

Impact Study of Intergovernmental Competition on Local Government Portal Website Accessibility—An Empirical Analysis of Minority Autonomous Counties on the Silk-Road Economic Belt

1. LI Feng-nan 2. SUN Yu

School of Government, Beijing Normal University, Beijing, P.R. China, 100875

Abstract The public service level of government portal websites in the minority autonomous counties plays an important role in the construction of Silk-road Economic Belt. At the same time it is important for the innovation of government administration in the minority autonomous counties and it is the premise of local government portal websites offering online public services that meets the website accessibility criterion. This paper selects government portal websites of 69 minority autonomous counties on the Silk-road Economic Belt, and gives evaluation of website accessibility by WAG2.0A. With the website accessibility as dependent variable, while with economic development level and population size as control variables, this paper analyzes the impact of intergovernmental competition on local government portal website accessibility. Based on the empirical results, suggestions are put forward that how to improve the government portal websites level of minority autonomous counties on the Silk-road Economic Belt.

Key words Intergovernmental competition, Local government portal website accessibility, Silk-road Economic belt, Empirical analysis

1 Introduction

Owing to its great importance, the government portal website accessibility has been a subject of numerous studies. WANG Yu-kai(2003) put forward that the problem can't be ignored in the construction of E-Government in China that how to strengthen the evaluation of government portal website, set up scientific evaluation system and solve the problems existing in its development^[1]. LIU Xin-miao(2006) studied the problems existing in the development of E-Government in Chinese ethnic minority areas^[2]. LI Guang-jian(2012) studied local government website accessibility of 37 major cities in China. MA Liang(2013) viewed that government resources and its capacity, intergovernmental competition and study and pressure from the government at a higher level have significantly positive correlation with the development level of local government websites^[3]. The focus of the literature above mainly concentrated on the E-Government affairs and other macroscopic field, but the focus on local government portal website accessibility was scarcely any studies. In this paper, we evaluate government portal website accessibility of 69 minority autonomous counties on the Silk-road Economic Belt based on WCAG 2.0 Level A with the method of quantitative analysis. Put it as dependent variable, economic development level, population size as control variable, we make an analysis of the impact about the intergovernmental competition on local government portal website accessibility.

Here we define Local Government Portal Website、Website Accessibility and Intergovernmental Competition. About the meaning of the portal website, the explanation in the <New China 60 Years of New Words New Dictionary> is that the search engine as the core, lead to a wide variety of services in website, from these services constitute a complete service network^[4]. In <Network Sociology Dictionary>, explanation on portal website is divided into two kinds of explanation-generalized explanation and special explanation. From generalized explanation, here is an application framework. Through it all kinds of application system, data and Internet resources are integrated into an information management platform and presented to the user in a unified user interface, which make the enterprise can quickly set up information channel for customers, internal staff and other enterprise and make the enterprise release various kinds of information stored in the internal and external^[5]. From special explanation, the so-called portal website is to point to an application system that provides some sort of Internet information resources and relevant information comprehensive service. In this paper, the definition of Local Government Portal Website refers to the government portal website which can

be connected to the subordinate agencies of the government at the corresponding level. The basic meaning of Web Accessibility is to make people with disabilities easily use a website, People with disabilities can perceive, understand, browse the website and its content, and can interact with websites. Although the website accessibility is based on the needs of the disabled, it also has important significance for ordinary users. The core of website accessibility is to make the website and the system flexibly meet different users' needs, preferences and environments, such as slow network connection speed, noisy environment, too dark or too bright light, the impact of visiting website by different types of browsing tools. In this paper, the definition of Web Accessibility is that website and information from it are easy to perception, easy to operate, easy to understand and the sustainable services can be provided in exceptional cases. In this paper, we define intergovernmental competition as follows: Regarding the local benefit maximization as the goal, the local government competes with other government for all kinds of tangible or intangible resources, including direct and indirect competition, vertical competition and horizontal competition^[3].

The study has important practical significance. With the deepening of China's service-oriented government construction, governments at all levels are actively pushing forward the construction of E-Government to achieve government reform aiming at the public service. Many local governments have begun to build the public service oriented E-Government, including providing online public service. As a major new strategy, Silk-road Economic Belt will bring important impact to the related regions' economic and social development. At the same time the related governments also need to improve efficiency and quality in public service provision. Because China is a multi-ethnic country, local governments' online public service level in ethnic minority areas has important impact in establishing a modern country. As an important government level, the level of online public services in the government at the county level severely restricts the level of the Chinese government online public services. As the first step of government providing online public services, the level of local government portal website accessibility directly restricts the development of government online public services.

The remainder of this paper is arranged as follows: the "Method" section describes the research design. With economic development level and population size as the control variables, we selected 69 ethnic minority autonomous counties on the Silk-road Economic Belt as the research object, examining how intergovernmental competition has impact on local government portal website accessibility level. The "Result and Brief Discussion" section presents our findings and make brief analysis: the impact about the intergovernmental competition on local government portal website accessibility level of minority autonomous county on the Silk-road Economic Belt. The "Conclusion" section summarizes and develops problems for future study.

2 Methodology

There are some literatures about local government portal website accessibility. The result of searching CNKI shows that from 1999 to 2015, a total of 42 papers are related with local government portal website accessibility. GUO Jin-lan (2009) studied the present situation of Chinese government website accessibility, put forward it should become one of the indicators of performance evaluation of local government portal website^[6]. Local government should improve local government portal website accessibility technology and offer better online public service. LI Guang-jian (2012), based on WCAG2.0A, used Achecker detection tools for local government website accessibility of Chinese 37 major cities and made the analysis, concluding that the home page of government web site of Chinese major cities has a lot of problems^[7]. MA Liang (2013) made research about impact factors of the development level of E-government, concluding that intergovernmental competition was significantly positively related with local government website development level^[3].

Based on the literatures' analysis, this paper will study 69 ethnic minority autonomous counties' government portal website accessibility level on the Silk-road Economic Belt and make descriptive statistics analysis. With intergovernmental competition as the independent variable and economic development level, population size as control variable, we examine how intergovernmental competition has impact on local government portal website accessibility level. This paper puts forward

assumptions as follows,

H: Under the condition of controlling economic development level and population size, government portal website accessibility level of its adjacent counties is high, so the government website accessibility level of the minority autonomous county is high.

For the convenience and practicality, this paper will select the number of local government portal website accessibility problems as the dependent variable. The more the number of accessibility problems is, the lower the level of accessibility is. Combined with the previous literature, this paper selects AChecker Web Accessibility Checker (AChecker) as the evaluation tool, WAG2.0A as evaluation criterion. AChecker is an open source web accessibility evaluation tool. One of the main causes of selecting AChecker is that AChecker can undertake evaluation by WCAG2.0A, suitable for large-scale website evaluation^[8]. According with standard of WCAG2.0A, accessibility problems are divided into three types: “known problems”, “likely problems” and “potential problems”. Considering that “likely problems” and “potential problems” involve a large number of problems related to web page code, which doesn’t have meanings, this paper only choose “known problems” of the evaluation results for analysis. We select logarithm of the number of accessibility problems, making the value small and easy to explain the results of the analysis.

To analyze the impact of intergovernmental competition on the level of local government website accessibility, combining with the existing related research and the dependent variable set, this paper selects the mean number of government website accessibility problems of other minority autonomous counties at the same cities as independent variable. The less the number is, the more the pressure about intergovernmental competition is. We select logarithm of the value of intergovernmental competition, making the value small and easy to explain the results of the analysis.

In order to control other factors’ impact on local government website accessibility level, this paper sets up the control variables as follows:

First of all, local economic development level may be the important factors affecting the government information technology innovation. In this paper, the models control economic development level. In the paper, we select the data of per capita GDP in 2014 as economic development level. We select logarithm of the per capita GDP, making the value small and easy to explain the results of the analysis.

Second, as an important indicator reflecting the status of organizational resources, the organization scale is closely related to local government portal website accessibility level^[9]. So we took control of the counties’ population size, selecting the total population at the end of 2014 as population size. So we select the total population in 2014 as control variable. We select logarithm of the population size, making the value small and easy to explain the results of the analysis.

In this paper, the data comes from the investigation of the first-hand data and public second-hand data. The data of dependent variable and independent variable comes from the evaluation results by AChecker tool based on standard WAG2.0A. The data of control variable comes from Chinese Counties’ Statistical Yearbook^[10] and Chinese National Statistical Manual^[11].

3 Result and brief discussion

Table 1 The distribution of local government portal website accessibility problems

The Number of Problems	Complete Sample		Valid Sample	
	Value	Proportion	Value	Proportion
0-100	30	43.5%	30	48.4%
100-200	21	30.5%	21	33.9%
200-300	6	8.7%	6	9.7%
300-400	3	4.3%	3	4.8%
400 以上	2	2.9%	2	3.2%
No Government Portal Website	7	10.1%	0	0
Total	69	100%	62	100%

The data in the Table 1 shows that there are seven ethnic minority autonomous counties not

having its own government portal website, so the number of valid sample of this study is 62. From 62 valid cases, we find that the number of government portal website accessibility problems of most minority autonomous counties on the Silk-road Economic Belt is less than 200, accounted for 82.3%. There are two counties that the number of local government portal website accessibility problems is more than 400, accounted for 3.2%.

Table 2 Descriptive statistics results

	Total Population (million people)	Per Capita GDP (yuan)	The Number of Problems	Intergovernmental Competition
Sample Number	62	62	62	62
Maximum	84.9708	288301	1995	639
Minimum	0.8927	4335	0	0
Mean	27.491134	26651.24	154	241
Standard Deviation	17.9302411	39252.983	294.375	193.121

The data in the Table 2 shows the descriptive statistics analysis results. We can see that the gap of government portal website accessibility problems between minority autonomous counties on the Silk-road is larger, so there are huge gap in accessibility level. The least number of government portal website accessibility problems is 0, passing the test by AChecker tool with WAG2.0A. There are four minority autonomous counties passing the test, such as YunnanYulong, Yunnaneshan, GansuSunan and QinghaiHuzhu. The most number of government portal website accessibility problems is 1995, from YunnanYangbi. The standard deviation of accessibility problems is 294.375.

Table 3 Correlation analysis results(logarithm)

	Total Population	Per Capita GDP	Intergovernmental Competition	The Number of Problems
Total Population				
Per capita GDP	-0.694**			
Intergovernmental Competition	0.094	0.018		
The Number of Problems	0.349**	-0.359**	0.445**	

** Correlation is significant at the 0.01 level (2-tailed).

The data in Table 3 reports the correlation between variables. Intergovernmental competition and the number of government portal website accessibility problems are significantly positively related. As control variables, total population and the number of accessibility problems are significantly positively related, so total population and the accessibility level have significantly negative correlation. While the per capita GDP and the number of accessibility problems have negative correlation, the per capita GDP was significantly positively related with accessibility level. The relationship between total population and per capita GDP was significantly negative correlation. The relationship between intergovernmental competition and the other two control variables is not significant. The results suggest that the research hypothesis gets preliminary validation.

Table 4 Regression analysis results(logarithm)

	M1	M2
Total Population	0.382(0.332)	0.203(0.298)
Per Capita GDP	-0.585(0.433)	-0.768(0.387)*
Intergovernmental Competition		0.507(0.124)***
R ²	0.148	0.338
F Value	5.129***	9.888***
Sample Number	62	62

*** p<0.01, ** p<0.05, * p<0.1.

The data in Table 4 reports the main analysis results of the regression model. M1 is the regression model without independent variable. The results in M1 are mainly from total population and per capita

GDP and R^2 is only 0.148, While M2 is the regression model with independent variable and R^2 is 0.338, having a larger increase. F value in M1 and M2 both pass the statistical significance test ($p=0.000$), suggesting that the impact of intergovernmental competition on local government portal website accessibility level get better explanation.

Analysis shows that the value of intergovernmental competition has significantly positive impact on autonomous counties' government portal website accessibility problems, so intergovernmental competition has significantly positive impact on autonomous counties' government portal website accessibility level. The regression coefficient passes the statistical significance test, showing that the hypothesis is supported. And empirical test proves the research hypothesis.

As control variable, per capita GDP has negative correlation with local government portal website accessibility problems at 90% significance level, has positive correlation with local government portal website accessibility level at 90% significance level. The results show that local economic characteristics affect the level of local government portal website accessibility in a large extent. The higher economic development level is, the higher local government portal website accessibility level of minority autonomous county is. While there is no significant correlation between the total population and the level of accessibility, showing that the relationship between population size and the level of local government portal website accessibility level is not significant in statistical sense.

With the Cross-sectional data of the minority autonomous counties on the Silk-road in China, we study the level of local government portal website accessibility and analyze the impact about the intergovernmental competition on local government portal website accessibility. The empirical results show that under the condition of controlling population size and economic development level, intergovernmental competition has a significantly positive impact on local government portal website accessibility level, which supports the research hypothesis proposed in this paper.

The development level of Chinese local government website shows two characteristics-the small mean and the large variance. On one hand, local government website is developing rapidly, but the average development level of local government website is still low and has obvious gaps compared with developed countries. On the other hand, there is a big gap at the development level of Chinese local government website between different levels and areas and the gap is difficult to eliminate in a short time. However, intergovernmental competition will promote coordinated development in the specific geographical areas. In this paper, the results confirmed the judgment and bring the enlightenment. When studying adoption and diffusion of local government management innovation such as local government website, you should attach importance to the intergovernmental competition.

4 Conclusions

Which level is local government portal website accessibility at? Does intergovernmental competition have any effect on the development level of local government portal website? In this paper, we make the evaluation and empirical analysis to the research problem. From the evaluation results, we can find that: There are only four minorities autonomous counties passing the test of government portal website accessibility and the passing rate is six point twenty-five percent. There are seven minority autonomous counties which don't have their own government portal websites; Government portal websites of other minority autonomous counties have 9564 home page errors in all. In the distribution, twenty-six minority autonomous counties have 1-100 home page errors and twenty-one minority autonomous counties have 101-200 home page errors. And two counties such as Nanjian and Yangbi in Yunnan province have more than one thousand home page errors. According to the correlation analysis of factors influencing local government portal website accessibility, the results show that regional diffusion effect based on the intergovernmental competition promotes the improvement of local government portal website accessibility. For the minority autonomous counties on the Silk-road Economic Belt, One Belt And One Road strategy brings opportunities and challenges to the development of the minority autonomous counties^[12]. It is urgent to improve the government portal website online service levels of minority autonomous counties on the Silk-road Economic Belt.

Based on the research, the policy implications are as follows: First, as the first step of the development of E-Government, local government portal website accessibility relies on local

governments' inputs and system management. Second, government portal website accessibility levels among minority autonomous counties on the Silk-road Economic Belt have large gaps. Local governments need to accelerate the coordinated development of E-Government in response to the requirements of economic and social development on the Silk-road; Third, Based on the diffusion effect of the intergovernmental competition, the central or provincial government can choose pilot in regional central county or key, use the support of policy, capital and technology and improve local government portal website accessibility.

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