendency has not been substantially changed**

Since the British economist Adam Smith stressed that the "invisible hand" of market in social resources allocation, China has been gradually changing from the planned economy to a market economy, the traditional "one-direction" management of government has increasingly transformed into the "government + market" governance. In the course of this transformation, the "dualistic" governance has solved the problem of government failure caused by government management to a

certain extent, but from the perspective of role transformation awareness of the current governance object, the “one-direction” tendency still occupies the dominant position, and the government still plays the role of the power owner in the modern management of higher vocational colleges. At the same time, there is no effective incentive mechanism for the participation of society in running schools, and social participation still remain in the shallow level, the interest of industry and enterprises are not satisfied, so “one-direction” management has been far from meeting the needs of economic and social development.

### **2.2 Internal and external governance structure has not yet been improved**

The modern governance structure of higher vocational colleges mainly includes the internal governance structure and the external governance structure. The internal and external structure is interconnected by the modern university system, but the current modern management of higher vocational colleges faces the plight of the lack of institutional supply. At the macro level, the relevant legal system of modern governance for higher vocational education is still at the shadow level, such as for emerging things, such as mixed ownership, it only gives a large framework of guidance, so it is difficult for property division, the distribution of benefits and other substantive contents to break through the policy barriers in the actual operation. At the micro level, the construction of the modern university system in vocational colleges is lagging behind, the development of systems with the “Charter” as the core is relatively vague, the system is not implemented well, and the modern governance pattern is not clear and complete.

### **2.3 Administrative management has not yet optimized and innovated**

Although the government has begun to decentralize, the phenomenon of “one-way management” and “bull management” in the modern governance of higher vocational colleges still exists. “One-way management” mainly performs as the promotion of bottom-up executive order, focusing on plan, organization, control, and command, management is inseparable from handling and evaluation, lack supervision, with high administrative costs, the enthusiasm of the main vocational schools is not high, strongly depending on the government path; at the same time, it is difficult for enterprises to enter the process of personnel training in higher vocational education. The increasing financial funding of financial vocational education has further strengthened the administrative thinking of higher vocational colleges, which leads to the “crowding out” effect of industry and corporate participation<sup>[1]</sup>. “Bull management” performs as the completion of interests and the prevarication of responsibility, it will be caught in the “unmanaged” embarrassing situation, industry, enterprise, schools, government and other relevant stakeholders have not yet found a common interest balance point.

### **2.4 Long-term mechanism for monitoring and evaluation has not yet perfected**

At present, the main body of evaluation in vocational colleges is the internal evaluation of schools (academic evaluation, teaching evaluation), followed by government evaluation. There is no student evaluation, social (parent, community) evaluation, and industry evaluation. At the same time, due to the impact of general education evaluation standards, based on the construction of subject knowledge structure, the evaluation system does not respond to market demand, so the standard is single<sup>[2]</sup>. Pay attention to static, explicit, uniform evaluation results, but do not attach importance to the dynamic, process, recessive, systematic evaluation results, which can't reflect the difference, comprehensiveness, and scientificity between different professional evaluation results, comprehensive and scientific.

## **3 Model reconstruction**

### **3.1 An analysis of the systematic attributes of modern governance in higher vocational colleges**

The first one is integrity. Any system is an organic whole, it is not a mechanical combination of elements or simply adding, and its overall function is the new quality which is not owned by elements in the isolated state. At the same time, the elements of the system do not exist in isolation, each element in the system are in a certain position, and plays a specific role. Elements are interrelated and constitute an indivisible whole<sup>[3]</sup>. The overall attributes of the system require people to proceed from the overall situation, grasp the relationship between level and structure, internal and external factors, and avoid taking a part for the whole. Modern governance of higher vocational colleges is a systematic project, so it should highlight the overall attributes of the system, understand the research object and

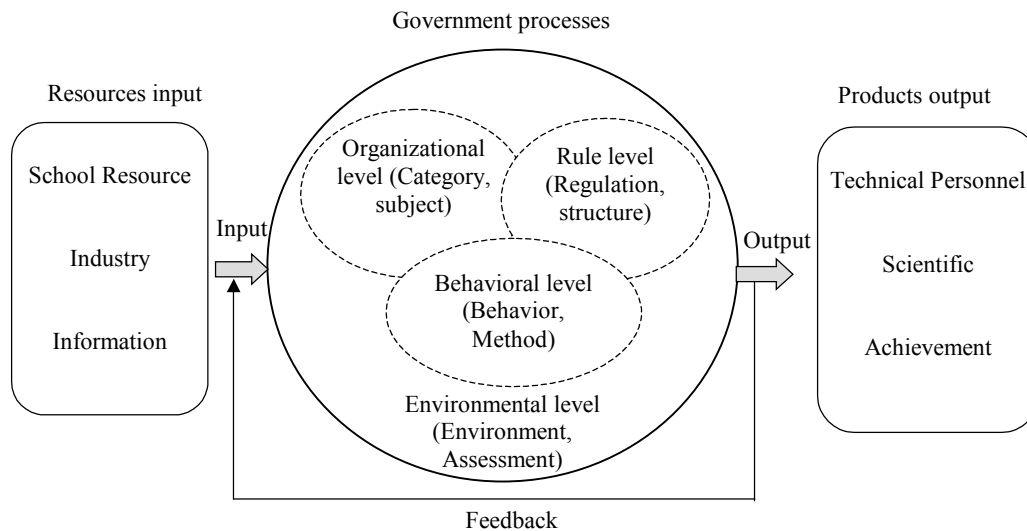
the work content as a system, and recognize things and promote the work as a whole.

The second one is openness. Any organization or thing is interrelated and interacting with a particular environment. The system is “a constantly interconnected, interdependent activity system with the participants that is rooted in the environment in which it operates, that is, depending on the exchange between environments but also constructed by the environment, organization is a union between participants with different interest relationship with the great influence of environment”<sup>[4]</sup>. The openness of the system requires people to contact with the outside world in an open manner, break the broader, interact with each other, “face the world, face the society, and face the future”. Modern governance of vocational colleges should take full account of the demands of stakeholders, and pay attention to the integration of multi-resources according to the demand of industry, enterprise, government and society on talents, carry out overall planning, grasp the leaning factor, and form joint efforts.

The third one is dynamics. System theory holds that the system is a dynamic system. Movement is the inherent property of matter, when the environmental conditions change, the system exists in the environment will change, its stability and function will also be affected. The dynamic attributes of the system require people to look at the system, grasp the system and control system with the developmental perspective. Modern governance of higher vocational colleges should focus on the changes in the external world, concerned about the economic and social development, pay attention to the development of higher vocational education. In short, it should make a positive response to the requirements of the system environment, and establish a dynamic adjustment mechanism to adapt to changes in the environment, so that modern governance practice becomes more targeted and adaptable.

### 3.2 Construction of modern governance system structure in higher vocational colleges

Based on the analysis of the system attributes of higher vocational colleges, the modern governance of higher vocational colleges should follow the characteristics of integrity, openness and dynamics, and make overall progress and overall advance. According to the framework “input-process-output” of the system, modern governance of higher vocational colleges also presents a holistic structure framework.



**Figure 1 Internal mechanism of modern governance system structure in higher vocational colleges**

As shown in Figure 1, the structure system of modern governance system of higher vocational colleges is composed of four core levels: organization level, rule, behavior level, and environment level. The organization level is the physical structure of the governance system of higher vocational colleges, mainly referred to the “governance subject”, that is, to solve the problem of “who governs”<sup>[5]</sup>. Higher vocational education is a large system involving multiple subjects. Modern governance in higher vocational colleges must reflect the common interests of governments, schools, industry,

enterprises, communities and families, and implement the “government + school + market + society” pluralism. The rule level is the institutional level of the modern governance system of higher vocational colleges, mainly referring to the “governance structure”, that is, to solve the problem of “governing what”. The governance structure of higher vocational colleges is generated and cured by the governance system, and the internal governance structure is improved to improve the ability of run self-taught and high-quality schools; the external modern governance legal structure, modern governance qualification structure and modern governance credibility structure is established to form joint efforts. The behavior level is the performance level of the modern governance system of higher vocational colleges, mainly referring to “governance methods”, that is, to solve the problem of “how to govern”. The system is moving, the governance methods also need to change and innovate, make timely response and effective debugging on the social complex talents, diversified schools and other needs. The environment level is the constraint level of the governance system of higher vocational colleges, mainly referring to the “governance evaluation”, that is, to solve the problem of “with a good governance or not”. The system should be matched with the geographical position and the level of regional industrial development. Through the certain constraints, the system will promote the system itself with the standard and to improve the modern management of higher vocational colleges with the evaluation.

Among them, the organization level is the guide, the rule level is the foundation, the behavior level is the key, the environment level is the baton, and the four levels are interrelated and interacted. In this structure system, the input end inputs the enterprise resources, through the modern governance, the output end will output technical and skillful talents, scientific and technological achievements and other products, the output end will then report the relevant information of the entire process and the quality of the products to the input end, through the re-optimization, re-design, re-improvement of modern governance, output more higher quality products, and thus constitute a complete coupling of the “internal and external enhancement, multiple co-governance” symbiotic closed system.

In order to construct the structure system of modern governance system in higher vocational colleges, we should pay attention to grasping the cooperation of macro and micro level, the combination of centralization and decentralization, the view of realistic and ideal state, and the possible path strategy as follows:

Firstly, grasp the organization level, establish multiple governance subjects. First of all, determine the main position of enterprises in the industry in the modern governance of higher vocational colleges. Lack of industry guidance and corporate participation is not good for modern governance of higher vocational colleges. The industry, enterprises should be familiar with the quality of talents, enhance the quality of higher vocational education and social adaptability through major construction, curriculum development, qualification and other means, and play a positive role in resource allocation, production and education integration and so on. It is necessary to establish the policy position of industry guidance and corporate participation through the legislative form, standardize the boundaries of responsibilities of the industry, enterprises in the vocational education and vocational training, play the positive function of them, and effectively promote the modern governance of institutions. Secondly, construct the multi-agent cooperative game mechanism<sup>[6]</sup>. Establish a balance of interests and adjustment mechanism, form a binding co-governance constitution with common recognition through equal dialogue, joint consultation, restrict, complement each other, balance the value conflict and interest demand between the governance subjects, improve governance efficiency. Finally, establish the decision-making mechanism of co-governance subjects of politics, industry, enterprise, and school. The key to the government’s scientific decision-making is to build a multi-center governance system involving diversified interests such as government, industry, enterprises and institutions<sup>[7]</sup>. Through multi-agent participation, fully reflect the voice and aspirations of different stakeholders, to build multi-channel, multi-level, diversified partnership and network organization, in response to complex and diverse social reality, and form public decision-making of higher vocational education.

Secondly, master the rule level, and establish modern university system. First of all, further decentralize, sort out the “management” list, and establish the “decentralization” menu. Establish administrative power and government services list, make clear what should manage, what should not

manage, and what should not manage fore over; strengthen the sense of service, standardize administrative behavior, establish a new relationship between government and schools; run schools and govern education according to the law, and strictly fulfill the duties assigned by law. Withdraw from the “principal” role, given the school entity-higher vocational colleges give institutions academic governance with full independence and educational decision-making power; financial autonomy-empowering institutions cost control autonomy; personnel autonomy-granting institutions the talent introduction and enterprise management right; course setting right-granting institutions the autonomy of major construction in higher vocational colleges. Second, vocational colleges “withdraw from administration”. Through the construction of higher vocational colleges and institutions, to change the status of government affiliated institutions of higher vocational colleges, achieve the separation of “management, handling, and assessment”, and truly get rid of the administrative constraints of vocational colleges, create an equal, open and orderly competitive atmosphere between higher vocational colleges, and stimulate the development vitality of higher vocational colleges<sup>[8]</sup>. Finally, improve the internal governance structure of higher vocational colleges. Promote the innovation of the internal management system of the institutions, establish the governance pattern of the modern colleges and universities of “party leadership, principals responsible, expert scholarship, democratic management, social participation”, and pay more attention to the students, concerned about teachers, and achieve the innovation of managers and teachers. At the same time, establish the board of directors represented by school and government, industry experts, corporate representatives. As a legal representative, the proportion of non-school members in the board of directors shall not be less than 30%, to ensure the adaptation of social needs, consistent with the outside world and the independence of the board of directors.

Thirdly, grasp the behavior level, innovative governance. First of all, improve the “institution-based” government management system and the “helm service type” management model, change from running schools to running education, from micro-management to macro-management, from direct management to indirect management, focus on institutional environment construction, market order maintenance, public goods provision and education macroeconomic regulation and control. Change from the approval system to the record system, from the quota system to the access system, and guide the service and support the development of institutions through the economy, law, planning, standards, assessment and other means<sup>[9]</sup>. Second, vocational colleges should implement open education, on the one hand, strengthen the international, group, park schooling, make full use of international, group, park resources, the government, enterprises, and schools should carry out co-governance, and cultivate talents together. On the other hand, establish the “Council of the Institute”, “Academic Committee”, “Principal Advisory Committee” legally, achieve the common participation and democratic decision-making among the party, government, representatives of the church, key teachers, expert representatives, business representatives, community representatives, parent representatives. At the same time, strengthen the school affairs to be open. Both open policy basis, but also open service standards; not only open the results, but also open the procedures; both open public opinions and suggestions, but also open the results. Higher vocational colleges should also focus on the implementation of cultural governance. Based on the actual situation of institutions, from the cultural origin to explore the causes of modern governance, adjust the responsibilities of shareholders, regulate the interests of behavior, adjust the conflict of interest, achieve cultural identity, and reshape the governance culture of higher vocational colleges.

Fourthly, grasp the environment level, establish the multi-dimensional evaluation system. First of all, implement the third-party evaluation, and ensure objective and fair. Government or higher vocational colleges should the third-party professional education assessment agency with a higher degree of credibility, take a variety of forms such as individual content assessment and comprehensive quality assessment, direct assessment and indirect assessment, formal assessment and informal assessment, quantitative assessment and qualitative assessment, process assessment and result evaluation to ensure open and transparent, professional and authorized. Second, carry out multi-dimensional evaluation, and promote the development of institutions. Evaluation subject, evaluation criteria, evaluation results should interact with each other, pay attention to consider three



elements: the first element “government evaluation of vocational colleges”, not only to assess enrollment and employment indicators completion rate, safe work and other conventional management, but also to focus on the evaluation of the school’s social reputation, the principal’s professional ability, the rights and interests of teachers and students, the curriculum and market fitness, the cultivation of students’ ability of innovation and entrepreneurship; the second element “social evaluation of schools”, pay attention to the school’s brand strength, credibility, teachers, professional leadership, market acumen, students’ competency, and sustainable development; the third element “higher vocational college evaluation of students”, not only to assess the student’s academic performance, but also to focus on the process assessment, practical assessment, differential assessment, and strengthen the student’s self-development evaluation. Again, timely report evaluation results. Encourage the advanced, spur the backward, and enhance the self-awareness and self-reflection of higher vocational colleges in modern governance. At the same time, strengthen the standard research. Research and formulate relevant standards for higher vocational education, such as teachers access eligibility criteria of higher vocational colleges, evaluation criteria for running higher vocational colleges, evaluation criteria for educational enterprises, school-enterprise cooperative enterprises preferential standard, enrich and perfect the assessment system.

#### 4 Conclusions

Since the beginning of the 21<sup>st</sup> century, a new round of technological revolution and industrial transformation has accelerated in the world, China’s economic growth is entering the shift period, transforming methods, adjusting structure, and stabilizing growth become the key words of economic and social development in the new normal, the governance environment of higher vocational colleges has become more complicated and diverse. Promoting the modern governance of higher vocational colleges is the inevitable choice of economic and social development, and also the internal driving of vocational colleges’ own development. It is imperative to promote the scientific development and promote the modern management in order to improve the level of running schools. Therefore, higher vocational colleges should take the system theory as the guide and precisely understand its integrity, openness and dynamic nature, proceed from the overall situation, deeply understand the system attributes of modern governance, construct the systematic governance framework integrating the organization level, rule level, behavior level and environment level, change the governance subjects, establish a modern university system, innovate the governance ways and establish a multi-participating and multi-dimensional evaluation system, so as to response to internal and external demands, help comprehensive education reform, and enhance capabilities of serving economic and social development.

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## Foreign Experiences and Countermeasures of Agricultural Insurance Pricing

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**Abstract** Agricultural insurance is an important means to protect agricultural production and farmers' income, but the promotion of agricultural insurance in China does not meet the expectations of the people. In the new period, the rapid development of the agricultural insurance system, based on commercial insurance agricultural insurance pricing is relatively concentrated the moral hazard and adverse selection, the state finance is to provide greater support of the foundation, in the wider promotion of agricultural insurance has better conditions, the agricultural insurance pricing experience more rich, laid the foundation for the agricultural insurance pricing changes. By drawing on the experience of American agricultural insurance pricing, should be through the establishment of a more scientific agricultural insurance, agricultural insurance price target to increase financial investment, increase the lower pricing insurance product innovation rich insurance pricing and other initiatives, to further improve China's agricultural insurance pricing, improve agricultural insurance to better protect and appeal, the level of agricultural production and farmers income.

**Key words** Agricultural insurance, Pricing, Foundation of change, Countermeasures

### 1 Introduction

Agriculture has always been the foundation of a country's national economy, and it has never been ignored by the ruling clique. In the past thousands of years, China's agriculture has been adhering to the natural production mode of the weather, and the farmers' planting income has been greatly influenced by weather. Farmers who are more inclined to self-sufficiency are much less accepting of insurance than other social classes. But in perspective, with the improving of agricultural modernization in our country, agricultural producers know more about the modern agriculture insurance, the needs of agricultural insurance has gradually increased. But on the whole, there is great gap with developed countries in our country agricultural insurance coverage and cover depth. One important reason is that our country agricultural insurance pricing and pricing measure standard are different from he actual needs of farmers. The ordinary farmers can not understand the importance of agricultural insurance. This limits the promotion of agricultural insurance in China, we should analysis agricultural insurance pricing way, change the unreasonable place, combined with the demand and tendency of the development of modern agriculture, develop more targeted more effective agricultural insurance pricing.

### 2 The basis of the change of agricultural insurance pricing in China

#### 2.1 The research of agricultural insurance system has been developing rapidly

In people's common understanding, the risk of agricultural production is the insurance content, but in fact, with the development of agricultural insurance research in recent years, more and more researchers believe that the cyclical risks, trend risks, seasonal risk and stochastic fluctuation risk those four types of agriculture insurance, cyclical risk and trend risk because they can be reasonable expected, they do not need insurance. Seasonal risk has more existence possibility, for insurance companies it is a selective insurance. The key development area of insurance company is the risk of random change, and the main agricultural insurance pricing is the research object of this kind of risk. And for farmers it must be insured, only in this way, can ensure that the risks in the process of agricultural production can be fully safeguard, and only in this way, the agricultural insurance to be meaningful.

#### 2.2 Agricultural insurance pricing has more moral hazard and adverse selection

With the constant development of agricultural insurance, there are many problems in our country agricultural insurance system, especially in the endless and difficult to guard against the risk of moral

hazard and adverse selection, in the specific agricultural insurance, inactively underwriting will restrict the development of the enterprise, but actively underwriting will face losses. This is mainly because current agricultural insurance system is based on commercial insurance system, when pricing, both moral hazard and adverse selection should be added into the cost, this leads to high price, and make more farmers left out of the scope of agricultural insurance. But if we can change this system. Changing the agricultural insurance mechanism can reduce the moral hazard and adverse selection.

### **2.3 State finance support**

The current agricultural insurance system starts at the 1990s, and the pricing system took into account of the state financial support at that time. With the rapid development of China's economy and society, we are now the world's second largest economy, national revenue is 15.22 trillion yuan in 2015, which was not the same as it was 20 years ago. When the responsibility of the agricultural underwriter is unable to pay the insurance claim, it needs a miscellaneous system. The commercial insurance and national finance are the arranged system. Therefore, must fully consider the agricultural insurance is different from the commercial insurance, when designing agricultural security pricing system need take state financial support as part of content, turning it into social welfare for farmers. Also only in this way, our agriculture insurance pricing can be closer to the farmers affordable price, is more likely to get promotion, play a bigger role in the protection of agricultural production and farmers' interests.

### **2.4 Promoting agricultural insurance in a larger scope has better conditions**

From the development characteristics of insurance itself, the fewer people are insured, the cost of insurance coverage and claims are higher, and each insurance participant will bear more costs. Current our country agricultural insurance participation constitute only a small part of participation, this led to high transaction cost in underwriting, claims, will increase the farmers' burden, and resist participate range. With the development of modern agriculture in China, on the one hand, the organizational form of agricultural producers is changing. More and more agricultural cooperatives among the traditional distributed farmers. Compared with the traditional farmers, agricultural cooperative has higher organization degree, stronger market consciousness, and since is a large-scale planting, they will face more risks. So most agricultural cooperatives have a stronger sense of insurance, by participating in agricultural insurance, and using premiums as part of their production costs to ensure their steady income. On the other hand, domestic agricultural insurance companies innovate the insurance pricing, they reference to the practice of international insurance companies, no longer focused on generalized system of preferences insurance pricing, and gradually toward both can protect the interests of the farmers and prevent agricultural risks, and can improve the degree of acceptance and promotion of agricultural insurance.

### **2.5 More abundant reference experience in agricultural insurance pricing**

The main method we use is the determination method of weather index insurance rate, that is, the main method is to obtain the rate by simulation distribution. In terms of practical effect, the calculation method is not generally accepted by the farmers, the premium is relatively high, the claim condition is relatively strict, the indemnity is less, and so on. Compared with other developed countries such as Europe and the United States, we can find that they have longer history, better scientific agricultural insurance pricing. For example, the United States has the world's most developed agricultural insurance system, which is more pricing methods, but also in numerous futures varieties that can be protected. In particular, agricultural insurance companies, with the support of the government, provide a very favorable price for agricultural insurance, which directly guarantees the high coverage of agricultural insurance in the United States. Also, for example, the European Union on the agricultural insurance pricing for agricultural insurance futures pricing, its based on the actuarial pricing, again through the continuous situation, such as geometric average European call futures pricing, considering more objective conditions, stronger protection ability for farmers and better access to the insurer's approval.

## **3 Pricing and reference of American agricultural insurance**

### **3.1 The development of American agricultural insurance pricing**

The pricing of agricultural insurance in the United States also underwent a long development

process, which summarized the various problems encountered in the development and formed a relatively perfect pricing system. Before the 1980s, American agriculture insurance companies for the same area of farm crops are the same security, each farm premium rate is the same, no matter how, the average individual farm output is not fair. After that, the U.S. agricultural insurance administration began to implement the level of insurance that would be expected to be based on the different historical averages of different farms. On this basis, the administration of agricultural insurance also launched against the historical average yields higher farm insurance pricing, given the lower premiums, to encourage each farm management, risk prevention, has played a the purpose of promoting agricultural production. Throughout the eighty to the eighty or so, flat-rate premium parameter set way become agricultural insurance pricing method. In particular, this method does not differentiate the crops, but instead gives farmers different premium discounts based on different levels of the target crops and insurance levels. Other features of the policy also cause different discounts, and so on. Generally speaking, the development of the pricing of agricultural insurance in the United States is aimed at the farmers' actual needs more and more, and has a more obvious promoting effect on agriculture.

### **3.2 American agricultural insurance pricing method**

#### **3.2.1 Expected loss method**

Expected losses method according to the estimated quantity whether to obey the distribution parameters are divided into two categories, the first category is the parameter estimation method, this approach is mainly USES the actual historical production method and the basic parameters of the distribution model, that is, with the output of observed data to test parameter distribution. At present, this method USES normal distribution to determine the yield risk and the premium. In particular, when the sample size is large enough, the expected loss can be calculated. When the rate of interest rate and the historical production of crop production are linked, it can be converted into actual historical production method. This method can effectively analyze the risk factors and can measure the probability of catastrophe risk. From this perspective, if government financial support is added, the pure premium of agricultural insurance can be more rationally determined. The second type is non-parametric estimation, and the parameter estimation method has a more rigorous application scope, and the requirements for the hypothesis are higher, and the true application scope is relatively small. In relative terms, the non-parametric estimation method has better applicability and is used more and more widely in the pricing of American agricultural insurance, in which the non-parametric kernel density method is used the most. A number of agricultural insurance companies in the United States calculate their insurance rates for crop comprehensive insurance at the county level, and sometimes at the national level of crop production distribution. Although it is more convenient to use non-parametric estimation, the sensitivity of the experiment is sometimes lost due to different estimation levels.

#### **3.2.2 Option pricing**

The U.S. futures market is perfect, and more than 80 percent of U.S. farmers use hedging in futures markets to maximize profits. In the case of yield risk, the average price of the futures market affects the forecast price of crop yield insurance, while the latter directly affects the level of assurance that the policyholder can choose. Production risk rate, of course, not only depend on the output of policy-holder is selected and forecast the price under the security level, also will be affected by the history of the county accounted and the influence of the choice of insurance application. And on the income risk pricing, crop forecast prices and incomes, will largely determine the level of its guarantee income, price and income and prediction for the determination of the price, is expected to market price. Soy farmers income in the United States, for example, the underlying agricultural income risk, through the Chicago board of trade, the world's largest soybean futures trading market the average price of futures contracts, determine the receiving prices and prediction of soybean, and the U.S. options market prices also affects its index insurance pricing, the role of agricultural insurance in the United States it is not hard to see futures pricing.

#### **3.2.3 Experience in the pricing of agricultural insurance in the United States**

America's agricultural insurance pricing is relatively perfect, and there is much to learn from it. One is the dynamic adjustment mechanism of agricultural insurance pricing. The pricing of American agricultural insurance has always been different with the policy objectives of its agricultural insurance.

As a stable agricultural production, an important means to guarantee the farmers' income, the us government attaches great importance to agricultural policy goals, in the past few decades have been according to the actual change of agricultural production and adjustment of agricultural insurance. At the same time, it is the price of agricultural insurance, the spread of agricultural risks, and the protection of farmers' income. The second is the innovation of insurance product innovation and pricing of agricultural insurance company. The marketization of insurance businesses in the United States is higher, and the government has been encouraging insurance companies according to the different geographical, agricultural commodities, the seasonal characteristics of innovation of insurance products, to better safeguard the agricultural production, which guarantees the farmers' income. For different agricultural insurance products, also can have different pricing methods, in order to guarantee insurance product fits the real demand of farmers. Third, the perfect agricultural price base database. The agriculture insurance pricing is scientific and targeted is very high, and its value pursuit of product price basis database construction, it also makes the various insurance companies in determining the insurance product pricing and specific pricing, have a relatively scientific and objective data as the backing, to ensure that its pricing conforms to the historical law of development, also accord with the objective law of agricultural production.

#### **4 Improve the pricing of agricultural insurance in our country**

##### **4.1 Establish more scientific agricultural insurance price targets**

As for the present, although agricultural insurance is fixed policies, but it play little role on the scattered agricultural risk, safeguard level is still relatively low for agriculture. Corresponding is on agricultural insurance pricing, both the government and insurance companies taken more extensive way, the government only gives the direction, the insurance companies always to use commercial insurance pricing model to price the agricultural insurance, it brings high price, the actual reception of agricultural insurance is relatively low. Therefore, we should pay more attention to the method of agricultural insurance pricing, which should be accompanied by the continuous improvement of China's agricultural insurance system, and timely adjust its pricing mode. This adjustment should reflect systemic, combining agricultural insurance price target and the value orientation of agricultural insurance decision, in order to realize the stability of agricultural production and farmers income security dual goal of loss. Especially in view of the current agricultural production, farmers is badly in need of agricultural insurance type, through to expand insurance coverage, participation, and the government fiscal investment degree, reduce the transaction cost, insurance and achieve a lower offer, both to attract the participation of farmers, and to ensure the smooth operation of the agricultural production in China.

##### **4.2 Increase financial input to reduce the price**

At present, we must increase the financial investment in agricultural insurance to provide a basis for reducing the price of agricultural insurance. On the one hand, we should establish a stable subsidy system for agricultural insurance. Through the annual financial budget or annual work report form, the financial input to the year's agricultural insurance fund, ways, such as planning, to ensure that all the agricultural insurance of agricultural production season throughout the year to get the subsidies in time. On the basis of this, it provides a stable forecast for insurance companies to reduce agricultural insurance pricing, which in turn will attract more farmers to purchase related agricultural insurance. On the other hand, change the proportion of agricultural insurance subsidies. Many current agricultural insurance subsidies is difficult to implement, mainly because the relative to the central financial abundance, a lot of local government's financial situation is not ideal, and the central government and local fiscal share mode of insurance subsidy, many local governments, affect the actual operation of agricultural insurance.as a result, the central government will assume greater proportion, or directly by the central fiscal spending premium subsidies, reduce the burden of local governments.

##### **4.3 Increase insurance product innovation and rich insurance pricing**

Although the fiscal situation has been improved in recent years, the revenue increase year by year, but to contribute to the fiscal expenditure on agriculture Co., LTD. After all, only rely on the central government will not become dependent on subsidies premiums. We should draw on the practice of developed countries such as the United States to encourage insurance companies to increase their

innovation in agricultural insurance products and keep the pricing of agricultural insurance. For example, the practice of “insurance + futures” to reduce agricultural insurance pricing and promote agricultural insurance. The specific practice is to apply the option pricing of agricultural insurance in the traditional market pattern of policy-based agricultural insurance. The practice of the more mature in foreign countries, not only can make the agricultural products price index risks to avoid catastrophe risk compensation, but also can avoid the common traditional insurance mode of transaction costs and damages inconsistent problem, and the risk of moral hazard that may occur. And option pricing mechanism will be further improved, the use of hedging can be further dispersing the risk of insurance companies, in certain time periods can play a greater role, but also to ensure to the benefit of farmers. For example, a basic database covering more agricultural products is established to lay the foundation for the introduction of more agricultural insurance products for agricultural insurance companies. Especially around soybeans, corn, cotton and so on the popularization of agricultural products has a relatively perfect market system, combined with its futures market data, set up the production of full and accurate data and price data, and according to the different parts of the price performance, costs, and so on and so forth, the pertinence with the regional characteristics of development of agricultural insurance. On the basis of this, we can realize the scientific nature of pricing the products.

## 5 Conclusions

Agricultural insurance is an important tool to guarantee farmers' income and stabilize agricultural production. To this day, our country is still a large agricultural production country, the laborers engaged in agricultural still occupy a majority in China's employment population. Protecting farmers' income is the basis of social stability. Therefore, we should draw lessons from the experience of American insurance pricing. On the basis of reference, we should pay more attention to the method of agricultural insurance pricing, which should be accompanied by the continuous improvement of China's agricultural insurance system, and timely adjust its pricing mode. At the same time, we must increase the financial investment in agricultural insurance to provide a basis for reducing agricultural insurance pricing. We can also learn from developed countries such as the United States to encourage insurance companies to increase their innovation in agricultural insurance products and constantly enrich the pricing of agricultural insurance. In conclusion, it is of great significance to improve the pricing of agricultural insurance in China, to improve the pertinence and attractiveness of agricultural insurance, and to ensure the level of agricultural production and farmers' income.

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# Research on the Construction Mode of Characteristic Towns from the Vision of New Urbanization in China —A Case Study of Jingrong Town in Chengdu

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**Abstract** The effective promotion of the new national urbanization strategy not only reverses the ignorance of small and medium-sized cities development in Chinese urban development, but also focuses on the realization of objectives including overall urban-rural development, city and industry interaction, the economy and intensiveness, ecological and suitable residence, equalization of public services, and the establishment of harmonious new society relationship and etc. Therefore, this urban development model is more ground and more dynamic. The construction of characteristic towns is the most typical representative of this development model. This paper takes the construction mode of Jingrong town in Chengdu as an example, discussing the basic development pattern of the construction of characteristic towns in China: the special mechanism, the special industry, the special function, the special architecture and puts forward some general viewpoints on the basis of comparing the construction of other types of small towns in China. The development of the characteristic town in the process of urbanization has certain guiding significance and value.

**Key words** New-type Urbanization, The characteristic town, Construction mode, Jingrong town

## 1 Introduction

Based on the new-type urbanization perspective, through the analysis of the plight of the traditional small and medium-sized towns, the development of Jingrong town and the investigation of the construction mode of Jingrong characteristics town, we conclude “Four Specialties Mode” of characteristics town construction, namely “the special mechanism, the special industry, the special function, the special architecture”. Characteristic towns through the “Government, enterprises, market mechanism and local resources” the four-in-one special mechanism, making full use of precise allocation of regional elements, holding the concept of “When others have the rest, we have the best”, form the special function, such as leisure tourism, modern agriculture, trade and logistics, high-end manufacturing, creative culture, science and technology education, etc. Meanwhile, characteristic towns assume the special function like culture, service, society and innovation relying on the unique spatial structure around and promote the formation of the special architecture of the new-typed urbanization development on the basis of scientific planning and innovative forms.

## 2 “The characteristic town”—The historical choice from the perspective of new-type urbanization

### 2.1 Limitation of the transformation mode of traditional small and medium-sized towns

As the origin of modern urban civilization, traditional small towns are valuable resources for unrenewable society. In recent years, due to the shortcomings of history and the contradictions of real development, the urban transformation faces different degrees of challenges.

#### 2.1.1 Infrastructure lacking scientific planning

Due to the urban social economy is relatively backward, the tertiary industry development level is low and lacking of scientific planning, design and stable money, which leads to generally lagging behind of urban traffic function, Internet construction, education and infrastructure.

#### 2.1.2 Urban positioning assimilation

Many traditional towns in China don't position themselves scientifically and aren't guided by the market economy. However, they imitate the development model of economically developed regions unilaterally, focus on instant modernization and industrialization while neglect local and cultural characteristics, which makes industrial structure tend to be the same.



### **2.1.3 The industry requiring upgrading urgently**

At present, many towns have problems such as the large proportion of traditional industries, low-end industrial value chain and extensive industrial development, which leads to poor quality of urbanization. With the rising cost, intensifying competition and increasing environmental pressure, the low level of industry and lacking innovation have become a heavy burden of transformation.

### **2.2 The transformation of the development model of small towns with the new normal**

As of 2017, China's urbanization rate was 54.77%. In the context of the era of international economic globalization and innovation-intensive, China must staunchly change the urbanization path dominated by large cities into the new-type urbanization road.<sup>[1]</sup> With the urbanization emphasis turning to small towns, characteristic towns model is ascendant. "Characteristic towns" refers to a town that regards the administrative division as a unit and has certain population and economic scale with different resources endowment and distinctive characteristic industries. Characteristic towns mode has characteristics of top-level scientific design, perfect infrastructure construction, distinctive characteristic industries, city-oriented integration, economy and intensiveness, ecological and suitable residence, etc, corresponding to the trend of development of small towns with the new normal state.

## **3 A case study on the construction of Jingrong characteristic town**

### **3.1 Profile of Jingrong town**

Jingrong town (formerly known as Deyuan Town) is located in the south of Chengdu Pidu District, 25 kilometers away from Chengdu city. The new-type urbanization development process of Jingrong Township has undergone two major changes: The first time it has changed from the traditional agricultural town to the province's major industrial project life supporting area. The second time is to change the deserted living area for the entrepreneurial town—"Jingrong town".<sup>[2]</sup> Since 2015, Jingrong town using Deyuan town idle buildings, college adjacency and other advantages; regarding "Innovation Tianfu" action plan as the starting point; combined with local rent relief, tax incentives, financing guarantees, capital incentives and other policies, has developed into the Maker town that government guides with market-oriented system in which enterprises play the leading role and which gathers innovative talents to transform the "Hollow town" to the country's first innovation and entrepreneurship demonstration base—"Jingrong town" successfully.

### **3.2 The basic conditions of transformation of Jingrong town**

#### **3.2.1 Development strategy of new-type urbanization construction**

The plan of the national new-type urbanization proposed to accelerate the development of small and medium-sized cities as the main direction of optimizing the structure of the scale of the town.<sup>[3]</sup> Jingrong town is a characteristic town, located in the south of Chengdu Pidu District, whose main direction is the large data and informatization with strong resource and environment carrying capacity, vast potential development, a clear industry positioning and undertaking a certain community function. Pidu District government complies with the concept of the plan, relying on the advantages of Jingrong town resources to attract high-tech industry settled, enhancing the element convergence, focusing on building a new-type urbanization road of Jingrong town.

#### **3.2.2 Construction of universities- local cooperation**

Colleges and universities play a role as high-quality talents' collecting and distributing center, which provides intelligence source for innovation and entrepreneurship and promotes the development of high and new technologies. More than 20 colleges and universities, over 250 thousand college students, more than 50 key scientific research institutions gather around Jingrong town. At present, Jingrong town has signed up cooperation agreement with these colleges and universities to build the entrepreneurship park, science and technology park (incubator), and signed a "the School and Belt Initiatives" strategy with the UESTC. Other domestic higher education institutions and foreign talent teams have begun to march into Jingrong town. Now, a Maker's mentor group of more than 100 people established by Jingrong town and the introduction of 36 high-level talents have offered a strong intellectual support for the development of the Maker town.

#### **3.2.3 Equalization of public services**

With the new-type urbanization perspective, Jingrong town relying on the existing construction

base of idle houses and road facilities, protects the interests of people in Jingrong town and achieves the goals of the development of the town more and more benefit to people fairly. Jingrong town through the scientific top-level design, conducts a reasonable planning for city functional areas. Jingrong town has gradually established a fair and equitable public service system to meet people's public service needs. It aims to improve the construction of transportation, water supply, power supply, gas and other infrastructure, initially complete equality in education, employment, health care, sanitation, society security and other social public service systems to provide a sufficient material basis for makers, and gradually realize the undifferentiated public service of all the residents in Jingrong town.

### **3.2.4 Construction and preliminary results of Jingrong town**

In Jingrong town, the current innovation and entrepreneurship conditions are good with strong atmosphere, prospects broad and relatively perfect infrastructure. Jingrong town has revitalized nearly 600,000 square meters of idle buildings, formed a Group Innovation Space of 750,000 square meters, brought in 46 innovative incubators, gathered 1608 emerging industry projects including big data, unmanned aerial vehicle, new materials and has become the first park of university students entrepreneurial demonstration, the first batch of town with Chinese characteristics and also one of the first batch of 17 state-level regional demonstration bases. Jingrong town focuses on innovative resources to solve the employment problem and help to boost local economic development. The successful transformation of Jingrong town provides a reference for the construction mode of characteristic towns, which is worthy of our deep discovery of its construction connotation.

## **4 Discussion of the construction mode of Jingrong characteristic town**

### **4.1 The concept and goal of the town construction**

Jingrong town aims at transforming the hollow town to the maker town; adheres to the connotation of people's livelihood, high-quality and sustainable development; regards equality, happiness, transformation, green, health and intensive as the core concept to promote regional co-ordination, low-carbon transformation, ecological civilization and institutional innovation as the key content of coordinated development.

### **4.2 The special mechanism of the town construction**

In the process of transformation, Jingrong town has explored the "government + business + market + colleges and universities" four statuses and one operating mechanism. The market-oriented operation has been established with government as a guide, enterprise as the main body and the universities-local cooperation as the window. The synergies of the mechanism has created opportunities for development of the town and stimulated the endogenous vitality.

#### **4.2.1 Policy service mechanism**

Government policy has played a pivotal role in attracting makers, retaining entrepreneurial projects and entrepreneurial talents. Jingrong town provides innovation and entrepreneur service support, science and technology financial support and other six policy support. The project support is highlight. The local government provides "three exemptions and two reductions" subsidy policy, which means no fee in first two years for using apartments, but paying half prices for apartment and property management fee starting from the third year. The policy properly solves the makers' difficulties like lacking start-up capital and housing problems, effectively enhancing the attraction of Jingrong town.

#### **4.2.2 Project approval and assessment mechanism**

The approval of the government is "simple but strict". Simple means briefness of approving. Jingrong town sets up a "one-day finish" service of industrial and commercial registration. Strict means strictness of testing. Projects which will enter Jingrong Town must accord with the development planning of the town and pass through professional audit by experts.

The evaluation of the government is "accurate but wide". Accurate means accuracy of direction. The government of Jingrong town will evaluate settled enterprises with the direction of development characterized by electronic information technology. Wide means always encourage. Facing dilemma of enterprises, government will encourage them and create a favorable incubation atmosphere.

#### **4.2.3 Universities-local cooperation mechanism**

The cooperation that Jingrong town has with 20 universities, including Sichuan University and

UESTC, is the implementation of the national “Plan 2011”. The local government makes full use of resources of colleges and universities around town and carries out the “the School and Belt Initiatives” strategy with UESTC, which is beneficial to the establishment of cooperative innovation mechanism and promoting innovation elements to transform the isolated and scattered state towards the direction of the convergence and integration.<sup>[4]</sup> Jingrong town also tries to expand its close contact with domestic universities in other provinces, and makes full use of the famous university alumni association, overseas talent workstation, International Conference on Talent Exchange and other platforms to attract talents flexibly across the globe.

#### **4.3 The special industry of small town construction**

##### **4.3.1 Industry selection**

As the engine of the pan-industry aggregation structure, characteristic industries need to undergo scientific selection, rational planning, core cultivation and cluster radiation, and finally ascend to the path of industrial brand development. In order to ensure the effectiveness of industry support and prevent the waste of resources caused by low-end industry construction, the town should follow the basic principle of adhering to innovation and local conditions. In the process of resource integration, Pi Du District whose representative resources are colleges and universities, conducts beneficial exploration on how to combine the idle building resources with area advantages. Jingrong town has produced innovation factors, innovation and entrepreneurship industry ecological circle, which includes industrial chain, investment chain, innovation chain, talents chain and service chain. Such an ecosystem has a long industrial extension chain and continuous input elements, which not only matches the regional advantages, but also higher than the national average industries economic efficiency.

##### **4.3.2 Industrial upgrading**

Based on the background of “Internet +”, Pidu District improves the layout of industrial development direction in addition to the introduction of innovative incubator, using new technology, new concepts and new model on the transformation to upgrade traditional industries. At the same time, it pays attention to the introduction and development of emerging industries,<sup>[5]</sup> and makes it a center of innovation and capital gathering with international influence. Jingrong town develops the industry in the direction of innovation and capital, instead of pure production, avoiding a new round of excess capacity.<sup>[6]</sup> The national base (Chengdu) of big data industry, settled down in Jingrong town, is not only the effective carrier for the implementation of innovation and entrepreneurship, but also the effective engine to promote the organic renewal of traditional industries.

#### **4.4 The special functions of small town construction**

##### **4.4.1 Production function**

In order to eliminate the inventory and promote innovation and entrepreneurship, Jingrong town has transformed the original Foxconn project into an incubator space of 750,000 square meters, organized activities of city’s economic cooperation and development, exported production materials, capital, technology, information, consumer goods, etc, which meets the needs of local residents’ production, consumption and work.<sup>[7]</sup>

##### **4.4.2 Gathering function**

Jingrong town has a higher production efficiency that absorbs and aggregates various kinds of resources and factors. By right of regional location, good infrastructure, the inherent law of agglomeration economy conditions, it attracts all kinds of capital, technology, products, information, talents,<sup>[8]</sup> and plays a gathering effect, symbiotic effect, coordination effect, regional effect, stimulating innovation constantly. Sharing of public goods makes resources more efficient. After the formation of industrial cluster, it has also reduced the cost of starting a business, formed a cluster competitiveness and improved the competitiveness of the whole area. The town gradually became a strong regional brand.

##### **4.4.3 Service function**

Jingrong town promotes the flow of the entrepreneurial activity and economic elements, supports the excellent projects and creates a new space that provides effective supply. Besides, it takes various means to construct the public service demand expression and feedback mechanism and two-way interactive mechanism. The effective connection of service supply and service demand meets the needs

of public services, creates a good service ecology and improves the supporting services measures.

#### **4.4.4 Cultural function**

Jingrong town also carries forward the innovation and entrepreneurship culture. First, strengthen cultural awareness and provide cultural services. "Innovation and entrepreneurship" enters the enterprise, school, institution, community and village social activities, plays the role of cultural shaping soul, nurturing, booming, entertainment and so on. The cultural construction of the town has satisfied the emotional needs of society and promoted the brand image of the town. Second, cultural integrates the industry and creates an innovation and entrepreneurship cultural plateau. Combing the regional characteristic entrepreneurial culture elements and symbols with modern production and living needs, successfully shapes innovation and entrepreneurship cultural landscape, widely mobilizes whole society to participate in the construction of innovation and entrepreneurship.

#### **4.4.5 Social function**

Jingrong town transformed a traditional industrial supporting town into a low-cost, all-factor, convenience and open maker town successfully. This shift has not only boosted the popularity of the "hollow town", which had less than 20,000 people in the past, but also improved social order and solved the problem of high unemployment. The construction of urban infrastructure has improved the quality of life for makers and residents, satisfied people's needs and enriched daily life.

### **4.5 The special architecture of the town construction**

#### **4.5.1 Top-level design**

The concept of development layout in Jingrong town is "Form, format, culture and ecology" unification of four states. Rather than adding "industry + culture + ecology" simply, Jingrong town focuses on fine quality, ecological control, powerful function and solid grounding as well as adheres to high standards of construction, high-quality supporting to establish the livable, pro-business and ecological makers' community. The government has invested nearly 80 million yuan funds for living facilities, and formed a low cost, convenience, all elements, open mixed incubation, plant office, high-end business, headquarters garden, super R & D complex and a series of maker space with the stock of resources.

#### **4.5.2 New-type urbanization development framework**

Jingrong town located in the fringe area of Chengdu, relatively independent of the urban area. Because of its special location, Jingrong town not only promotes the transformation of local industries, but also plays the role of economic regulation, the concept of communication and community governance. Jingrong town in its early two years, improved the infrastructure, increased population migration ratio, expanded the town scale, reflecting the characteristics of the town of non-continuity. The urbanization development structure of Jingrong town has a reference and practical effect on the new urbanization, urban and rural areas, breaking the dual structure of urban and rural areas and realizing the integration of urban and rural areas.

### **4.6 Future development**

Pidu District will persist in putting the development of Jingrong town into the international context, making it a global influence Maker town. As a typical representative town blooming in the innovation and entrepreneurship wave, there will be more oversea entrepreneurial teams settling in Jingrong town in the future.

Jingrong town will adhere to the concept of innovation, coordination, green, open and sharing. Innovation: the construction of Jingrong town requires to focus on the development of electronic information technology, and form the open and shared public maker space. Coordination: persevere in the coordinated development of material civilization and spiritual civilization.<sup>[9]</sup> Green: It is supposed to advocate green and build the ecological environment in all-around way. Open: root in open, so that the open space for cooperation will be more broad. Sharing: promote sharing, so that the Pratt&Whitney sharing mechanism will be more fair.

## **5 Comparison and enlightenment of the construction model of Jingrong town and other characteristic towns**

### **5.1 General types and comparative analysis of the construction of characteristic towns in China**

It is easy to see that the characteristic industry is the core of the construction of characteristic

towns by combining the five model of the construction of characteristic towns with Jingrong town. Different types of towns need to determine the dominant characteristic industries according to geographical factors such as geographical location, traffic environment and resources differences. Besides, the government policy dividend is essential. Whether it is tax, land, financing, approval or other policy support, they all need to have functions like precursory, pertinence, durability and traceability in order to ensure the long-term vitality of the town. Ultimately, public support services are also critical, including education and other urban infrastructure services. Therefore, government should take the leading industry as the core of the town, with the policy support, the intelligent management mechanism of the city and community resources support to promote China's urbanization entering a new stage vigorously.

**Table 1 “Four specialties” comparison of general types of characteristic towns in China**

	Special mechanism	Special industry	Special function	Special architecture
The type of tourism and leisure	Fostering industry, improving public construction and marketing with supporting policy	Industrial cluster are developed by tourism industry, cultural industry, leisure agriculture and leisure business	Culture+livability+entertainment+business+service	Attracting core+gathering core+estate extension
The type of modern agriculture	Developing intensive processing of agricultural products; Developing sightseeing tourism, experience agriculture and other services	Agricultural industry+science; technologyleisure; tourism+landscape; environment+creative agriculture	Technology+culture+landscape	Industries and cities integration, two development chains of agriculture and tourism
The type of commercial and logistics	An organic combination based on location advantages to focus on a certain type of products	Industrial chain including the upstream fields such as research and development, design, innovation and other downstream areas such as commerce, logistics, exhibition, etc.	Transport+sale+warehousing+distribution+services	Policy+model+fund+platform
The type of high-end manufacturing	To build a Smart Town of “Innovation wisdom, Life paradise, Cultural homeland, Ecological is land”	Regarding “industry 4.0, Internet+” as the representative of the high-end equipment manufacturing industry	Science+technology+experience	Product manufacturing+business+management+technical equipment
The type of cultural creativity	Take the small town as the carrier, characteristic culture as the theme, establishing cultural exchange and leisure platforms	Culture+tourism; culture+trade; culture+ecology and other cultural and innovation industries	Historical culture+industry+creative culture+service+entertainment	Four statuses and one system—“production, city, people, culture”
The type of science and technology education	Venture capital support; the plan of “Enrichment & Talent recruitment”; entrepreneurial incubation carrier	Big data and high-tech industry; interaction between government and industry university research	Production+gathering+service+culture+community	Four statuses and one System—“government+colleges”

## 5.2 General recommendations of characteristic towns construction

Characteristic towns are usually located in the transition zone of cities and the construction of characteristic towns should adapt to the new-type urbanization background. In the process of urbanization in China, the capacity of mega-cities and large cities is becoming saturated, and the functional sharing and inhabitants diversion are urgently needed. With the requirements of the new-type urbanization strategy, forging a batch of urban rural integration, regional coordination, functional and ecological livable characteristic towns have emerged at the historic moment. Firstly, characteristic towns should unify planning, operation and coordination in its construction. It will coordinate the top-level design, optimize the layout of the planning, undertake certain social functions, and integrate the regional elements of primary industry, secondary industry and tertiary-industry to form a new pattern. Secondly, according to Krugman's urbanization view, small towns should make full use of land, labor, entrepreneurial talents, capital and other elements. Jingrong town makes use of the obvious advantages of its idle buildings and enrichment of colleges and universities, attracts talents and capital introduction, finds out its own industry position, highlights features of the local town and avoids the mistakes like "making urban area the same as rural area". In addition, Jingrong town gradually increases the local capacity of employment, improves the carrying capacity of the town and becomes the new model of new-type urbanization town.

Characteristic towns should focus on "features". Characteristic towns should base on not only the natural resources of the region, regional transportation, history and culture, but market demand and comparative advantages. Combining the stage of regional economic development, it should choose the most potential and promising characteristic industry, connect urban construction and industrial planning effectively and avoid the separation of industrial function and urban function. The government uses the core competitiveness of the industry as a powerful engine to drive the development of relevant industrial chains in towns and cities and makes it play a role of  $1 + 1 > 2$ , preventing industrial chain from division. In addition, government should promote the development of industrial innovation resources platform, rely on local resources aggregation and integration of resources, improve city function, optimize regional industry ecosystem and finally achieve the goal of "production promoting city as well as industry and city integration".

In the context of new-type urbanization, the construction of characteristic towns should be people-oriented. Characteristic towns should not only pay attention to cultivating the characteristic industries, but also emphasize public service equalization. Firstly, build service-oriented government. Government makes use of advantages of characteristic towns like small volume, small population and light burden, and undertakes inhabitants' public cost such as infrastructure, compulsory education, basic pension, health care, etc. They should integrate economic, social, ecological and other functions to build "greening, landscaping, well-appointed, specialized and intelligent" characteristic towns. Characteristic towns will actively create a new type of living functional area with preferential popularization, service sharing, intelligence and convenience, gradually improving the sense of satisfaction and happiness among people. The second is to raise human capital. The construction of characteristics towns is supposed to attract high-quality personnel while transform the rural surplus labor force into citizens, upgrade industrial structure and form a healthy cycle of urbanization.

Last but not least, Jingrong town should build scientific planning and coordinate various relationships. Firstly, plan construction reasonably. Laying emphasis on the coordination among regional planning, generally layout for land use and overall town planning. Secondly, adhere to the principle of utilizing local resources flexibly and accordingly. In pursuit of symbolic characteristics, development of industries, environmental conservation, beauty and livability, they shall precisely estimate the scale and quality of town construction, and simultaneously ensure optimal coordination within the overall layout, covering three pivotal perspectives of producing, living and environmental reserving. Subsequently, by virtue of the structural optimization, intensification and efficiency of land use in towns, they can achieve the sustainable development of lands.<sup>[10]</sup>In the meantime, while striving to extend the urban area based on a scientific and promising structure, they shall also come up with rational allocation of land-based resources within their administrated regions, so as to efficiently enhance the capacity of land economic supply and hence sustainably facilitate comprehensive

development. Finally, complete and refine an effective supervisory mechanism, which contributes to ensuring the optimal allocation of resources and scientifically intensive land-use.

## 6 Conclusions

The construction of characteristic towns is an important part of the process of urbanization in China. It forms organic complementarity for the construction of large and medium-sized cities. Therefore, the construction of characteristic towns is not only necessary, but also more than important and indispensable. Based on the new urbanization, this paper discusses the construction mode of Jingrong town in Chengdu. Besides, on the basis of comparing the construction status of other characteristic towns in China, we draw the “four special modes”—the special mechanism, the special industry, the special function, the special framework of the construction of characteristic towns. This model has put forward some guidance and reference for the management practice of the construction of characteristic towns in our country and provides a window for us to observe the status quo and problems of the construction of characteristic towns in our country. Certainly, although we assure that the construction of characteristic towns plays an active role in promoting urbanization and social modernization process, we should avoid blindly copying, endogenous motivation and other issues in the process of the construction of characteristic towns.

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## The Identity of Fujoshi from the Interaction Mechanism Communication of Tanbi QQ Chat Group \*

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**Abstract** As a sub-culture, Tanbi (boy's love) culture has been introduced into China for more than 30 years, which directly affects the generation accessing to the Internet media, especially the females of the 1980s and 1990s who are known as "fujoshi(Yaoi fandom)". The development of Mobile Internet changes and reshapes the realistic representation of media culture, and the steady growth of per capita GDP also manifests the promotion of income and consumption. The emergence of the Internet makes the sub-culture of this group develop rapidly, but it is still not approved by mainstream culture. This paper, taking Tanbi QQ chat group as a research case, tries to explore the interaction mechanism among fujoshi from Tanbi QQ chat group from the perspective of communication, with methods of netnography and in-depth interview.

**Key words** Tanbi culture, Fujoshi, QQ chat group, Interaction mechanism, Identity

### 1 Introduction

The development of mobile Internet changes and reshapes the realistic representation of media culture, and the steady growth of per capita GDP also manifests the promotion of income and consumption. In such circumstance, the audience access information at an ever fastening rate. The property of Mobile Internet allows the audience to receive a variety of different information and raises their acceptability and inclusiveness for the content of information as well. With favorable virtual environment, marginal subcultures become popular and quickly draw close to the mainstream culture through the large-scale connection, participation and interaction of the audience. The term "tanbi" comes from Japan, which is called "Boys' Love (BL)" in English. "tan" means indulgence. "Tanbi (BL)" in Japanese refers to indulging in all good things, and especially for the fictional romantic relationship between males later. During the 1930s and 1940s, Japanese female writers derived a new genre (school) against naturalism in literature, that is, tanbi (BL), the work of "boy's love" that serves the female audience.

### 2 The popularization of tanbi culture

#### 2.1 Minority culture become popular through the mobile Internet

The mobile internet is still people-oriented, and its agent is the extension of senses. In such a social network, the communication dominance of the traditional media is weakened; the ordinary audience becomes a communicator. The communication mode is also changed from one-to-one or one-to-many to many-to-one or many-to-many. Previously, due to the imperfect technology, there are many restrictions on time and space, and minority culture can only spread within a certain range. Now, with the development of the mobile Internet, the restrictions are breaking. Minority culture, used to be in the certain place, can quickly enter the public vision, and lead the latest trend of culture. This can be seen in TV series from recent years, such as in *Sherlock*, a British drama, the interaction between Sherlock and Watson, as well as the interaction between Sheyan and Baizhen in Chinese TV drama *The Great III of Peach Blossom*, are named as the "sale of bromance"(between brother's romance) which is for the fujoshi(Yaoi fandom)in tanbi culture.

Mobile Internet is free, private, bilateral interactive and with large capacity, in which, tanbi

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culture develops rapidly. From SNS social network model to the different communities, like forum, BBS, Weibo, QQ, etc., network stepped into a diversified entertaining dating (making friends) stage that brought our social environment into a new era of social mobile Internet. Mobile Internet has the characteristics of freedom, privacy, large capacity and bilateral interaction, by which, tanbi culture can quickly go public and be accepted and approved gradually.

### **2.2 The hyper-tribalization in the network sharing**

As an open platform for information present and exchange, the Internet can make information resources stored according to the different needs of the audience (receiver) in different spaces. These spaces have a common feature: sharing, which meet the communication need of people in the network space. Many-to-many interactive communication mechanism derived from sharing. Based on the “Six Degrees of Separation Theory” (This is the process of passing between two strangers through “Friends of a friend”—up to six times—and then getting to know each other. Frigyes Karinthy, 1929), the new technology breaks the traditional barrier. People can establish more contact with the like-minded people, regardless of time and space, and intertwined into a network through the mobile Internet.

At the same time, the sharing of mobile network has accelerated the activeness of content production, and promoted the mass production of text. Take site, for example, jinjiangwenxuecheng (Jinjiang Literature City), the “pure love” channel (BL network novel column) is specifically for tanbi culture. There have been more than 618,000 online novels released on this website. It is the main platform for domestic tanbi literature. In addition, there are now 3.58 million users on “Fujoshi Post Bar” and the cumulative post is 95.8 million; “Hanwujinian Post Bar” has 2.01 million users and 39.51 million cumulative posts. The huge amount of interaction shows that tanbi culture has gradually gone public in China.

### **2.3 The Internet facilitates the identity of fujoshi**

The prevalence of a culture relies on the continuous spread by its lovers, which also applies to tanbi culture. In early Japanese studies, it was thought that the word “fu” had the meaning of hopelessness, with disgrace and contempt. When the word “fujoshi” was first introduced to China, most people, influenced by Chinese traditional culture, did not approve this culture and regarded it as a “rebel” to tradition, even hardly understand the “fujoshi” who like the culture. Under the unfavorable situation, yaoi fandom, as a minority, their weak voice also makes them think that their preference is unrepresentable. The high-speed communication of the Internet greatly reduces the communication cost and strengthens the efficiency of communication interaction. After breaking the geographical restriction, the “minority” becomes “the majority” and facilitates the identity of yaoi fandom.

## **3 The ways to get the identity**

“QQ chat group is a simultaneous multi-person communication platform developed by Tencent, using QQ software as a carrier. Because of its sparseness, growth, small-range and other characteristics, QQ chat group has enhanced the communication of people who have the same hobby or same purpose.”

Since tanbi culture was introduced to China in the 1980s, people who access to network and were accompanied by network are mainly the generation after the 1980s and 1990s. The two groups have a common characteristic, that is, they grow with the Internet and they are the first to receive and adapt to the media changes, so they are also known as “digital natives”. In tanbi culture, the bulk of the fujoshi is mainly 80s and 90s who are the first to have access to QQ chat group and also the first to enter the diverse networking environment. According to the observation and interviews of members from the following five tanbi QQ chat groups: “tanbi club, vassalord chat group, 007 tangled firm, author group of demon’s stepmother and cheating road”, it is found that obtaining identity in the QQ chat group are mainly as following:

### **3.1 Online interaction**

#### **(1) Resource sharing within the group**

Resource sharing originally means that one share one’s own resources to other users through the Internet. Generally, it is non-profit. QQ chat group itself has function of group sharing. In tanbi QQ group, generally, the resource is shared through group sharing and group mail. As internal

communication, QQ chat group makes the distance between the publisher and the receiver closer. Compared with the open large platform post bar, closed small platform can deepen the sense of identity and the sense of belonging of the group members and make their relationship more intimate. Most of fujoshi get resources through the QQ chat group. The comprehensive QQ groups also exist, with more members than other types of QQ group, because of its wide range.

#### (2) Language cosplay game

Cosplay is the abbreviation of Costume Play, referring to high reduction of clothing, make-up techniques and props to imitate the role in animation or game. In Chinese, it is called role play or RP. The language Cosplay (hereinafter referred to as the LC), refers an online game interaction through text to play and figure out the action and psychology of the role by virtual network social platform. Also, it can be interpreted as an online interactive game to talk and express emotion by text in the “ACGN” world (including Animation, Comic, Game and Novel, the virtual spiritual world) generated through the Internet platform. LC is a simplified version of Cosplay and it can initiate anytime, anywhere, in virtue of the convenience of QQ chat group. Through LC games, the psychology of the male role in tanbi text could be figured out, which can narrow the distance between the role and the game player who like the role. Fujoshi express themselves and their appeals in this way, which can even be the inspiration for the writing and adaptation of tanbi text.

#### (3) The localization of tanbi work

The convenience of the mobile network has brought plenty of foreign works. Except tanbi works from Japan, those from South Korea and the United States also streamed into China through the mobile network. The localization (Chinesization) of tanbi work is to meet the reading needs of fujoshi, but the number of localization teams (Chinesization teams) can not cover the considerable work of localization. For lack of profit financing to localization, tanbi culture has not formed a complete industrial chain in China. Professional localization teams are few, amateur groups are mobile, so there is sheer number of sizable localization teams which are restricted by the number of staff and other factors, when in the face of a large number of foreign works, the degree of localization is difficult to meet the needs of more audiences. In order to read more tanbi works, the fujoshi in QQ chat group spontaneously organize a temporary localization group to localize their favorite works during their spare time to meet the reading needs, and then enhance the identity of the group and themselves from the interaction.

### 3.2 Offline interaction

Most offline interactions are in private, mainly through offline party or anime exhibition, etc., called as “Mian Ji” in Chinese (terminology in tanbi culture, referring to offline meeting). This is the reconstruction process that the QQ group members, who achieve a certain degree of understanding in the mobile Internet, extend the senses from virtual to reality to further understanding. It can further deepen the sense of identity between fujoshi and extend the social network from online to offline, and then intertwine to strengthen their identity mark.

#### (1) Individual offline meeting

Individual offline meeting generally refers to the communication and interaction between individuals in reality, which is the process to re-understand the friends with similar views about world, values and sub-culture etc. made through QQ chat group from the virtual network to the real world. This is a kind of individual behavior not affected by group, but limited by region, time and space, and economic conditions. Thus the individual offline meeting often occurs city-wide, for the convenient transportation, regional familiarity and so on, which can bring sense of security and familiarity to fujoshi to make them feel more comfortable to see the online friends never met-the total strangers offline. On the other hand, fujoshi are mainly the 1980s and 1990s. They have married or worked at present and are subjected to the reality. Therefore, for them, cross-regional meeting is just a wish and only the city-wide meeting can be realized without substantial degree of interference. And fujoshi become younger and younger and most are still at school, so cross-regional meeting is not realistic for them, either.

#### (2) Doujin exhibition

Doujin exhibition is derived from the anime exhibition in which the anime fans make friends offline. The main participants of doujin exhibition are cosers (role-player), fans of two-dimension

(two-dimension refers to the ACGN world, from Japan), photographers who like anime and comic bookstores. Through cosplay performance, sale of ACGN spinoffs, the ACGN well-known writers' book-signing and other activities, doujin exhibition deepens the interaction between fans and helps them make more friends with similar interest. Doujin exhibition is a branch of anime exhibition. The term "doujin" is from Japanese word "どうじん", mainly refers to the individual independent creation behavior. The theme of doujin exhibition is taken from one work or several works and its offline activities are mainly the derivative works and cosplay. Compared with the wide range and mixture of anime exhibition, the content of doujin exhibition is relatively concentrated with distinct subject, in which the fans can find more like-minded friends. Different from the individual offline meeting, doujin exhibition is public, held in fixed area, fixed date and place and widely advertised one or two months in advance. It is organizing and disciplining, similar to formal activities, with strong appeal and a wide range. For example, in July 31, 2012, the doujin exhibition of Time Raider was held in Nanjing. The idea first came up in the QQ chat group of Time Raider Doujin, and then there were more than a dozen members to participate in the Doujin exhibition in Nanjing. Among them, some were from the city very close to Nanjing, while the farthest was from the west of Inner Mongolia, more than 2,000 kilometers away from Nanjing.

#### **4 Fujoshi's self-identity and group-identity in tanbi QQ chat group**

The structure of QQ chat group is seemingly decentralized and the group members are equal to exchange and interact. But there are still invisible opinion leaders within the QQ chat group, who control the discourse. Most of them are people who established the group, the group administrators or the most active member of the group. Such pattern is hierarchical. As the core persons of the group, their activeness makes the group cohesive, but also constantly changes the structure of the group. And other members of the group, under the influence of them, also constantly adapt and reverse the structure of the group. Through continuous adaptation and maintenance of stability of the group by the core members and the ordinary members, the main cultural trends are constantly rebuilding within the group. The space within the QQ group seems to be confining, but due to the interoperability of network, different tanbi groups are intertwined and compatible via its members. In such an environment, the groups members will be more united in face of the outside pressure and continue to deepen the sense of group identity, so as to achieve sublimation of self-identity. The restriction of QQ chat group is just in line with fujoshi's psychology that their sub-culture is a minority culture. The "group effect" QQ chat group brought makes a clear boundary between them and the other.

#### **5 Conclusions**

Mobile Internet has gradually become a part of people's daily life. Among them, QQ chat group, for its privacy, diverse communication, rapid exchange of information, and with minor social (De-commoditize) groups, etc., becomes one of the main carriers of tanbi culture. The fujoshi group, not been recognized and self-lost, makes tanbi culture popularized in the mobile Internet with more tolerant audience. The interaction mechanism within the QQ chat group also allows fujoshi to find more people with similar interest and cognition in a wide range, and construct a small world applying their own values through continuous communication and interaction, in which, they are constantly refining self-identity, cultural identity and group identity.

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## **Discuss how the Transition to a Post-carbon World Reshapes the Meaning of Energy Security and with What Social, Political and Geographical Implications?**

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**Abstract** In present society, energy security is the rock stars theme among the other social issues we concern about. It is an essential sector for experts who are doing city and regional planning and city management making decisions. As it did in the case of German's energiewende and Japan Fukushima Daiichi Event (nuclear disaster after 2011 earthquake) that has brought the importance of considering energy security in the planning and management process. For this essay, it will deeply identifying what energy security mean in the past and at present to give an idea about how the post-carbon world reshapes the concept of energy security and furtherly, how the concept energy security influence social life in social, political and geographical aspects..

**Key words** Energy security, Definition, Reshape, Impact, Social, Political, Geographical

### **1 Background**

To narrowly explain energy security from IEA (2017) that energy security is defined as 'the uninterrupted availability of energy sources at an affordable price' (IEA, 2017), however, energy security involves a much wider set of concerns than what is claimed by IEA. Under the energy transition process, there has generated further considerations and concerns in respect of energy security that complicating the meaning of energy security, meanwhile, the new meanings of energy security have influenced social, political and spatial arenas. In this essay, it will firstly address what the concerns consist of energy security are changed from old time to new time from multiple aspects as well as the comparison between old and new time meaning of energy security to explain the way how energy transitions may complicate the concerns. From these two levels, will reasonably answer the first part of the question that how the transition to a post-carbon world reshapes the meanings of energy security. In the final level of this essay will critically identify what the implication of those concerns on social, political and geographical arenas in analyzing the different situations between global south and global to answer the last part of the question.

### **2 The definition of energy security in the past and at present**

To start with, it will firstly discuss the meaning of energy security's meanings in the old and new times. In the old time, the main types of energy resources which used broadly is oil, gas and coal.

### **3 Traditional ways of energy transaction dominant the old meaning of energy security**

The traditional meaning of energy transaction was basically defined as availability and foreign dependencies. To explain this, from the case of UK's using of fossil fuels form Bird J (2007: 6) that before 1970s, the UK always depends on the imported oil, an average of more than 100,000 thousand tones oils has been imported from other countries to UK. From 1970s to 1975s, when the UK's own oil production start in the north sea, there has a sharp decrease of the UK's oil importing from outside world but also a rapidly increase on indigenous production which include a certain amount of crude oil that is necessary for its own oil production business (Bird J., 2007). This illustrates a great extent of foreign dependencies of the UK on the other countries. Meanwhile, from the other aspect, using of gas in the UK, there is a great need of gas in the UK from the start of 1980s until 1990s which gas for heating is the dominant within the whole country. Before 1990s, there undergoes a long period of a high gas demands from the other countries, for example Norway, Algeria and Belgium (Bird J., 2007). From the former two cases of UK's energy resources using, it can be identified that there a high level

of energy resources foreign dependencies in the countries which do not have sufficient energy resources to provide with every citizens within the country which is the most significant concern during that period of time, and the direct way to solve the problem is to import energy resources from indigenous to support their short-term need, however, those countries are still facing with disruption of certain resources which constitute energy availability issues in the non-supporting period, this issue can be large depend on the geographic factor of energy resources distribution.

#### **4 Three indicators consisting of the measurement of the new meaning of energy security at present**

At present, the concerns of energy security will not only include availability and foreign dependencies which can normally split into three different levels, energy availability, energy acceptability and energy affordability. However, as the renewable energy is gradually dominant the use of energy globally, for example, wind power, hydropower and solar energy as well as the popular nuclear power in the world, there has additional meaning of energy security in present post-carbon world. As Frei C. states in energy post (2016) that energy security's equation will be changed by 'third transition' for three reasons, the first is decarbonization, the second is the growth of zero-marginal cost energy, low entry barriers to market, decentralization and digitization and the third is the challenge to the resilience of energy companies (energypost, 2016). From this case the major view for energy security's new meaning can be conclude in five dimensions splitting 20 components which are Availability, Affordability, Technology development and efficiency, Environmental sustainability and Regulation and governance (ELSEVIER, 2011). However, those concerns are not all adopted by all countries to indicate energy security, there still a majority amount of countries only take Availability for granted to define their energy security, whilst other special regions in the world may regard other aspect concerns to regulate the energy security criteria to fit their regions' special situation, for example, China and India regard water as a condition in measuring energy security. To look back to the negative lesson of Japan Fukushima nuclear disaster and its related events, it can be best explaining the post carbon world's current energy security situation in all three ways, availability, affordability and acceptability, whilst socio-scientists have also summarized detail aspects through those three perspectives of energy security in the following aspects which are exactly some elements under the five dimension of the meaning of energy security from ELSEVIER's 2011 report; the security of supply, energy and climate security, implications of energy choices for foreign policy and defense strategy and infrastructure protection and system resilience from Bird J. (2007: 6). These factors can also demonstrate the change of deterioration or improvement of the system's energy security. From Hayashi M. and Hughes L. (2013: 120-111) that Japan's nuclear disaster in Fukushima will have a short-to-medium term effect on many other countries' energy choices, for example, the current energy they are using or the further plan they prepare to use. Due to the close of nuclear station, Japan undergoes a period of replacement energy. Japan was the world largest LNG importer before the nuclear accident, within annual import of 69.2 million tons from the BP' 2011 statistics. However, just after the disaster, the figure rose to approximately 81.8 million tones (Hayashi M. and Hughes L., 2013). These changes give a heavy pressure to other LNG importers, for example, South Korea, Taiwan P.R.China in east-Asian and even United Kingdom in Europe. What's more, this change makes some countries change their former choice for using nuclear power, for example, Australia has invested a replacement energy by using coal-seam gas LNG rather than using nuclear energy from the warning of Japan's nuclear disaster, in this situation, a low availability which betray the basic requirement of energy security. To use Japan nuclear disaster event explaining the Affordability aspect, form Hayashi M and Hughes L's analyze that due to the loss of ways to control the nuclear reactors, Japan itself spent approximately \$256 million with nuclear reactors in Hamaoka in strengthen the ability of nuclear plant to avoid similar cases happens, this process is predicted to triple the total cost of new clear power plants by 2020. Additionally, the fees of other countries paid in dealing with the prevention of any possible negative effect from nuclear reactors is extremely high, for example, US's NRC task-force establishment as well as other member countries of EU's measure test for reducing any potential issue of nuclear reactors. Meanwhile, the problem of storing spent fuel will also strength the cost of nuclear

power (Hayashi M., 2013). Furthermore, the minor factor, for example, the advocating and developing of advanced technology also contribute to the increasing cost of nuclear power result from the extremely high development fees. From this case, the fees paid for nuclear power in Japan, even globally are basically high, this issue can lead to less costumers around the world for this type of energy. The fact reflects that the price of nuclear power has no stability, people and the high price that people cannot always afford to. In this reason, nuclear power is under a low affordability which cannot under the meaning of energy security.

The last aspect to explain the new meaning of energy security from Japan Fukushima disaster is Acceptability. It demonstrates that public attitude towards using nuclear power is much more acceptable than most other electricity sources, which is significant that public attitude can to a large extent affect the global energy policy. According to Hayashi M. 2013, Japan and South Korea did not stop building up the new nuclear power stations just after the Three Mile Island event in 2011. Other countries, for example, Ukraine are also depending on nuclear power for 48% electricity generation. Public perspective can dominant the use of nuclear power in post-carbon world due to the natural accident's influence (Hayashi M., 2013). From this case, it is significant that the role which acceptability plays within energy security to impact the use of energy resources in the world.

### **5 A summary of energy security in old and new terms**

In the first level, it demonstrates the old term energy security meaning by analyzing the case study of the past UK, also it addresses the modern meaning of energy security in accordance with the negative lessons of Japan energy disaster from the new concerns of Availability, Affordability and Acceptability based on IEA's recent energy security definition and other multiple concerns. In the next level, it will give two examples of both global south and global north case studies to explain how energy transition shaping the energy security. From global south case of China, according to the research of Garthwaite N (2010: 8), it illustrates that during the energy transition process, which mainly start from when China has been a communist country in 1949, Coal, HEP and Oil are the main types of energy resources which China using; there is a continually increasing demands of those energy resources in China each year, which lead to significant energy shortage; form the illustration of research, 8.5 rural-urban migration eager to move to the central cities within their local provinces, the increasing of the car ownership will increase from 16 cars per 1000 people to 267 cars per 1000 people. which contributes to the physical factor of energy security. From this fact, a majority amount of energy resources will be required in China. As the energy transition in China shapes energy security mainly in the availability aspect, to find more replacement renewable energy for China's future must be an efficiency way to solve the present issue in relation to the energy security (Garthwaite N, 2010). Another example of Germany, the global north city's energy transition shaping the energy security. The lessons from Germany's energiewende illustrates two main issues; the renewable surcharge and high investment of energiewende contribute to a high power price, this leads to a low affordability just the similar issue as Japan's nuclear energy cases identified; the still low acceptability of the renewable energy, as Energy Report (2017) claimed that the four main energy station companies only generates 5% of renewable resources, which means the renewable energy cannot be at a dominant position as other resources be. In this case, energy transition shaping the energy security through the affordability and acceptability aspects.

### **6 A summary of energy security's impact in the old and new terms**

To summarize the first and second levels of this essay, energy transition shapes energy security in changing energy security's new meaning is always under the current types of energy using as well as the current discourse and theme of environment within post-carbon world. From the comparison of the energy security meaning between the past of UK's energy using concerns with the present of Japan's energy negative lessons betray nowadays' energy security standard, illustrating that energy security new meaning is usually defined as what IEA has concluded, availability, affordability and geographical sector as Japan Fukushima's fail model can be best refuted by the former two points which IEA referred to, availability and affordability. However, as the former paragraph has described that energy

security new meaning is multiple, it should have more considerations under 5 basic departments' 20 components. In the global level, countries will only choose their own suitable factors to comprise their meaning of energy security which is exactly what level two has described in the view of global south and global north. Importantly, the new meaning which shaped by energy transition can also have significant impact on social, political and geographical aspects, which will be analyzed in the following paragraph of this essay.

## **7 Energy security new meaning's impact on political, social and geographical aspect**

In the final session of the essay, it will address the implication of energy security new meaning on political, social and geographical aspect. The effect of energy security on the political aspects is essential, according to Bernell D. and Simon A. C. (2010), government and markets are trying to look from the energy security concerns to regulates the private rights in relation to energy using. In this situation, energy security's new meaning has the prior to lead and modify the existing policy. For example, transition costs of energy are controlled either by the market mechanism or the government, in this case, energy security poses transition costs that are in some cases managed using private sector security firm. For another case, government regard energy security as the basis for electricity generation and transmission regulations. (Bernell D. and Simon A.,2010). To explain the social coherence with energy security, it will first explain the economic view of energy security which indirect affect social. The basic economic view about energy security is the concept of security of supply which performs to be the efficiency of providing energy to costumers. In the investment of cost of project within economic aspect under the idea of energy security according to Genys D. (2015: 5-6), if the energy economics is more concerned with energy poverty, which can also be considered as 'the lack of reliable access to electricity networks; as well as energy efficiency, which also be defined as' cheaper energy and beneficial return of the investment (Genys D. 2015), the affect to the social aspects need to be counted in, which is not only the efficiency of energy economics but also on general social aspect; for example, whether buffs the economic burden among various social groups from social justice point of view or, on the other hand to increase the economic distances. The second explanation of energy security's impact on social will be the acceptability; according to the case study of Lithuania from Genys D. (2015), its energy politics faced with the problem that the contradiction between energy independencies and cheaper energy obstacles by the social power. Although, government want to achieve energy independencies, there are 87% of people in Lithuania against government's decision, those people regard price as the core considerations in choosing energy resources (Genys D. 2015). This apparently reflects energy security's core idea affordability on the social group; economic differentiation is visible in Lithuania, that people in different social classes with different levels of well-being maybe the reason of this result, however, the coherence of energy security with social is in-depth. The last significant aspect which receive the implication from the new meaning of energy security is the geographical aspect. Since modern meaning of energy security has been introduced, the energy pathway on the geographical level has been affect from energy security. Energy pathway is the main way to keep energy resources available between domestic and foreign to retain security of supply from the basic idea of energy security. The issues can be raised if betray the idea of energy security in the geographical level, for example, the destruction of oil wells during the Iraq war largely slow down the diver speed of energy resource which lead serious energy disruption issues (Garthwite N, 2010); meanwhile, the Katrina hurricane destroyed the energy pathway for oil and gay which forces oil and petrol's prices to rise (Garthwite N, 2010). Additionally, the other minor impact from energy security within geographical level may consider the biodiversity, since that could be much less dominant than energy pathway to be directly impacted by energy security.

## **8 Conclusion**

In conclusion, in this essay, it mainly analysis three levels around energy security. The first level and the second level are separately described how energy transition shaping the energy security in giving it new meaning. The first level chose the UK's energy using in the past and Japan's fail case of



Fukushima nuclear power as two typical models and introduce the availability, affordability and geographical as the basic idea form IEA's definition of energy security and enlarge it to a broad are as what ELSEVIER has claimed 5 dimensions contained 20 components. The second level attempt to use different case studies between global south and global north counties by choosing the typical model China and Germany to explain how energy transition has changed the meaning of energy security specifically. In the final level of this essay, it practically finds out the cases which has been impacted from the new meaning of energy security in political, social and geographical aspects, which come to an idea that energy security is essential to be based on to retain the security supply of energy in case to welfare anyone in the post-carbon world.

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## On the Development of Higher Education and the Improvement of Innovation Ability in Nations Along “One Belt and One Road”

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**Abstract** Higher education plays a role as foundation and guidance in the construction of “One Belt and One Road”. It undertakes the mission that higher education provides talents, knowledge, science and technology for nations along “One Belt and One Road” so as to improve their national innovation ability. In this paper, it has described the scale of higher education and the situation of innovation ability in 64 countries along “One Belt and One Road” as well as the correlation between them. Through the Pearson Correlation Test, it turns out that there exists highly positive correlation. Then linear regression model has been built to predict the national innovation ability matched with the scale of higher education. Based on the above research, some suggestions on how to promote the “One Belt and One Road” initiative and improve the national innovation ability of different countries are put forward. Chinese government can expand the scale of higher education, offer assistance to the countries in which the development of higher education is poor, strengthen the communication with other countries and take the plan of international innovative talents.

**Key words** One Belt and One Road, The development of higher education, The improvement of innovation ability, Correlation

### 1 Introduction

China proposed “One Belt and One Road” initiative to strengthen economical partnerships among the nations along “One Belt and One Road”, to build a community of shared interests, destiny and responsibility featuring mutual political trust, economic integration and cultural inclusiveness.<sup>[1]</sup> In “*Action on Promoting The Education of ‘One Belt and One Road’*” proposed by Chinese Ministry of Education, “One Belt and One Road” initiative provides an opportunity for promoting opening-up, communication and integration among countries in a larger scope.<sup>[2]</sup> Nations along “One Belt and One Road” should build equal, inclusive, mutually beneficial and active educational cooperation. Higher education plays an important role in talents cultivation, cultural inheritance, sci-tech output and decision think-tank. Therefore, the development of higher education is conducive to the improvement of innovation ability and comprehensive national strength.

On the basis of Ancient Chinese Silk Road, “One Belt and One Road” initiative was proposed. Geographically speaking, it covers 64 countries except China in West Asia, Central Asia, South Asia, South East Asia, Southern Europe, East Central Europe and Africa, which has become a new international and cross-regional belt development model.<sup>[3]</sup>

The gross enrollment ratio of higher education, a key indicator to measuring the scale of national higher education, is the ratio of the number students accepting higher education to the population aged 18 to 22. According to the Martin Trows’ theory of higher education massification, if the gross enrollment ratio of higher education is 15% or less, it is elite higher education stage; if it is 15% to 50%, it is massification stage; if it is 50% or more, it is universal stage.<sup>[4]</sup> Global innovation index (GII) is a key indicator to evaluate national innovation ability, covering 80 sub-indexes, such as, creative output, knowledge and technology output, policy, human capital, infrastructure, market and business maturity, etc.<sup>[5]</sup>

### 2 Current situation: The development of higher education and the improvement of innovation ability

This paper chose the gross enrollment ratio of higher education and the global innovation index to respectively measure the higher education scale and national innovation ability of 65 countries (including China) along “One Belt and One Road”.

There are 11 countries in elite higher education stage, whose average of gross enrollment ratio of higher education is 11.4% and its mean of national innovation index is 25.6. Thereof, the lowest gross enrollment ratio of higher education is 8% in Turkmenistan, followed by 8.7% in Afghanistan. Compared with 3.8% in 2011, it is more than twice that the gross ratio of higher education of Afghanistan in 2015 has been, but the slowly developmental economy affected by long-term war, insufficient higher education funds owing to the compulsory education from primary school to university and the limitation that women cannot accept higher education influenced by religious thought, all have restricted the development of higher education. The highest one is 14.9% in Nepal, then 14.5% in Qatar, and both of them are in the transformation period to mass. The lowest score of national innovation index is 20.8 in Yemen, the highest one is 39 in Qatar.

There are 30 countries in massification higher education stage, whose mean of gross enrollment ratio of higher education is 34.2% and its mean of national innovation index is 34.7. Thereof, Iraq, Maldives and Laos have been in massification stage from elite one. The higher gross enrollment ratio 47.6% and 48.9% respectively in Bosnia Herzegovina and Thailand, going into universal stage. The lowest score of innovation index is 26.4 in Tajikistan; the highest one is 47.5 in China. It is China that is 5<sup>th</sup> one in 65 countries along with the Belt and Road, 1<sup>st</sup> one in global high- and middle- income countries, but its gross enrollment ratio of higher education is 43.3%, less than 0.5% of 65 countries' average ratio, as a result of the large population, less expenditure per student and limited capacity of higher education.

**Table 1 The gross enrollment ratio of higher education and score of global innovation index in nations along “One Belt and One Road”<sup>[6][7]</sup>**

Development stage	Country Name, Gross Enrollment Ratio of Higher Education (%), Score of Global Innovation Index
Elite	Turkmenistan 8% <sup>①</sup> , Afghanistan 8.7% <sup>②</sup> , Uzbekistan (8.8%, 25.9), Pakistan (9.9%, 23.1), Yemen (10% <sup>③</sup> , 20.8), Bhutan (10.9% <sup>②</sup> , 26.1), Cambodia (13.1%, 30.4), Bangladesh (13.4% <sup>③</sup> , 23.7), Myanmar (13.5%, 20.3), Qatar (14.5%, 39), Nepal(14.9%, 21.1)
Massification	Iraq 16.1%, Maldives16.2% <sup>③</sup> , Laos 16.9%, Sri Lanka (19.8%, 30.8), United Arab Ukraine (22% <sup>③</sup> , 40.1), Indonesia (24.3%, 29.8), Azerbaijan (25.5%, 30.1), Malaysia (26.1%, 46), Tajikistan (26.4%, 27.5), India (26.9%, 31.7), Kuwait (27% <sup>②</sup> , 33.2), Oman (28.6% <sup>③</sup> , 35), Viet Nam (28.8%, 38.3), Brunei Darussalam (30.8%, 31.7), Philippines (35.8% <sup>③</sup> , 31.1), Egypt (36.2%, 28.9), Lebanon (38.5%, 33.8), Moldova (41.2%, 40.5), Macedonia (42.1%, 38), Bahrain (43.3%, 37.7), <b>China (43.4%, 47.5)</b> , Georgia (43.4%, 33.8), Syrian 44%, Armenia (44.3%, 37.3), Palestine 44.3%, Jordan (44.9%, 33.8), Kazakhstan (46%, 31.2), Kyrgyzstan (46.9%, 28), Bosnia and Herzegovina (47.6% <sup>③</sup> , 32.3), Thailand (48.9%, 38.1)
Universal	Hungary (50.9%, 43), Slovakia (52.9% <sup>③</sup> , 43), Romania (53.2%, 38.2), Montenegro (55.3% <sup>②</sup> , 41.2), Albania (58.1%, 30.7), Serbia (58.3%, 36.5), Cyprus (60.1%, 43.5), Saudi Arabia (63.1%, 40.7), Israel (64.7%, 53.5), Czech Republic (65%, 51.3), Latvia (67% <sup>③</sup> , 45.5), Poland (68.1% <sup>③</sup> , 40.2), Lithuania (68.5% <sup>③</sup> ,42.3), Croatia (69.1%, 41.7), Estonia (69.6%, 52.8), Iran (71.9%, 28.4), Bulgaria (87.9%, 42.2), Russian (80.4%, 39.3), Ukraine (82.3% <sup>③</sup> ,36.5), Slovenia (82.9% <sup>③</sup> , 48.5), Singapore (86.6%, 59.4), Belarus (87.9%, 38.2), Turkey (94.7%, 37.8), Greece (113.9% <sup>③</sup> , 40.3)

**Note:** The data of the gross enrollment ratio of higher education is the statistics on the gross enrollment ratio of higher education in 2015 from UNESCO except for Singapore. Some countries are lack of data in 2015, so the data of Iraq is in 2005, Myanmar in 2012, others marked ①,②,③ respectively denote the data in 2011, 2013 and 2014.

Resources from UNESCO Institute for Education. Gross Enrollment Ratio by Level of Education. <http://data.uis.unesco.org/index.aspx?queryid=189&lang=en>. [EB/OL]. 2017-07-03

Score of global innovation index from Global Innovation Index 2015

Resources from <https://www.globalinnovationindex.org/analysis-indicator>. [EB/OL]. 2017-07-03

There are 24 countries in universal higher education stage, whose mean of gross enrollment ratio of higher education is 70.8% and its mean of national innovation index is 42.3. Thereof, the lowest gross enrollment ratio of higher education is 50.9% in Hungry, which has been in the transformation period from massification from universal; the highest one is 113.9% in Greece, according to the explanation to the gross enrollment ratio of higher education in UNESCO, if the value is more than

100%, theoretically, the higher education in this country can bear the whole school-aged population from 18 to 22, which indicates that the higher education in Greece can meet the need of all people. The lowest score of innovation index is 28.4 in Iran; the highest one is 59.4 in Singapore.

On the whole, from the perspective of the higher education popularization, the average of gross enrollment ratio of higher education is 43.9% in the nations along “One Belt and One Road”. Thereof, countries whose higher education is in elite, massification and universal stage respectively account for 17%, 47% and 36%. Most countries have been in the massification of higher education. It shows that the average score of innovation index is 36.4 with a large gap. Generally, the country with the larger scale of higher education will have higher score of innovation index (Figure 1).

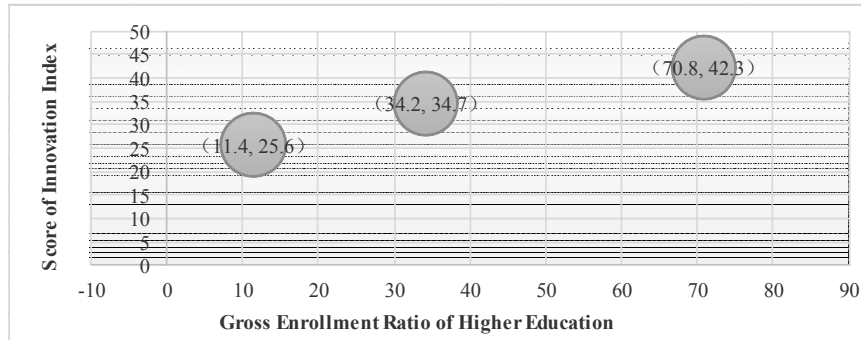


Figure 1 Gross enrollment ratio of higher education and score of global innovation index in nations along “One Belt and One Road”

### 3 Tendency: The universal of higher education quickens and the innovation ability steadily grows

The gross enrollment ratio of higher education of 65 nations along “One Belt and One Road” in 1999 to 2015 was collected from the UNESCO Database. The score of innovation index in 2013 to 2017 was found from *Global Innovation Index*. According to different higher education stage, the mean is figured out to judge the changing trend of higher education scale and innovation ability in different countries.

Generally, it shows that the gross enrollment ratio of higher education of nations along “One Belt and One Road” is rising, which indicates that the universal of higher education is quickening. The gross enrollment of higher education in the countries that are in elite and massification stage are gradually increasing with small volatility, in addition to the countries in universal stage with a sharp growth. The tendency of gross enrollment ratio of higher education in the nations along “One Belt and One Road” is consistent with ones in massification education stage.

The range of gross enrollment ratio of higher education in the nations along “One Belt and One Road” is 27.4% to 45.9%, thereof, it increased steadily in 1999 to 2010, but there exists fluctuation with the range of 41.5% to 45.9% in 2011 to 2015. The range of countries in elite and massification higher education stage respectively is from 6.3% to 11.4% and 22.7% to 34.9%, with frequent but small floating among different years. For the countries in universal stage, the range of 36.7% to 70.1%, except for in 2013, it has been increasing gradually in other years, especially, in 2001 to 2012. The growth of gross enrollment ratio of higher education in China is faster, because of the approximate 6.7 times between 1999 and 2015 from 6.5% to 43.4%, consistent with the average level of nations along “One Belt and One Road” in 2015. It is predicted that the gross enrollment ratio of higher education in 2019 will be up to 50% in *The Chinese Report on the Quality of Higher Education in 2016*, to achieve the universal of higher education.

From Figure 3, it found that the score of global innovation index in nations along “One Belt and One Road” changes less. The whole tendency is consistent with the one in countries whose higher education is in massification stage. Besides, the range of three stage respectively is 25.2 to 26.4, 33.7 to 35.1 and 41.5 to 42.3, which shows that only countries in universal is higher than the whole along the Belt and Road.

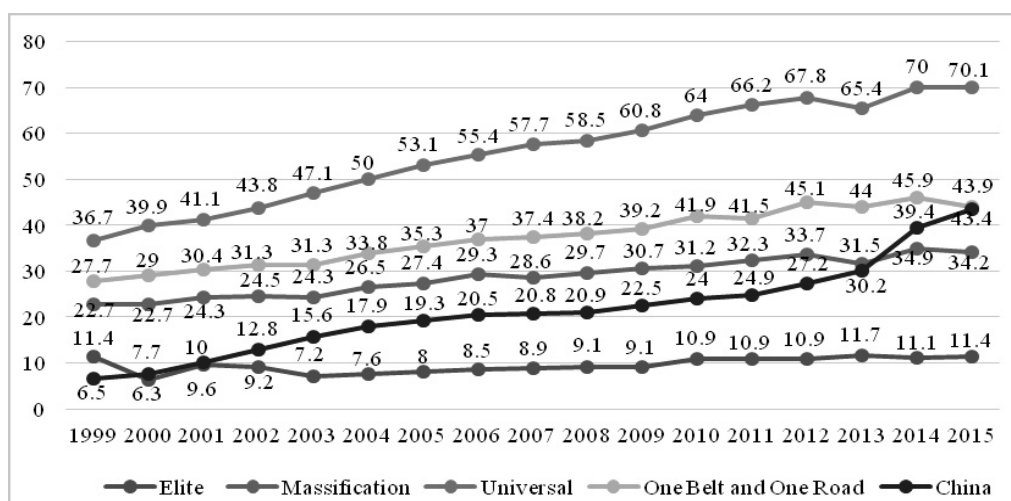


Figure 2 Gross enrollment ratio of higher education in nations along “One Belt and One Road” in 1999 to 2015(%)<sup>[6]</sup>

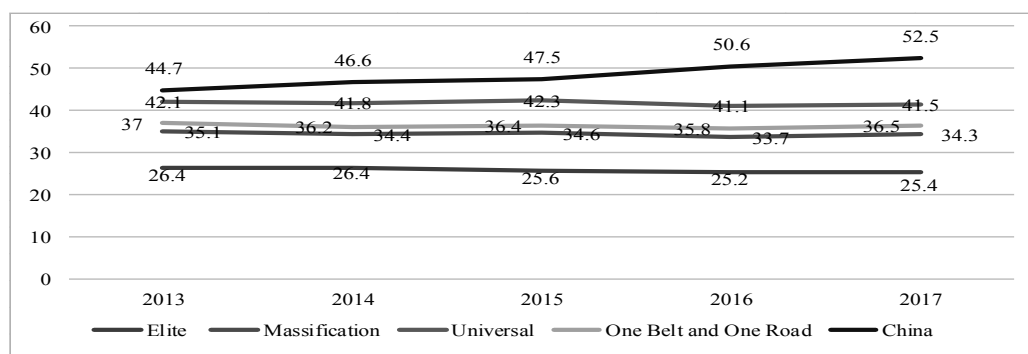


Figure 3 The mean of innovation index in nations along “One Belt and One Road” in 2013 to 2017(%)<sup>[7]</sup>

Chinese score of innovation index is much higher than the whole of nations along “One Belt and One Road” every year, gradually increasing year by year. Since China proposed that China should be in independent innovation way with Chinese characteristics and carry out the strategy that sci-tech innovation drives the development in 2012, China has highly paid attention to innovative development. Especially, the score of global innovation index has sharp growth after 2015, which has benefited from the slogan of “mass entrepreneurship and innovation” put forward by Premier Li Ke-qiang in *Government Work Report 2015*. Li Ke-qiang encourages university and colleges to put the innovative and entrepreneurial education into effect, in order to cultivate innovative and entrepreneurial talents who play an important role in innovation-oriented country.

As a whole, the countries with the higher gross enrollment ratio of higher education will get higher score of global innovation index. Namely, the countries with the quicker development of higher education will get the stronger national innovation ability.

#### 4 Correlation and regression analysis

Given the above study, it found that there exist correlation between the scale of higher education and the score of global innovation index. To further demonstrate it, the Pearson Correlation Test is used to analyze the correlation between the gross enrollment ratio of higher education and the score of innovation ability in nations along “One Belt and One Road”.

**Table 2 Correlation between the gross enrollment ratio of higher education and the score of global innovation index in nations along “One Belt and One Road”**

	The score of global innovation index
The gross enrollment ratio of higher education	0.75***

Notes: \*\*\*indicates that correlation is significant at 0.001

From Table 2, the correlation coefficient between the gross enrollment ratio of higher education and the score of global innovation index is 0.75, its significance nearly close to 0.001, which indicates both of them have highly positive correlation at 99.9%. It turns out that the gross enrollment ratio of higher education is higher, the score of global innovation index is higher. In other words, the universal of higher education is quicker, the national innovation ability is stronger.

On the basis of above all, the econometric method is used for the two statistical indicators, the gross enrollment ratio of higher education and the score of global innovation index, to build linear regression model and predict the score of global innovation index matched with the gross enrollment ratio of higher education. The commonly used econometric regression model is as follows:<sup>[9]</sup>

$$Y=a+b \ln (X) +u \quad (1)$$

Where Y represents the innovation index score, and X,introduced in the form of logarithms, indicates the gross enrollment ratio of higher education. Besides, A,B and u respectively are constant, slope and random perturbation terms.

The results of the processed data after the deleting some extreme values in regression diagram by SPSS 22.0 are as follows: The adjusted R squared is 0.566, and the significant correlation level is more than 99.9% so that the model is established successfully. Where the constant A is 2.9 and the slope B is 9.6. Therefore, the linear regression equation of gross enrollment ration of higher education and innovation index score is as follows:

$$Y=2.9+9.6 \ln(X)+u \quad (2)$$

The countries, along “One Belt and One Road”, whose higher education respectively is in elite, massification, universal stage and China are regarded as independent variable X to take regression analysis. The results are shown as Table 3 by regression five times.

**Table 3 The predicted score of global innovation index matched with the gross enrollment ratio of higher education in countries along “The Belt and Road” in 2015**

	The gross enrollment ratio of higher education	The logarithmic of the gross enrollment ratio of higher education	The predicted score of global innovation index	The actual score of global innovation index
Elite	11.4	2.4	26.3	25.6
Massification	34.2	3.5	36.8	34.7
Universal	70.8	4.3	43.8	42.3
One Belt and One Road	43.9	3.78	39.2	36.4
China	43.4	3.8	39.4	47.5

From predicted and actual values, the average score of global innovation index corresponding to the gross enrollment ratio of higher education in nations along “One Belt and One Road” is 39.2, while the actual one is 36.4. The corresponding mean of countries in elite, massification and universal stage respectively is 26.3, 36.8 and 43.8, while the actual value respectively if 25.6,34.7 and 42.3. Although they are not up to predicted value, the difference is small, which can be regarded as the result effected by random disturbance term u. Theoretically, it is 39.4 that the score of global innovation index matched with the gross enrollment ratio of higher education in China should be, while the actual value is 47.5 and it is 8.1 higher than predicted value, which indicated the innovation ability is higher than the one matched with the development of higher education in China.

## 5 Conclusion and suggestions

It turns out that there exists highly positive correlation between the development of higher education and national innovation ability, namely, the universal of higher education is quicker, its

innovation ability is stronger. The higher education in China develop rapidly so as to nearly reach the average level of nations along “One Belt and One Road”, while there is some distance with countries in universal stage. Chinese innovation ability is stronger than the average level of nations along “One Belt and One Road”, followed by Singapore, Israel, Czech Republic and Estonia. Theoretically, if the scale of higher education in China further expand, its innovation ability will catch up with and surpass the developed countries in Europe and America in case of guaranteeing the quality of higher education. China can play a guiding role in the nations along “One Belt and One Road”. According to above all, some suggestion on how to carry out the plan of improving education in context of the Belt and Road initiative are put forward as follows.

In China, increasing financial investment in higher education and improving the enrollment mechanism and assistance policies for poor students is conducive to expand the scale of higher education and strengthen the quality of innovative and entrepreneurial education. There exists a little distance on the scale of higher education between China and some developed countries in the world. Therefore, China should gradually increase the financial investment in the “post-4% times” namely, the national financial education expenditure to GDP ratio reached 4%, increase assistance for poor students, and improve the mechanism of enrollment, awarding and scholarship to solve the problem that it is difficult for student to go to school due to lack of money. Meanwhile, Chinese government should support the construction of private universities by more policy, to expand the scale of higher education, furthermore, advocating “government - enterprise - society” to collaboratively improve the quality of innovative and entrepreneurial education so as to provide talent for building innovative country so that China can improve strength to promote the construction of “The Belt and Road” and play a leading role.

China can increase the assistance of higher education for the countries in elite education stage to quicken the universal of higher education so as to promote its innovation ability. China as the initiator of “the Belt and Road” should take positive action to increase the assistance of education to the countries in elite education stage, such as, Turkmenistan, Afghanistan, Uzbekistan, Pakistan, Yemen, Bhutan, allocate more “Silk Road” Chinese government scholarships to these countries, implement “the Silk Road” cooperative education programs and teacher training programs and expand the scale of higher education, which can improve the quality of higher education in nations along “One Belt and One Road”. China can also strengthen policy communication with these countries, for example, the “mass entrepreneurship and innovation” initiative, the strategy that innovation driven development as well as the policy of innovative and entrepreneurial education all can provide reference for these countries in order to strengthen their national innovation ability.

Chinese universities or colleges can strengthen the cooperation with the universities along the Belt and Road and implement the plan of international innovative talents to establish talent think-tank for enhancing its innovation ability. Colleges and universities should take the important responsibility of cultivating talents, scientific research, social service, cultural heritage and innovation, and international communication and cooperation.<sup>[10]</sup> Chinese universities and the universities along the Belt and Road by high-level consultations can discuss how to improve the mechanism of innovation, to optimize innovative and entrepreneurial environment, to strengthen security measures, and cultivate a group of scientists, leading engineers, outstanding innovative team with high-level international horizon, as well as to build the base for training innovative talents in the nations along “One Belt and One Road” to strengthen the construction of high-level innovative talent team, to promote the development of all kinds of technical talents, which can improve the independent innovation ability and provide talents for building innovative country.

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## Research on Citizen Participation in Public Policy Making in China

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**Abstract** With the rapid development of China's democratic politics in recent years, people, unlike the past, are confined to take a passive acceptance of the government arrangements. They are not content to reflect their own opinions and suggestions only by the NPC, but hope that more of their own to participate in the daily public policy system. The degree of citizen participation in the formulation of government public policy also reflects whether the government's decision-making is democratic and scientific. When the government makes decisions related to the masses, the citizens are more eager to express their views and opinions, thus affecting the government's decision-making and achieving win-win results. According to the development trend of contemporary Chinese citizens participating in the government public policy, this article at first puts forward two concepts including citizen participation and public policy, and then analyzes the status quo of China's current civil participation. Furthermore, it summarized the difficulties and problems in citizen participation in government public policy. Finally, on the basis of the summary of the influence factors, this paper puts forward the countermeasures to improve citizen participation: to improve the citizen's cultural quality and the awareness of participation; to perfect system construction of civil participation in the citizen policy making; to increase the channels for citizen participation in public policy making; to strengthen the government's information disclosure improving the citizen's right to learn the truth.

**Key words** Public policy, Public policy formulation, Citizen participation

### 1 Introduction

#### 1.1 Research significance

The study of citizen participation in the process of public policy formulation is not only of theoretical significance, but also has important practical significance. With the rapid development of our country, citizen participation is no longer a new topic. There are scholars in our country who have started research in this area, but there are little results, and there are few cases which can be adopted and used by the government in reality. Most of the research is just to stay in the shallow level, without touching the nature of the problem. On the other hand, the formulation of some public policies at all levels of government in our country is not very reasonable. To a large extent, because there is no active participation of citizens in the policy making process, it is difficult for policies to achieve the desired effect in the course of implementation. In the current government work, the development of public policy has played a vital role, even can be seen as a "first priority", so if there is no scientific and comprehensive public policy formulation process, no active participation of people at all levels, the government is unlikely to have good performance, society will not be harmonious and stable, and our country is bound to not get good development.

#### 1.2 Research status

In the early 1920s, the administrative dichotomy of "Wilson Weber" had the seeds of public administration theory. While overcoming the government's sinking, it also caused the turbulence of the political situation at that time. For a time people cheered, but its drawbacks also revealed that it is hard for public administration become a real "administration for the people", and people were angry at the government's "democratic deficit" and "crisis of confidence", which eventually led to the civil rights movement throughout the world in the 1960s. In the West, since the 1950s, the concept of "citizen participation" has been extensively introduced into the field of political science and public administration. Two of the notable trends are the concept of "citizen participation" that no longer stays in the "citizens exercising the right to vote" in the context of representative democracy, but requires access to "citizen participation in public decision-making" in the area of negotiation democracy. With the development of recent years, we can see that Western scholars are no longer satisfied with the construction of the theory in terms of the research of citizen participation in the process of public

policy formulation, but explore the effective methods how can citizens participate in public decision-making more efficiently. Therefore, we should learn from and adopt the Western mature theory and experience when studying citizen participation in the process of public policy formulation, but should also pay attention to the strong western background behind these theoretical experiences. From the national conditions of our country, the theoretical basis should be built to promote the continuous participation of citizens.

In our country, the modern political participation of citizens began with Mr. Sun Yat-sen's Three People's Principles emphasizing "democracy, civil rights, and people's livelihood", the Chinese citizens' awareness of participation has been gradually awakened. With the deepening of the market economy, the Chinese academia on the issue of citizen participation changed from the initial absorption and introduction of Western research results to independent innovation gradually. At present, domestic scholars hold many different views on public policy and citizen participation in public policy formulation: on the study of citizens' participation in public policy development, Zhu De-mi pointed out that, in view of China's current practice, the main forms of participation can be summarized in three ways: informing, consulting and active participation.

For the analysis of the problems of citizens' participation in public policy formulation, the scholars mainly discuss from the aspects of citizens, government and system. Lack of enthusiasm for citizen participation, limited participation ability, imperfect participation system, the government black-box operation and top-down policy development habits and other issues exist to a certain extent. Scholar Sun Yong-yi explores the ten major dilemmas of Chinese citizens' participation in the process of public policy: social awareness of citizen participation in policy process is vague, citizen participation capacity in public policy is limited, the conflict between citizens' participation in public welfare and self-interest, the contradiction between democracy and efficiency of citizen participation in policy process, the danger of strong groups' manipulation of policy making process, the collective irrationality of participation groups, the limitation of community participation, the imperfect hearing system, the freedom and disorder of network participation, and the danger of "Gray Participation" and "Rent System".

## **2 The basic concept of public policy and citizen participation**

### **2.1 Public policy**

Due to differences in economic and cultural backgrounds, there is no international consensus on the concept of public policy. The representatives in Western countries are: the American scholar Woodrow Wilson, known as the "father of public administration", who believes that the public policy is a law and regulation that is enacted by a politician, that is, a legislator and is exercised by an executive. This definition embodies the idea of "political and administrative dichotomy", that is, the development of policies should be implemented by a politician, and the implementation of the policy should be in the charge of an executive institution. The founder of policy science, Harold Laswell and Abraham Kaplan, argue that public policy is "a large plan with goals, values and strategies". This definition encompasses both the instrumental rational strategy of public policy and the value of rationality and value of public policy, but broadly equates the public policy with the plan, narrowing the scope of the policy. American scholar David Easton defines public policy from the perspective of the value of public policy, and he argues that "public policy is an authoritative distribution of the value of society as a whole". The policy scientist Thomas Dyey defines public policy from a broader perspective, and he argues that public policy is whether the government does something or not.

Since the 1980s, with the development of reform and opening up, public policy has also entered the field of many domestic scholars. Chen Qing-yun, a scholar of China, argues that public policy is a code of conduct formulated by the government in the process of integrating public interests in different periods of development. Zhang Jin-ma argues that policy is the rule or guideline used by the party and the government to regulate and guide the relevant bodies and individuals. Ning Sao believes that public policy is the program selected and developed by the public authority through the political process to solve public problems, to achieve public goals, and to achieve the public interests.

## 2.2 Citizen participation

As one of the core concepts of political science and democratic politics, citizen participation is an important term first proposed by modern Western politics. In the West, the concept of citizen participation can be traced back to ancient Greece. After World War II, with the rise of Western behavioral politics, the study of citizen participation has been further deepened and expanded, and gradually introduced into the field of social sciences. American political scientist Mark Pietrak argues that civic participation is a hope for democracy. Huntington points out that there is a positive correlation between democracy and political participation, citizen participation is an important variable affecting political development, and its extent and scale is an important measure of social and political modernization.

Scholars in our country have the following views on the concept of citizen participation: Yu Ke-ping believes that “citizen participation refers to the activities of citizens or public organizations that have the needs of participation, trying to influence public policy and public life in the public sphere within a variety of ways, so as to express and realize their own interests and needs. Scholar Wu Qi-yuan believes that citizen participation is the participation in public decision-making through some legitimate or illegal ways. Li Tu-qiang holds that “The so-called citizen participation refers to the involvement of individuals or civic groups in public affairs for the realization of the public interests, these public affairs regard non-interfere with the individual freedom of citizens as the boundary, complying with the existing constitutional system as the principle, and concerning the local public affairs of individual citizens as the basis”.

## 3 The current situation of citizen participation in public policy making in China: Historical dimension

### 3.1 Citizens are enthusiastic with the participation in government’s public policy development

After the reform and opening up, with the rapid development of China’s economy, the continuous advancement of democracy, the cultural quality and political awareness of people continue to increase, the sense of ownership continues to enhance, citizens actively participate in the formulation of government policies, make full use of their own political powers to understand the daily work of the government, actively participate in the government’s social management and policy development, and safeguard their own vital interests. At the same time, as the development of market economy promotes the diversification of interests, citizens are no longer willing to receive the management of governments as in the past, but use various legal means to express their long-cherished wishes to the government, so as to meet their vital interests. With the reform of the concept of government governance and the transformation of government models in recent years, all levels of government have changed from “ruling government” to “service-oriented government”, pay more attention to practical work for people, which not only provides the conditions for the development of citizen participation in the policy, but also greatly stimulates the enthusiasm of citizens to participate in policy formulation.

In the general election of deputies of Shenzhen Municipal People’s Congress in 2003, there have been a number of candidates who were elected directly by voters. They are ordinary citizens who have the right to vote and be elected, they break the traditional electoral model, and take the initiative to take the recommended way to compete with the official candidates recommended by the organization. According to incomplete statistics, there were 12 “self-nominated candidates”, and two of them were elected finally. Although the election rate is not high, this is a model that common citizens take the initiative to achieve their own legitimate political rights. In May 2013, Mr. Li published “The open letter to the fourth session of the Shenzhen Municipal People’s Congress and CPPCC members” in “Southern Metropolis Daily” as an ordinary citizen through advertising at his own expense after getting no response from the NPC deputies and CPPCC for many times. In this letter, he listed 12 tax proposals on taxi price positioning, the establishment of a fair social security system, and the breakage of pipeline gas monopoly.

### 3.2 There is a certain protection system for citizen participation in public policy development

In our country, the Constitution stipulates: “All the power of the People’s Republic of China

belongs to people. The organs of the people exercising state power are the National People's Congress and the local people's congresses at all levels. Citizens can elect NPC deputies through exercising their own right to vote, and put forward their own views and suggestions to the government and the state. Secondly, the multi-party cooperation and political consultation system under the leadership of the Communist Party of China, the system of self-government at the grassroots level and the system of regional autonomy of ethnic groups, through which citizens can participate directly or indirectly in the government's policy formulation, feedback their own interests, strengthen the communication and exchanges between citizens and the government, and better promote the development of a harmonious society. In recent years, with the development of the hearing system, petition system, publicity system, these specific systems in practice are operational, which can provide a real guarantee for the participation of citizens in the formulation of public policy. Government expression mechanism of public opinion, consultative public expression mechanism, advisory public opinion channels, and public opinion expression systems provide an effective way for the expression of opinions of citizens.

### **3.3 Citizen participation in public policy formulation is more diverse**

The rapid development of the Internet has gradually become an important platform for citizens to express their own interests. Network participation has the advantages of low cost, fast and limited geographical time, which can make up the lack of citizen participation channels in the system, and provide a more convenient way for citizens' participation in government policy development. The way of citizen participation is not limited to our well-known representatives of the National People's Congress, political consultation, voting, letters and visits, and meetings. Developed in recent years, "the leadership mailbox", "leaders' phone", and Microblog have been widely praised by the public. Citizens can directly express their demands to the government leaders through the above ways, which can not only strengthen the close contact between the government and citizens, but also more conducive to the formulation of government policies and the daily work carried out. Guangzhou has made several initial actions in promoting citizen participation. The city government first opened the "mayor postman" in the country, first opened the "mayor green line telephone". Municipal People's Congress Standing set up the first large-scale political open forum—"Yangcheng Forum" in Guangzhou, which provides an important platform for the public to participate in public policy development in Guangzhou. It has become an important channel to help the general public to collect and analyze information, disseminate the awareness of participation and exercise the participation ability. The provinces and cities in the country also use it as the channel to smoothen the communication between the government and the masses. However, we should also see that a broad platform is a double-edged sword, especially in recent years. With the rapid development of the Internet, on the basis of its advantages, it needs to cooperate with the corresponding laws and regulations to protect the positive direction of network participation.

## **4 Citizen participation dilemma of public policy making in China: Real dimension**

### **4.1 Citizen participation in government public policy development awareness remains to be improved**

China has experienced 5,000 years of historical development, the small-scale peasant economy in the feudal society, and the self-sufficient economic model in the history of our country occupied an important position. This closed system has also had an impact on many of the people's political ideas, that is, people rarely or even do not participate in political activities. In this concept, people take it for granted that the government is the only subject of dealing with daily affairs, and they have nothing to do with it. The continuation of this idea decreases the enthusiasm of citizens to participate in politics gradually, ignoring their own dominant position.

Although the enthusiasm of our citizens to participate has been increasing after the reform and opening up, we can see that most people are only concerned with public policies related to their own personal interests, few citizens participate in the government's public policy formulation based on social responsibilities positively. In 2005, the Beijing Municipal Government's Legal Affairs Office published 15 draft laws and regulations in the "Capital Window" and other related websites. According to incomplete statistics, only 2812 people commented on these draft regulations through electronic

networks, some of which were commented by only 1 person. Sometimes, even some people participate only in order to vent the discontent, so as not to take a standardized, procedural participation method.

#### **4.2 The degree of organization of citizen participation in government public policy formulation is still to be improved**

Citizen participation in the actual political life can be divided into individual participation and organizational participation. As the strength of individuals is limited, the effect of organizational participation in real life is better than that of individual participation. At present, the main forms of citizen participation in China are manifested as individual participation, and the group consciousness of citizens is not strong. When expressing their own interests, people always choose to do it on their own, so the effect is almost negligible.

#### **4.3 The information disclosure of citizen participation in government public policy development is not complete**

Citizen participation in the formulation of government public policy and the grasp of the full government information is necessary prerequisite. And in the moment, as the first owner of information, the asymmetry between the government and the information obtained by citizens is obvious. The government will blockade and cover the information detrimental to themselves, to prevent the negative impact on their own image, which largely grows the subjective and arbitrariness of government behavior, and widens the distance between government and citizens. Practice has proved that information asymmetry will lead to poor communication channels between officials and citizens, there have been black box operation and information rent-seeking, resulting in corruption, citizens' trust in the government is reduced. This is a question that a responsible government must face and solve. Similarly, the government should change the misunderstanding of government information disclosure. Government information disclosure is the responsibility of governments at all levels, which is necessary to meet citizens' right to know. Within the government, some staff members of the government take indifferent and contradictory emotions towards the application of citizens for government information, which will largely hinder the enthusiasm of citizen participation. From May 1, 2008, "People's Republic of China Government Information Disclosure Ordinance" hereinafter referred to as the "Regulations" was implemented, which unified and standardized the government information disclosure work of various departments and places, aiming at changing the extensive management of government information and resources, to promote the establishment of conduct of norms, operational coordination, fair and transparent, clean and efficient government. However, the promulgation of the "Regulations" only provides a unified minimum standard for the disclosure of government information to a certain extent, but not and difficult to meet the requirements of a service-oriented government on public information right in the short term, so the government information disclosure is not satisfactory.

#### **4.4 Citizen participation in government public policy development needs to be more effective**

Despite there are a great number of channels for citizen participation in China, few of them really plays roles. Moreover, most of the channels are subject to the government's restrictions more or less, so the actual effect can also be imagined. Although the government opened a letter system and a mass supervision mechanism, in many places, especially in remote rural areas, the way in which local officials are supervised by people is often blocked, and even if complaints are accepted, the result often stays in discussion or ends with failure, or the problem is passed from one department to another department like a ball.

At present, there are two formal channels in China. First, People's congresses and political consultations, citizens can reflect their political aspirations by electing NPC deputies and recommending CPPCC members, and express their own opinions. The second is the petition system of the party and government organs. However, compared with foreign countries, China's hearing system started late, the government was constantly exploring, so it is difficult for the actual operation to achieve the desired results. In a certain meeting of Wuhan, there are 19 fixed representatives among 28 hearing representatives, which also include 10 representatives from the government management departments, 5 NPC deputies and CPPCC members, and 4 representatives from street office and trade union. In 2005, the Sichuan Provincial Price Bureau held a meeting about whether Jiuzhaigou scenic

ticket prices should be increased, but only a handful of media were eligible to hear the meeting, and the person who participated was not allowed to disclose the specific contents to media. With the reform of the market economy system, the role and authority of the petition is also worse than before, part of the petitioners almost has no independent power. This state makes it difficult for the petition department to survive in the cracks between the citizens and the government, and the value of the petition department has been questioned again. Similarly, there are flaws in terms of the mass media. The consciousness level of citizens on the mass media also needs to be improved, and the function of the mass media supervising the government can't play its role because of the protection of the local government.

## **5 Countermeasures of perfecting citizen participation in public policy making in China**

### **5.1 Improve the cultural quality of citizens**

If citizens want to actively participate in the government's public policy development, we must have a certain level of cultural knowledge. If you feel your knowledge is limited, you naturally rarely participate in the government's policy formulation. This is also one of the reasons why most of the current domestic masses are not involved in public policy making, or are concerned only with immediate interests. With the accumulation of knowledge and the improvement of the level of culture, the political consciousness and level of the citizens will be strengthened, and the citizens will have a higher sense of responsibility for themselves, society and the country. From the research theory of foreign and domestic scholars, it can be seen that the quality of the citizens and the level of knowledge play a key role in the participation of citizens. The active development of these basic conditions can provide protection for the enhancement of participation ability, which will allow our society to develop in a healthy and civilized direction, and help our country to implement political civilization.

At present, the government should first focus on the implementation of the nine-year compulsory education policy, as long as more people receive education, our society will move forward, our democratic politics will be solid. Second, citizens should care about the country's policies, situation and development through television, newspapers, networks and other ways in their daily lives, and improve their political support, in order to better participate in the work of the government. Finally, it is a grim fact that we have to face. China has 900 million rural populations. Because some rural areas are remote, the natural environment is very bad, and the traffic is underdeveloped, resulting in the slow development of the local economy. Low level of living standards results in low education level of farmers. As farmers' quality and awareness is not high, resulting in limited participation of farmers. Therefore, in order to improve the ability of our citizens to participate, we must pay attention to and improve the participation of the majority of farmers. In other words, as long as we can solve the participation issue of people in rural areas, China's democratic politics will be a qualitative leap.

### **5.2 Improve the relevant laws and regulations, to provide legal and institutional support for citizen participation**

Legalization and institutionalization can fundamentally guarantee and improve the development of citizen participation. Adhering to decision-making according to laws and the legal accountability will allow the government's policy more scientific, which will greatly enhance the government's image and credibility in the eyes of citizens. Once there is the legalization and institutionalized escort, citizen participation in government public policy formulation will no longer stays in form. We can improve the following three aspects: First, use legal means to fully protect the right of citizens to participate; Second, should develop specific laws and regulations, and earnestly safeguard the legitimate rights of citizens to participate in the formulation of public policy; Third, the penalties for violations of citizens' policy participation right should be supplemented. It is commendable that our government has promulgated the Regulations of the People's Republic of China on the Information Disclosure on April 5, 2007 and has been implemented since May 1, 2008. The regulations will help to standardize the government's information disclosure work, strengthen the responsibilities of administrative organs to open government information, clear the scope of government information, open the public channels of government information, improve the supervision and protection mechanism of the government information disclosure work, and then provide a solid information guarantee for activating the existing

citizen policy participation system.

### **5.3 Strengthen the government's information disclosure, and improve citizens' right to know**

The initiative of China's citizens to participate in government public policy development is not high. On the one hand, the citizens' consciousness is not strong; on the other hand, citizens do not have complete and timely government information. It is because of the lack of first-hand information that a large part of the citizens can't know the process of government public policy formulation, so it is difficult to issue their own voice, and unable to express their own interests demands, thus greatly ridiculing the enthusiasm of citizen participation. Therefore, only by increasing the public information of the government, and constantly meet the citizens' right to know can ensure that the democracy and scientificity of the public policy when people are enthusiastic about participating in public policy development, which will be conducive to the smooth implementation of public policies in the society.

The government can take the following measures to strengthen the information disclosure. First, ensure the legalization of government information disclosure. The protection of laws can greatly avoid the subjectivity and arbitrariness of public information disclosure of government staff. Through the disclosure of information to the legal level, it can also put an end to the access to government information through the non-institutional channels. Citizens obtain effective information through institutionalized and legalized access, which can also ensure the authority of the government information disclosure. Second, the government should expand the scope of government information disclosure. Citizens can only actively participate in public decision-making, feedback their own comments and suggestions to decision makers, and ensure the public nature of decision-making when obtaining real and effective information. Government officials should change the way in which only publishes unnecessary or daily work information, but say nothing about information concerning the vital interests of the citizens. In the face of this situation, the government should strengthen the legislation, clarify the scope and content of government information disclosure through laws, and strengthen the legal construction. Finally, broaden the channels of government information disclosure. In recent years, e-government has made great efforts and achieved good results, and the government should make great use of the Internet which is a convenient and efficient platform to actively publicize government information to meet the needs of citizens. At the same time, the government should use the Internet to establish a mass feedback mechanism, while the public can feedback their views and suggestions on the government's public policy through network, which will greatly enhance the exchange of information between the government and the public, conducive to the smooth development of public policy.

### **5.4 Broaden the channels for citizens to participate in public policy formulation**

First of all, we should give full play to the people's congress system and the multi-party cooperation and political consultation system under the leadership of the Communist Party of China. It does not matter whether they are the elected NPC deputies or recommended CPPCC members, they need to contact with the masses closely, often greet them, really understand the people's lives, and listen to the voice of the masses. Only in this way can the political aspirations of people can be reflected to policy makers, and the formulation of public policies can achieve the best results.

Second, develop civil society organizations. Citizens who have the consciousness of the group will be strong, so governments will pay high attention to their problems reflected. The government should take the ideological attention, policy support and work guidance to give full play to the role of social self-government organizations in the process of public policy making, so that the social self-government organization can become an organization that reflects the voice and social needs of people, the government can develop a policy consistent with public opinions based on the grasp of civil appeal and willingness, so as to coordinate the relationship between government and citizens.

Finally, develop network participation and other new channels of participation. The network has opened up an electronic bridge between government and citizens to communicate and talk with each other, which has effectively promoted the direct dialogue between citizens and government officials. On the one hand, with the help of the network, citizens can instantly express their views and enhance the influence of government decision-making; on the other hand, the government can more broadly understand the views of citizens, which is conducive to brainstorming, so that the decision-making will

be more democratic and scientific. At present, all countries in the world are actively advocating the construction of information superhighway, building “e-government”, and a more open democracy.

## 6 Conclusions

After three decades of the reforming and opening up, since the new century, China’s political, economic and cultural development are obvious, the achievements are to make people happy, and make foreigners admire. However, we should also clearly see that the current reform of our country has entered the crucial period, and each policy formulation needs to be careful and serious. Therefore, the importance of citizen participation is self-evident. China’s government should take various measures to ensure the enthusiasm of citizen participation, broaden the channels of citizen participation, ensure the institutionalization and normalization of citizen participation, and provide more convenience for citizen participation in government public policy formulation. At the same time, our people need to continuously improve their overall quality, and actively participate in the formulation of government public policy, reflect the real needs of ordinary people, and make their contributions for the establishment of democratic politics, social harmony, the development of the country, and our common “Chinese dream”.

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## Research on the Innovation of Postgraduate Education Service Management Model Based on “Internet +”

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**Abstract** The construction of first-class university needs first-class postgraduate education. While analyzing the opportunities and challenges of current China’s postgraduate education, this thesis explains the connotation and characteristics of “Internet +”. After demonstrating the feasibility of integrating postgraduate education with the Internet, it reveals the main contents about constructing postgraduate education service management model, which can provide references in selecting management methods to improve graduate education quality.

**Key words** Internet+, Postgraduate Education, Management Service, Model, Innovation

### 1 Introduction

At the peak of higher education, postgraduate education shoulders the responsibility of educating well-qualified professionals to meet the needs of China’s socioeconomic development and the technological innovation. Recently, a list of universities and colleges that will participate in China’s “Double First-Class” initiative has been released, which indicates that excellent postgraduate education is a core symbol of a top-rate university. Therefore, it is our unremitting goals to improve the postgraduate education quality and enhance postgraduates’ innovation ability and their occupation competency, for these can help China’s postgraduate education reach the world’s first level as soon as possible. In the age of information technology, to solve the bottleneck problem of traditional postgraduate education, we have to keep pace with the times and reform the management model of postgraduate education service. So the “Internet +” concept is bound to be of great practical significance to improve the quality of postgraduate education.

### 2 Challenges and opportunities for current postgraduate education

With the advent of the information era, the traditional pattern of postgraduate education is increasingly challenged. In traditional way, knowledge acquisition mainly relies on the teaching resources and paper materials provided by teachers, or students go to library by themselves to look for the further learning information. Their study places are mainly in the classroom or laboratory and their learning time is relatively concentrated and limited. However, the openness and richness of information provided by the World Wide Web not only can greatly broaden the ways of acquiring knowledge, but also break the constraints of learning time and places.

At present, the new generation of “indigenous people of mobile Internet era”, represented by the 90’s and 00’s students, has entered the university campus, and is going to accept postgraduate education. They are exactly born in the mobile Internet era and have been exposed to Internet since childhood, so they are more familiar with various ways obtaining information and knowledge from the Internet and have strong sensitivity for new knowledge acquisition. All these put forward a higher standard for this generation’s education. But the traditional graduate education is mainly based on instilling teaching method that teacher plays a dominant role in the class and students receive knowledge passively. The worse is that with graduate enrollment expanding in recent years, the plan of small class teaching for graduate students has been impacted and is hard to be fully implemented. Therefore, in face of new audience groups, graduate educators need to adjust their educational methods and introduce new ideas and new strategies to meet the needs of the audience.

### **3 Basic connotation and characteristics of “Internet +”**

Internet is a core feature of current information technology development and the concept of “Internet +” was proposed in 2012 by chairman of Analysis International. Its central word is “Internet” which refers to a communication information technology represented by cloud computing, big data and artificial intelligence. The sign “+” represents the addition and combination and means to give full play to advantages of the Internet, such as its openness, equality and interaction. Besides, it aims to combine and integrate Internet with traditional industries so as to enhance the economic growth power of related industries, improve their efficiency and upgrade traditional industries so that the social wealth can be increased.

The key aspect of “Internet +” is innovation. “Internet +” is considered to be the new forms of Internet development and socioeconomic development under the Innovation 2.0, a typical people-based innovation model. Thus only innovation can make the sign “+” valuable and meaningful. The sign is not simply summing two things, but using ICT (information and communication technology) and the Internet platform to integrate Internet with traditional industries in order to create a new development form, which is not to replace the traditional industry, but to re-stimulate their vigor and vitality.

### **4 Feasibility analysis on the construction of “Internet + postgraduate education” service management model**

The traditional management model of graduate education in China is based on related rules and regulations. Students training method features on a teaching organization which is led by teachers. Hence, it can be viewed as a top-down management model. Currently, with the new generation of students born in mobile Internet era gradually entering the stage of graduate education, graduate enrollment scale is great larger than before, which increases the difficulty in teaching interaction between teachers and students. And the management department’s ways to collect evaluation results of education quality are relatively single. Therefore, great pressure lies ahead in further enhancing the innovative ability of graduate students and in implementing the teaching model with students as the leading.

The appearance of “Internet +” makes it possible that the traditional management model of postgraduate education can be improved from the single model to the service-oriented interactive model, with the goal of building up a relaxing, comfortable academic and humanistic environment for graduate students and attract them to participate in the class teaching. At the same time, the heuristic inquiry teaching method needs to be carried out so as to cultivate students’ innovative spirit and creative ability. “Student-oriented” is the intent and purpose of service-oriented graduate education management model. The management department can take advantages of the Internet’s openness, efficiency, punctuation, two-way, large data capacity to timely respond to the requirements of teachers and graduate students. In this way can it provide efficient and convenient services for graduate students, teachers, and other relevant functional departments with the intention to promote coordinated and sustained development of graduate education. Therefore, it is feasible and effective to construct the service management model of “Internet + graduate education”.

### **5 Research on construction of “Internet + postgraduate education” service management model**

The management model of “Internet + postgraduate education” is not to simply combine the two, but to build up an important information platform for improving graduate management and providing services. The service objects are graduate students, teachers (course lecturers and tutors) and managers. The aim is to let students learn something in a comfortable, natural condition, to let teachers accomplish their teaching tasks smoothly under the assistance of information technology and let more managers provide all-round education services for teachers and students in an easy and orderly way. Therefore, the construction of “Internet + postgraduate education” management model mainly includes

the following contents:

1. To establish a mobile network platform for teaching management system. Directed by the service management, we can push teaching and management notification to graduate students, teachers, and administrators, and provide all kinds of teaching information for them, such as school curriculum, no-class classroom, course selecting information, arrangement for class suspension and switching, as well as graduates' personal learning information (personal schedule, grades and credits). We try to fully meet the needs of various groups for a real-time query about related teaching management status.

2. To establish a cloud storage information platform for teaching resources sharing. Through this, we hope to expand the dimensions of classroom learning. So on the information sharing platform, there are MOOC classes, micro classes, as well as live classes. At the same time, the platform guarantees that students can quickly and easily find out the needed books, papers and other electronic data. As a supplement to traditional teaching, it provides convenience for graduates to preview and review their courses, fully use their fragmented time for study, and search for relevant teaching resources.

3. To build a mobile class teaching platform for teacher-student interaction. Interactive sessions can help to set up a teaching discussion model of student-centered so as to enhance their innovative thinking ability. For example, teachers can establish such sessions as real-time answering, questioning, testing, discussion on the wall and class reports, or provide classroom live broadcast and student interaction live broadcast to meet the needs of real-time remote teaching.

4. To set up an individual learning tracking platform through artificial intelligence technology. The platform can provide level-based learning, online interaction, online real-time examination and meanwhile records students' individual learning activities. Finally it will automatically generate graduates' growth dynamics. Through showing each day's progress, it stimulates graduates' enthusiasm and interest in learning.

5. To provide the teaching quality tracking and feedback platform with big data. It can timely grasp students' condition in class and make the classroom electronic attendance a reality. In addition, it helps us know the teachers' actual teaching level, provides segmented or centralized real-time graduate evaluation of teaching for every course and offers the mobile network evaluation services for teachers to evaluate students. Statistical data produced by the big data technology in teaching process can be used to conduct a comprehensive and visual statistical analysis about the teachers' teaching, students' learning and course access, which lays a foundation for the curriculum teaching reform.

## 6 Conclusion and vision

The combination of Internet and traditional postgraduate education is like offering two wings for graduate education to take off. It helps postgraduate education into a state of vigor and vitality, and makes it possible to construct a "student-centered" teaching model and a service-oriented graduate education management model. Due to the multi-level and diversified characteristics of postgraduate education, we have a long way to go to set up and improve the "Internet+" graduate education service management model, which calls for the continuous exploration and improvement in order to meet the needs of graduate cultivation and provide a good service platform for the construction of first-class postgraduate education.

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## Research on the Risks and Countermeasures of International Capacity Cooperation between China and Africa \*

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**Abstract** International capacity cooperation is not only an important way for a country, a province, a city and a region to participate in the global economy, but also an important strategy to strengthen international competitive advantages and expand international development space. International capacity cooperation between China and Africa is a major opportunity to promote industrial upgrading of China and industrialization of Africa. Accordingly, based on the analysis of the concept and research status of international production capacity, this paper puts forward the research questions, and screens out the risk factors in three-level influencing the international capacity cooperation of China and Africa from politics, economy, culture and technology dimensions with PEST analysis method based on the description of the capacity development status of China and African countries and the systematic demonstration of reasons. Besides, it analyzes and demonstrates the most urgent risks on the international capacity cooperation of China and Africa from the three aspects of international, host country and China, and proposes feasible countermeasures and suggestions on the existing risks for promoting the better development of international capacity between China and Africa and realizing the mutual benefit and win-win.

**Key words** China and Africa, International capacity cooperation, Risks, Countermeasures

### 1 Introduction

China put forward the phrase of “International Capacity Cooperation” in 2014, and then the State Council issued “Guidance on Promoting the Cooperation of International Capacity and Equipment Manufacturing”(referred to as “Guidance” bellow) in 2015, which explicitly points out that it takes iron and steel, nonferrous metals, building materials, railways, electric power, chemical industry, textile, automobile, communication, engineering machinery, aerospace, ship and ocean engineering as the key industries and takes the developing countries with high congruence on Chinese equipment and capacity, strong desire for cooperation, good cooperation conditions and good foundation as the key countries to vigorously promote international capacity and equipment manufacturing cooperation<sup>[1]</sup>. Meanwhile, according to the content of “Guidance”, we can know that the international capacity cooperation means that China combines industrial advantages and capital advantages with foreign demand and encourages Chinese enterprises to carry out various business operation in foreign countries independently or through the cooperation with foreign enterprises, such as project contracting and the establishment of factor through investment, for adapting to the trend of economic globalization by taking markets as the orientation and taking the enterprises as the subjects, according to the characteristics of domestic economic new normal<sup>[2]</sup>.

There is little direct and specific research on international capacity cooperation in foreign countries, but the researches related to it are mature, such as the research on industry transfer. In the term of specific model, Japanese economists Kaname Akamatsu carries out statistical research on the industrial development of Japan and believes that the Japanese industries generally experience four stages, including the import of new products, the import of alternative products, export and re-import and they appear as the periodic cycle. They show inverted “V” on the chart, which looks like the team

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of flying wild geese, so it is also called “Flying Geese Paradigm” which was put forward in “The Comprehensive Principle of Chinese Economic Development” in 1932<sup>[3]</sup>. Then the model is extended by the Japanese scholars, such as Ippei Yamazawa. In the term of trend, Harvard economists Raymond Vernon (1966) raised the product life cycle theory. It takes the United States as an example to summarize the foreign investment models, and believes that a product generally shows an evolution trend from domestic competition, export, local production to re-import<sup>[4]</sup>. In the term of risks, British scholars P.J. Buckley and M. Casson believe that tariff and non-tariff barriers, factor markets and transportation costs are facing the uncertainty in the industry transfer and they may easily become the risk factors<sup>[5]</sup>. The American regional economists Hoover E.M and Fisher J. (2011) believe that the economic development appeals to industrial transfer, while the industrial transfer promotes economic development. However, industrial transfer is facing certain risks due to the asymmetric information, cost estimate error and other factors<sup>[6]</sup>.

Besides, domestic academia pays much attention to the international capacity cooperation for cooperating and promoting capacity cooperation and implementation of relevant policies, which mainly involves researches on the theory and policy of international capacity cooperation(Sun Hai-yong, 2015; Wei Min, 2016; Jin Rui-ting, 2016; An Qiao-ming, Wang Hai-long, 2016); researches on dynamic factors and strategic value of international capacity cooperation(Yan Li-mei, Zhu Gu-sheng, 2016; Xiong Yong-qing, Li Xin, 2016; Xiong Yong-qing, Su Yan-ni, 2017); researches on the political and economic logic and the financial support of international capacity cooperation( Zhong Fei-teng, 2015; Tan Lu, 2016; You Hong-bin, Wu Lan, 2017; Zhang Ji-dong, 2017); researches on the model analysis and mechanism construction of international capacity cooperation(Zhang Hong, Liang Song, 2015; Xia Xian-liang, 2015; Zhang Shu-cun, 2016; Qu Feng-jie, 2017); researches on the status, risks and countermeasures of international capacity cooperation(Zhao De-yu, Liu Su-wen, 2016; Yin Hong-liang, Pan Ji-nan, 2016; Zhang Mei, 2017; Qu Feng-jie, Li Da-wei and so on, 2017; Guo Jian-luan, Yan Dong, 2017); “The Belt and Road” strategy and international capacity cooperation(Xia Xian-liang, 2015; Zhuo Li-hong, He Jun, Huang Yang-hua, 2015; Liu Rui, Gao Feng, 2016; Mu Huai-qian, Wang Jun, 2016); etc. The relevant research results and research popularity steadily ceaselessly rise. Specific content is as following. In the term of model, Qu Feng-jie (2017) believes that China should break out from the Gunma model, establish the regional industrial division system led by China, construct the “Flying Geese Paradigm” which refers to the model of trans regional industrial cooperation and the division of labor taking China as the head of the goose, taking the developing countries which cover Central Asia, South Asia, Southeast Asia, North Africa, Central and Eastern Europe as the body of the goose and taking developing countries with relatively poor development as the tail of the goose<sup>[7]</sup>. In the term of transfer methods, Guo Zhao-xian, Liu Fang and Pi Si-ming (2016) believe that Capacity displacement cannot only be carried out through product output, but can also be realized through industry transfer<sup>[8]</sup>. In the term of risks, Zhao De-yu and Liu Su-wen (2016) believe that there are political risks, institutional risks, diplomatic risks, economic risks, competitive risks and social risks in the international capacity cooperation due to the imbalance of mentality of some countries on the development achievements of China and the deterioration of political and social status of the host country<sup>[9]</sup>.

The current research achievements have carried out the multi-dimensional, multi-angle and systematic researches on the international capacity cooperation, which has laid a solid foundation for the following research of decision making departments and academic circles. However, most of researches focus on “The Belt and Road” strategy and little researches focus on the African countries which are complemented with China in capacity and demand. In research content, although certain attention is paid to the risk of international capacity cooperation, the academic circles should pay more attention to the unavoidable risks of international capacity cooperation due to the complicated and changeable status of all parties. Therefore, the paper will focus on the risks and countermeasures of capacity cooperation of China and African countries. Specifically, it screens out the risk factors in three-level influencing the international capacity cooperation of China and Africa from politics, economy, culture and technology dimensions with PEST analysis method based on the description of the capacity development status of China and African countries and the systematic demonstration of

reasons. Besides, it analyzes and demonstrates the most urgent risks on the international capacity cooperation of China and Africa from the three aspects of international, host country and China, and proposes feasible countermeasures and suggestions aiming at the existing risks for promoting the better development of international capacity of China and Africa and realizing the mutual benefit and win-win situation.

## **2 The analysis on the development status and cooperation motivations of the international capacity between China and African countries**

International capacity cooperation is not only an important way for a country, a province, a city and a region to participate in the global economy, but also an important strategy to strength international competitive advantages and expand international development space. China and African countries need each other and complement each other in capacity cooperation.

### **2.1 A large number of advantageous industries, sufficient capacity and capital and the demand of industrial upgrading of China.**

International capacity cooperation conforms to the rules of international industrial transfer. It is the accelerator that promotes China to a “manufacturing power” from a “manufacturing country”, the important impetus for optimizing the capacity layout and promoting the optimization and upgrading of the domestic industrial structure, the important impetus for the world economic recovery and global economic reform and the important form of “The Belt and Road” of China<sup>[10]</sup>. China has entered the middle and late stage of industrialization after over 30 years’ reform and opening up. On the one hand, it has a large number of advantageous industries and sufficient capacity, such as the iron and steel, nonferrous metals, building materials, railways, electric power industry listed in “Guidance”. Besides, the foreign economic cooperation of China changes into “the capital export era” from the previous “commodity export era” while adjusting its domestic economy depending on the rich experience in the industry, mature and applicable technology and cost-effective equipment and the ample foreign exchange reserve ranking the first in the world<sup>[11]</sup>. China has the ability in providing advanced technology, sufficient funds, as well as advanced equipment and products for African countries. On the other hand, due to the increase of labor cost and land price in China, a large number of labor-intensive enterprises are urgent in developing oversea markets. Meanwhile, China has become the second largest economic entity in the world. However, as it hopes to change into a manufacturing power from a manufacturing country, it should be active in industrial upgrading. Thus, China has the ability and the demand on the international capacity cooperation with Africa, seeking sustainable development.

### **2.2 The slow development of industrialization, the backward economy and construction of infrastructure, and the need for advantageous capacity and capital of Africa**

According to the latest statistical data published by the UNIDO, none of the 55 economic entities in African continent has completed the industrialization. Only 3 countries belong to the “emerging industrial economies”, and 20 countries belong to the “developing industrial economies”, and 32 countries belong to “the least developed countries in industry”<sup>[12]</sup>. Although most of African countries have abundant resources and cheap labor, the level of industrialization is relatively low. Now, Africa actively seeks cooperation and development and promote the industrialization and economic integration of Africa through the announcement and implementation of “three network and industrialization”, “2063 Agenda” and other strategic planning, which provide further opportunities for the international capacity cooperation between the China and Africa under such friendly relations of China and Africa. Moreover, the economy and infrastructure of African countries are generally backward and unemployment rate is high. The construction infrastructure of Africa has a financing gap of 20 billion dollar every year at least, and the average unemployment rate of African continent rose to 8% in 2016, however, it complement with the “going out” strategy and advantages in infrastructure construction of China. Meanwhile, The African people are willing and eager to seize the historic opportunity on the economic transformation and upgrading of China, to become the priority areas for the implementation of industry and capacity transfer and to promote the industrialization and economic development of Africa.

Therefore, the industry docking and capacity cooperation of China and Africa have mutual needs,

mutual advantages and mutual opportunities. The capacity cooperation of China and Africa is conducive to the Win-win cooperation and common development of China and Africa. Moreover, it can improve the balance, stability and prosperity of the world and promote the balanced, stable and prosperous development of the economy and society of China and Africa. Finally, all the people in the world will benefit from it.

### 3 The risk factors in three-level influencing the international capacity cooperation between China and Africa and the analysis on them

China and Africa complement each other and provide opportunity to each other in the capacity cooperation. However, they also face many risks and challenges. The comprehensive understanding on the macro environment of the capacity cooperation of China and Africa and the factors affecting the international capacity cooperation of China and Africa are the prerequisites and guarantees for China and Africa to achieve mutual benefits and win-win situation. Thus, it screens out the risk factors in three-level influencing the international capacity cooperation of China and Africa from politics, economy, culture and technology dimensions with PEST analysis method and makes a table (Table 1) for providing reference for further analysis, relevant research and decision-making departments.

**Table 1 The analysis of the risk factors in three-level influencing the international capacity cooperation of China and Africa**

The PEST Analysis Method		
First-level dimension	Second-level dimension	Third-level dimension
Political and legal risks	Political factors	Government action (corruption)
		Political stability
		External intervention
		Political interest groups
	Legal factors	Relevant laws and regulations
		State judicial organs and law enforcement agencies
		The legal consciousness of enterprises
		International legal environment
Economic risks	Social economic structure	Industrial structure
		Consumption structure
		Technical structure
	Economic development level	GDP
		Per Capita GDP
		Rate of economic growth
	Economic system	Relationship between state and enterprise
		The relationship between enterprises and enterprises
		The relationship between enterprises and economic departments
	Macroeconomic policy	National development strategy and industrial policy
		Distribution policy of national income
		Related investment policy of the State
		National capacity cooperation policy
		Currency and exchange rate policy between countries
		Price policy
	Market factors	Market size
		Market demand
		Market competition
	Other factors	Quantity and efficiency of labor force
		Household consumption capacity

The PEST Analysis Method		
First-level dimension	Second-level dimension	Third-level dimension
Social and cultural risks	Social risk	Demographic factors
		Religious factors
		Expectations of all walks of life for enterprises
		Consumer psychology
		Traffic and communication conditions
	Cultural risk	International public opinion power
		Cultural differences between China and Africa
		Language communication barriers
		Values (attitudes of African people towards capacity cooperation)
Technical risks	Technical level	Quantity and quality of technical personnel
	Technical force	Technical quality
		Technology Popularization
	Development of new technology	Depth of technology application
		Technological innovation potential
		Market acceptance of new technologies
		The technical threshold of market access

## 4 The major risks of the international capacity cooperation between China and Africa countries and the analysis on them

### 4.1 International risks: The fierce external competition and the pressure of serious and negative international opinions

In recent years, African countries have actively carried out industrialization reform and infrastructure construction. They have abundant natural resources and human resources and large development market, so Africa is one of the most potential regions in the world and becomes a popular area of global investment. The international capacity cooperation of China and African countries can bring new vitality to the local economic development, effectively promote the sustainable development of the local economy, infrastructure construction and the improvement of the industrial system and provide a large number of employment opportunities for the local people. However, the international capacity cooperation of China and Africa is facing the fierce external competition and the serious and negative international opinions. On the one hand, the developed economies represented by the European Union and the United States and the emerging economies represented by the Russia, Brazil and others are scramble to increase the investment in Africa. The large international contractors in Europe and America actively adjust their business layout and have increasing interest in the investment in Africa. Korean and Japanese enterprises have increased their activities in Africa under the support of the government. Russia and Brazil also show interests in participating in the regional transport network in Africa<sup>[13]</sup>. The capacity cooperation of China and Africa faces fierce external competition. On the other hand, some countries produce negative opinions in the international community from time to time considering their own interests. They slander the cooperation and investment of China in Africa as the depredation of African resources and the new colonialism of "pollution transfer". As such negative opinions are distributed through various channels, some local people in Africa are misled, which brings great troubles to the implementation of the Chinese projects in Africa<sup>[14]</sup>. The capacity cooperation of China and Africa faces serious and negative international opinions.

### 4.2 The risks of host countries: Serious corruption, complex political environment and serious security risks

Through the arrangement of 2016 global in corruptness index issued by the Transparency International, the corruption in African countries is serious. No any country is classified as a clean country. 5 countries have slight corruption, just accounting for 10% of African countries. However, the corruption in 31 countries is serious, accounting for 61% of African countries and 32% of the countries with serious corruption. 14 countries are countries with extreme corruption, accounting for 28% of African countries and 58% of the countries with extreme corruption (over a half). The serious



corruption results in great damage on the investment enthusiasm of Chinese enterprises in Africa. Meanwhile, according to the evaluation of several international institutions, near 1/3 African countries have high political risks. 1/4 African countries hold general election each year, and some of them will become disordered as long as they hold the general election. The regime change and the uncertainty of policy continuity are still the major problems of the Africa<sup>[15]</sup>. Moreover, local wars, conflicts and terrorist attacks will occur in some African countries and regions. Especially, the terrorist activities in Africa produced by Islamic extremist terrorist organizations are increasing, bringing great challenges to the peace and security of Africa and great threat to the personal or property safety of the Chinese enterprises investing in Africa<sup>[16]</sup>. The international capacity cooperation of China and Africa faces serious political and security risks.

**Table 2 The number and proportion of African countries in different corruption level in 2016**

Types of corruption (points)	Global quantity (176)	African countries (with a total of 50 according to data)		The proportion of African countries in the world
		Quantity of countries	Proportion	
Relatively clean [80–100)	12	0	0	0
Slight corruption [50–80)	42	5	10%	12%
Serious corruption [25–50)	98	31	62%	32%
Extreme corruption (0–25)	24	14	28%	58%

Note: It is obtained through the arrangement of 2016 CPI index issued by the Transparency International

#### **4.3 Risks of the host country: Backward economic development and infrastructure, and financing bottleneck and a series of related risks faced by the capacity cooperation**

Although China and Africa have strong demand in the field of capacity cooperation, the overall development level of Africa is low, and it needs the support of large amount of start-up capital, and the first problem of capacity cooperation is the financing bottleneck<sup>[17]</sup>. Specifically, on the one hand, the economy and infrastructure of Africa are backward, which have great demand for funds. According to the statistics of the United Nations and the International Monetary Fund, there were 23 African countries of which the growth rate of GDP is less than 3% (including 3%) in 2016. In addition, under the framework of SDG approved by the United Nations, African countries have pledged to implement various national and regional development plans from 2015 to 2030 to promote the implementation of the 17 goals and 169 specific targets of SDG. According to the preliminary statistics of international institutions and experts and scholars, Africa needs at least 600 billion dollars of development financing every year to achieve the goal of comprehensive development; at least 93 billion dollars, 25 billion dollars and 18 billion dollars of development financing are needed in infrastructure construction, electricity coverage, and climate change every year to achieve development goals in specific areas. To meet the demand for investment in the productive sector and related infrastructure, it needs at least more than 200 billion dollar of development financing every year<sup>[18]</sup>. On the other hand, African countries have weak financial systems, and are generally facing the government deficit and external debt pressure. According to the data of the United Nations, the proportion of overall deficit in GDP of Africa has increased from 5.1% in 2014 to 5.6% in 2015, and most of the countries have different degrees of fiscal deficits<sup>[19]</sup>. At the same time, in the past 10 years, the total amount of Africa's total foreign debt has been on the rise, and it has increased from 213 billion dollars in 2000 to 413 billion dollars in 2015<sup>[20]</sup>. International capacity cooperation projects are often long-term and involve huge amounts of money in the construction process. Based on the above situation, the international capacity cooperation between China and Africa not only faces serious financing bottleneck, but also faces a series of risks such as inflation, government credit, currency devaluation and so on.

#### **4.4 Risks of China: Big differences in the policies and laws of China and Africa, and multiple compliance difficulties faced by the enterprises**

The “Going out” strategy is a major strategic measure for China to expand its opening to the outside world and enhance its international influence in the new period. The historical opportunity of International capacity cooperation between China and Africa provides a platform for Chinese enterprises to “going out” in large scale. The cooperation between China and Africa is becoming closer,

and the mutual trust in politic continues to develop. Under this background, the key of restrictions on the international capacity cooperation between China and Africa is no longer the policy issues such as tariff barriers, but a series of enterprise compliance problems caused by differences in policies and laws. Specifically, in April 2017, it is showed in the Investigation Report on the Going out of Chinese Enterprises in 2016 to 2017 jointly issued by CICLA and LexisNexis that 31% of respondents mentioned that enterprises encountered legal proceedings or penalties in the process of going out, and most of the them encountered civil litigation and arbitration. In addition, in June 2017, it is showed in the Investigation Report on the China Compliance and Anti-commercial Bribery in 2016 to 2017(Compliance Report in short) issued by CICLA and the partner (Wolters Kluwer Group and Fangda Partners) that in 2016, most of the law enforcement encountered by Chinese enterprises involved in the investigation were related to anti-corruption. In addition, economic sanctions, antitrust and tax issues are common compliance problems that are often encountered in overseas, 69% of the participating enterprises are under the jurisdiction of foreign anti-corruption law. On the one hand, the laws of some African countries are not perfect, and many countries have great difference with our country in management rules, policies, laws and other aspects. Enterprises often encounters the problems of unclear understanding on the trade rules and operations of host country, illegal and unsuitable operations, and disapproved problems, which make the investment cooperation difficult to promote and implement. Some enterprises even violate the relevant laws or regulatory requirements and suffer sanctions, financial losses and credit risk. On the other hand, due to diligence on the international rules, the law of the host country and the technical standards in the going out process, the enterprises lack comprehensive prediction and assessment of the risk, which is not conducive to the efficient implementation of international capacity cooperation between China and Africa.

## **5 Countermeasures and suggestions on handling the risk of international capacity cooperation between China and African countries**

### **5.1 Coordination of government, industry, university and research to promote international competitiveness and brand establishment of enterprises, assistance of We-media on public opinion response and propaganda**

In the face of fierce external competition and serious negative international public opinion in international capacity cooperation between China and Africa , we should use strength and action to prove that the international capacity cooperation between China and African countries is good, equal, mutually beneficial and win-win, at the same time, it has the strength and cost performance. Therefore, we should further strengthen the cooperative innovation between the government, enterprises, universities and research institutes, to strengthen communication and cooperation, and share information and knowledge on the basis of giving full play to the functions of overall coordination, wealth production and knowledge creation, so as to speed up the development of high-tech and high value-added products, constantly improve the quality and cost performance of our products, through which we can improve the international competitiveness of Chinese enterprises, break through the barriers in the fierce external competition with the strength and respond to the negative international public opinion of some countries by action. On the other hand, with the rapid development of the Internet, information technology and We-media nowadays, we should pay more attention to “marketing” in addition to improve our strength in the international capacity cooperation. Specifically, in the process of international capacity cooperation with Africa, we should make full use of the Internet and We-media, to strengthen the publicity and maintenance of national and enterprise image and strength, build Chinese brands, establish Chinese brands, and give full play to the brand effect; and to timely respond to and deal with negative state public opinion, and actively promote the correct intention and significance of China’s international capacity cooperation. Thus we can ensure the friendly relations between China and Africa, and promote the smooth cooperation and efficient implementation of international production capacity between China and Africa.

### **5.2 Strengthening the establishment and implementation of relevant reciprocal policies, and ensuring the implementation and safety of capacity cooperation through multiple channels**

Political relations especially bilateral diplomatic relations play an important role in international

trade and investment activities. Friendly bilateral diplomatic activities can protect some of the sensitive and important investment, and make up for the lack of institutional environment in the host country<sup>[21]</sup>. Therefore, in the face of the complex political environment of power alternation, and frequent political turmoil and high degree of corruption of the African countries, to promote the efficient implementation of international capacity cooperation between China and Africa, the government should further develop good diplomatic relations with African countries, strengthen political mutual trust and communication, strengthen the establishment of bilateral investment agreements with African countries which is conducive to the smooth docking of projects, and focus on the implementation; secondly, the government should provide diversified guarantee mechanisms for enterprises investing in African countries, and regularly publish investment guidelines and related risk assessment documents of African countries, at the same time, it should publicize the correct meaning of international capacity cooperation between China and Africa in African countries actively, and publicize the concept of world peace and sustainable development, to promote the peaceful development of African countries, provides a harmonious environment for the development of the enterprise, and improve the enthusiasm of enterprise to invest in African countries. On the other hand, enterprises should improve their awareness of insurance, such as the purchase of overseas political insurance and other risk prevention; in addition, enterprises should do regular risk analysis on African countries, and pay attention to the political and economic development of African countries; finally, the enterprises should make full use of some international protection organizations to protect their own security and interests.

### **5.3 Assistance of PPP Model in international capacity cooperation between China and Africa, legal services and other professional services into Africa to protect investment security**

PPP is a new management model, which not only has the general management functions such as planning, organization, leadership and control, but also the functions that other management models do not have, including expanding the amount of financing, the use of new technologies, and the unique function of mechanism innovation<sup>[22]</sup>. Its scope of application can be fully docked with the infrastructure construction of African countries. Accordingly, in the face of the backward economic development and infrastructure construction of African countries, as well as the financing bottleneck in the process of capacity cooperation between China and Africa, we should actively encourage specific investment cooperation capacity of China and Africa in PPP model while implementing non-financial cooperation program, to fully mobilize private capital, expand sources of funds, ease the financial pressure of the government, and disperse cooperation risk. At the same time, we should strengthen the mechanism innovation of African countries, and improve the quality and level of infrastructure. In addition, facing the series of joint and several risks caused by the economic backwardness, the government deficit and the pressure of external debt in of Africa, we lack the professional service supports such as law and auditing. For example, from June 2016 to February 2017, the Beijing DHH Law Firm investigated on the status quo of China's foreign legal service industry and the effect of Chinese enterprises' going out, and the research report showed that, in our country, there is no law firm that has more than 50% of foreign lawyers; in 85% of the firms, foreign lawyers account for less than 25%, and there were little firms setting up branches in overseas; the proportion of overseas branches established by firms is 33% within the jurisdiction of Provincial Lawyers Association. This not only increased the costs of Chinese enterprises in investment in Africa, but also restrained by the African countries. Therefore, the government should actively introduce relevant policies to encourage legal, accounting, auditing and consulting and other professional services organizations into Africa, the organization should also actively seek overseas development, to deepen international capacity cooperation between China and Africa and sustainable development jointly.

### **5.4 Government to strengthen top-level design, enterprises to implement compliance due diligence**

In order to reduce or eliminate the compliance risk in capacity cooperation between China enterprises and African countries, on the one hand, the government should strengthen the top-level design, and actively plan and implement the open and diplomatic strategy, and communicate with African countries in relevant policies and laws, establish communication mechanism, strengthen cooperation with Africa through various forms in the technology and standards, carry out mutual recognition and qualification, build a unified mechanism for solving communication problems and

disputes in African countries, use the multiple international dispute resolution mechanism of court, arbitration and the third party mediation; and then sort out the international rules and the legal system of relevant countries on this basis, issue the legal guide to investment in African countries at the national level, so as to provide a direction, a safe and secure cooperation environment for the smooth implementation of the international production capacity between China and Africa and further expand the enterprises' going out. On the other hand, the enterprise itself should set up a professional counsel consulting team to fully investigate the relevant laws, regulations and technical requirements of the host country, especially the international rules and the host country laws; in addition, compared with enterprises, business and trade associations in Africa have more abundant information resources, enterprises need to strengthen the positive exchanges and cooperation with African related associations. Finally, on the basis of the above, the government and enterprises should also jointly and actively study the formulation and implementation of international standards for related technologies, to realize the internationalization of Chinese related technologies in many fields, provides the conditions and basis for Chinese enterprises to enter Africa and maximize the efficiency of international production capacity between China and Africa.

## 6 Conclusions

International production capacity between China and Africa is not only an important way to promote industrial upgrading of China and industrialization of Africa, but also an important push to realize the "China dream" and "African dream". In the future, the cooperation and exchanges between China and African countries will be closer, international production capacity between China and Africa will be the greatest opportunity to promote the sustainable development of both China and Africa, but at the same time, it is also facing the greatest risks in many aspects, Therefore, we must constantly improve the top-level design and the international competitiveness of enterprises, and actively respond to negative international public opinion and strengthen positive publicity. At the same time, specific measures should be taken to deal with the specific problems in the international capacity cooperation between China and Africa, so as to ensure and promote the smooth implementation and promotion of international production capacity between China and Africa, and achieve the maximization of mutual benefit and win-win situation between the two parties.

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