

## Pay-for-Performance (PFP) in the Public Sector: Evidence of “Pay Enough or Don’t Pay at All”

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**Abstract** Evidence shows that pay-for-performance (PFP) practices, especially those individual-based, often fail to motivate public employees partly because of a lack of sizable bonus. However, many government agencies keep adopting it for a few political reasons. Using the US General Social Survey (GSS) data, the present study provides evidence showing that giving a small size of bonus is much worse than giving nothing, in line with the proposition of “pay enough or don’t pay at all.” With the presence of a small size of bonus, public organizations actually achieve political goals at the price of undermining employees’ perceptions of multi-dimensional quality of working life, including perceived resource availability, perceived social support, perceived higher-level need satisfaction, and confidence in organizations.

**Key words** Pay-for-performance, Bonus pay, Motivation crowding, Self-determination theory

### 1 Introduction

Pay-for-performance (PFP) practices, especially those individual-based, have been commonly used to motivate employees, hoping to enhance employees’ self-determination, work motivation, productivity, job satisfaction, and task enjoyment (Eisenberger, Rhoades, & Cameron, 1999; Green & Heywood, 2008). However, PFP is in general ineffective in the public sector. Perry, Engbers, and Jun (2009) in a literature review article directly pinpoint that PFP often fails in traditional public sector settings.<sup>1</sup> In an earlier review article, Kellough and Lu (1993) conclude that most government employees do not support merit pay, believing that it does not increase work effort, work motivation, productivity, and organizational commitment. Scholars first attribute the failure to difficult performance measurement. Excessive goal ambiguity (Chun & Rainey, 2005; Jung, 2014) and public servants’ role conflicts (Tummers, Vermeeren, Steijn, & Bekkers, 2012) can make performance standards hard to determine, and accordingly, result in some individuals gaming the PFP system (Heinrich, 2007; Langbein, 2008) and others feeling that PFP is political and unfair. PFP is more likely to succeed at lower organizational levels, where performance standards are more black and white (Mavor & Broderick, 1991).

Another reason, more pertinent to the present study, is a small size of bonus that fails to justify a behavioral and attitudinal change (Marsden & Richardson, 1994). A small size of bonus first stems from the public expectation about responsible stewardship of resources. Operating without a market, public organizations are expected to use taxpayers’ money properly and deliberately. Large compensation in PFP may cause public outrage and eventually backfire (Miller & Whitford, 2007). In addition, institutional rules embedded in the rigid budget system often constrain PFP, making the pay increment level below what reinforcement theory requires (Gaertner & Gaertner, 1985; Perry et al., 2009). Despite its ineffectiveness, PFP along with a small size of bonus does not disappear in the public sector, partly because of some political reasons. For example, PFP is a symbol of government’s response to the public demand on bureaucratic efficiency (Kellough & Lu, 1993). A stark case is the radical administrative reform in the states of Georgia and Florida that greatly emphasizes performance-based pay, recruitment, and layoff (Condrey & Battaglio, 2007; Nigro & Kellough, 2008). Moreover, PFP forces public managers to set clearer goals for the staff, to some extent bringing performance renegotiation and goal resetting (Marsden, 2009).

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<sup>1</sup> To be more precise, they find that PFP fails in most traditional public sector settings, but can be successful in the medical context. Evidence from the regulatory and financial sectors is generally divisive. Results for education and public safety lay in between those for the medical and financial sectors.

As long as a small size of bonus is not pernicious, keeping ineffective PFP for the aforementioned political goals sounds reasonable and valuable. However, is a small size really innocuous? According to a famous article introducing the motivation crowding-out effect, providing monetary incentives must “pay enough or don’t pay at all” (Gneezy & Rustichini, 2000). Giving little performance bonus may lead to the most detrimental outcome on motivation and performance, even worse than giving nothing, because it completely crowds out intrinsic motivation but meanwhile fails to enhance enough extrinsic motivation to offset the lost intrinsic motivation. Negative organizational perceptions and poor work attitudes are consequences of a lack of work motivation. Does this proposition hold in the public sector? So far the evidence is little. Compared to the adoption of PFP, bonus size attracts relatively minor attention. When it is addressed, scholars often overlook the unique nonlinear, discontinuous effect of bonus size on organizational and individual outcomes (Belle & Cantarelli, 2014; Heinrich, 2007).

Using pooled data from the US General Social Survey (GSS) in the years of 2002 and 2006, the present study attempts to fill the knowledge gap by examining the impacts of PFP bonus size on public employees’ various aspects of perceived quality of working life including perceived resource availability, perceived social support, perceived higher-level need satisfaction, and confidence in organizations. GSS is a national survey that covers American employees in various industries and occupations. The national-wide scope grants desirable generalizability.

## **2 Negative impacts by a small size of monetary reward: evidence and theories**

Gneezy and Rustichini (2000), in their famous paper “Pay Enough or Don’t Pay at All,” used experiments to examine the effect of a small size of payment on the performance of two activities, taking an IQ test and collecting donation money. In the IQ test experiment, participants in four groups were rewarded zero, 10 cents, 1 NIS (New Israeli Shekel), and 3 NIS for every correct answer. Participants receiving 10 cents scored the lowest. In the donation collection experiment, participants in three groups were rewarded zero, 1 percent of the collection amount, and 10 percent of the collection amount respectively. Participants receiving 1 percent collected much less than those in other groups. Both experiments contradict our stereotype that paying something is better than giving nothing. Why is that so?

The first theory that endorses the detrimental effect of a small size of bonus is motivation crowding theory (Frey & Jegen, 2001; Frey & Oberholzer-Gee, 1997). Introducing a small size of bonus first crowds out intrinsic motivation, but meanwhile, fails to arouse enough extrinsic motivation. It turns out that employees overall lack motivation to work. The application of motivation crowding theory has been widely seen in the public management literature, particularly studies related to PFP (Bertelli, 2006; Georgellis, Iossa, & Tabvuma, 2011; Weibel, Rost, & Osterloh, 2010) and public service motivation (PSM) (Chen & Hsieh, 2014; Jacobsen, 2011; Stazyk, 2012). The main principal of this theory holds that introducing external incentives such as monetary rewards can change one’s motivational structure. If individuals perceive the rewards as supportive, their intrinsic motivation can be crowded in (enhanced). By contrast, if individuals perceive the rewards as controlling, their intrinsic motivation can be crowded out (reduced). In the case of public sector PFP, crowding in is less likely than crowding out as existing job security and stable income make contingent bonus less necessary, and in addition, perceived inequity originating from difficult performance measurement can decrease the potential of crowding in.

Self-determination theory (Ryan & Deci, 2000) provides an answer by focusing on the most important psychological needs, especially autonomy and competence. According to this theory, to maintain or foster individual self-determination at work, the environment must be autonomy-supportive (Vansteenkiste, Simons, Lens, Sheldon, & Deci, 2004; Williams, Gagné, Ryan, & Deci, 2002) and individuals must feel that they are effective in interacting with the environment such as mastering the task (Broeck, Vansteenkiste, Witte, Soenens, & Lens, 2010). Introducing PFP, similar to introducing punishments with formal rules, first creates conditions that constrain autonomy, limiting people’s choice and freedom from carrying out an activity. On the other hand, when executed properly, performance-based reward has symbolic properties related to perceived competence and self-efficacy (Eisenberger et al., 1999), which in turn, enhances self-determination at work. In other words, well

implemented PFP allows the increase of perceived competence to offset the negative effect by the decrease of perceived autonomy (Gagné & Forest, 2008). However, a small amount of bonus may not be able to generate enough increment of perceived competence, and accordingly, fail to balance the lost self-determination originating from decreased autonomy.

Monetary reward as a type of external control changes not only people's motivational structure but also the way they evaluate/interpret personal achievement (Festinger, 1957). Scholars suggest that people growing up in an environment where external controls are excessive tend to overvalue financial success (Kasser, Ryan, Zax, & Sameroff, 1995). That is, they no longer find intrinsic reward meaningful, but instead, interpret personal achievement using the amount of money obtained. In cases where people believe that they work hard, sizable bonus signals the recognition of outstanding performance. By contrast, if the size of material reward is negligibly small, people interpret it as "insulting" (Gneezy & Rustichini, 2000). A small bonus size may accordingly influence employees' mental health and performance through the function of perceived injustice (Gagné & Forest, 2008).

The detrimental impact of a small size of bonus can be long-term and profound. Gneezy and Rustichini (2000) remind us that once the change of perception is realized, it is hard to reverse. A neural science experiment supports the view that intrinsic motivation, once crowded out, may disappear for good (Murayama, Matsumoto, Izuma, & Matsumoto, 2010). A reasonable inference is that implementing a small-size-bonus PFP program in the public sector can do harm to worker performance and attitudes, but terminating an ineffective PFP program may not stop harming organizations, but instead, exacerbate the situation. With the occurrence of motivation crowding, employees high in a desire for monetary rewards may feel even discouraged when no bonus is provided (Gneezy & Rustichini, 2000).

### **3 "Pay enough or don't pay at all" in the public sector context**

Although the assertion of "pay enough or don't pay at all" was not developed in the field of public administration, existing empirical evidence implies that the detrimental effect induced by a small size of performance bonus can be especially salient in the public sector due to some reasons. The first reason concerns public and private employees' different motivational structures. As a result of self-selection and maybe socialization (De Cooman et al., 2009), public employees are in general less aggressive and materialistic than business employees (Boyne, 2002; Rainey, Traut, & Blunt, 1986). Comparatively, enterprise workers place greater emphases on high pay, advancement, power, and prestige, whereas public servants care more about the intrinsic nature of work, including whether the work is intellectually stimulating, challenging, and interesting (Frank & Lewis, 2004; Jurkiewicz, Massey, & Brown, 1998; Lyons, Duxbury, & Higgins, 2006). In addition, public servants are stronger in public service motivation and prosocial proclivity than business employees (Houston, 2011; Steijn, 2008). To find the right match, those strong in public service motivation tend to choose a public service career or jobs that emphasize service (Christensen & Wright, 2011; Vandenabeele, 2008). If they mistakenly choose the business sector, a possible outcome is switching into the public sector or obtaining a service-based job (Tschirhart, Reed, Freeman, & Anker, 2008; Wright & Christensen, 2010). Public servants' strong intrinsic motivation and prosocial proclivity thus magnify the motivation crowding-out effect. By contrast, a small size of PFP bonus may be less detrimental among private employees, who rely less on intrinsic motivation and prosocial motivation at work (Weibel et al., 2010).

Second, public sector workers are more likely than their private peers to negatively interpret a small size of bonus. Reward expectancy theory demonstrates that work motivation is determined by one's perceived probability that the level of work effort will lead to a given level of performance and accordingly the attainment of reward (Vroom, 1964). In the public sector, employees often perceive a missing link between performance and reward because performance appraisal is based on ambiguous and conflicting goals (Rainey, 2009), and in addition, budgetary constraints and the stewardship expectation impose a limit on the size of performance bonus (Perry et al., 2009). Public employees who are confident about their own performance, when failing to receive sizeable bonus, may feel that the appraisal is unfair (Gabris, 1986; Marsden & Richardson, 1994) and interpret a small size of bonus

as insulting. By contrast, enterprise workers face more uncontroversial goals and performance standards, a relatively minor limit on bonus cap, and accordingly a clearer performance-reward link. As a result, they are less likely than public servants to attribute a small size of bonus to unfair performance appraisal, and a small size of bonus may not be too insulting for them. Instead, a small size of bonus is a warning sign that drives them to work harder.

#### 4 Hypotheses

The present study investigates whether a small size of performance bonus erodes perceived quality of working life (Hollinger & Clark, 1982) in the following three dimensions: perceived resource availability, perceived social support, and perceived higher-level/order need satisfaction. Compromising aforementioned perceived quality of working life can eventually contribute to a lower level of confidence in organizations (Feeney & Boardman, 2011).

##### Perception of resource availability

Resource availability concerns whether employees receive enough resource such as time, equipment, and information to carry out their tasks (Gilbert, 2000; Staines, Pottick, & Fudge, 1986). A small size of performance bonus first negatively impinges on perceived resource availability, and this negative relationship roots in the change of the locus of control accompanied by motivational change. Intrinsically motivated individuals exhibit a rather strong internal locus of control (Deci, Vallerand, Pelletier, & Ryan, 1991), meaning that they initiate their own behavior and believe that they are an active causal maker in full control over their behavioral outcomes (Spector, 1988). As a small size of bonus crowds out intrinsic motivation, it also crowds out employees' belief that they are able to control consequences of their actions. When things go wrong, the decline of an internal locus of control can lead to external attribution and self-serving bias, which implies that employees tend to seek external causes (excuses) in order to diminish the negative emotional impact of failure (Basgall & Snyder, 1988). The self-serving external attribution can be more conspicuous when a small size of bonus fails to arouse enough extrinsic motivation, and the absence of both intrinsic and extrinsic motivations results in "amotivation," or in other words, a lack of motivation (Pelletier, Tuson, & Haddad, 1997). Amotivated employees frequently question the value of engaging in an activity, do not believe it will yield a desired outcome, and feel helpless, thereby demonstrating no sense of responsibility and little possibility of internal attribution (Vallerand & Ratelle, 2004). In other words, they are more likely than those who receive no bonus (stronger in intrinsic motivation) and those who receive sizable bonus (stronger in extrinsic motivation) to attribute unfavorable situations to external causes, and one of the most apparent causes is a lack of resource including insufficient equipment, information, and time. The relationship between performance bonus size and perceived resource availability thus resembles a U-shape curve.

*H1: The relationship between the size of performance bonus and perceived resource availability resembles a U-shape curve.*

##### Perception of social support

Aforementioned external causes can go beyond resource availability. When things go wrong, employees sometimes attribute the problems to their colleagues and supervisors, blaming that they are not helpful and not reliable. Both supervisory support and peer support form a person's general social support (van der Doef, Maes, & Diekstra, 2000), a core element in traditional needs theories (Alderfer, 1969; Maslow, 1954) and analogue to a need for relatedness (i.e., feeling connected to important others) in self-determination theory. That is, when the bonus size is small, self-serving external attribution along with the loss of an internal locus of control can also undermine the perception of social support, the second outcome variable in the present study.

Employees' upward social comparison with their private sector counterparts (Chen & Bozeman, 2014) and the perception of organizational injustice (Greenberg & Cropanzano, 2001) can magnify the negative impact brought up by a small size of bonus. The perception of smallness stems from the comparison with larger entities. Individuals may not feel that their performance bonus size is too small until they compare themselves with similar others, as suggested in social comparison theory (Festinger, 1954; Wheeler & Suls, 2005). In the public sector context, "similar others" for public servants in many

cases refer to their private sector counterparts (Chen & Bozeman, 2014). The perception of a small size of bonus after the comparison with business employees can further direct public servants to examine whether their contribution to the organization merits such a small size, as indicated in equity theory (Adams, 1965). Employees who feel that they are underpaid, with a weak internal locus of control, may first blame supervisors for not appreciating their contribution and effort. This is especially the case in public organizations where conflicting and ambiguous goals complicate performance measurement. In addition, they may blame colleagues for being selfish or slacking in places where mutual help is much required. According to Chen and Rainey (2014), public service work often requires employees to work in groups or teams.

*H2: The relationship between the size of performance bonus and perceived social support resembles a U-shape curve.*

#### Perception of higher-level need satisfaction

Higher-level or higher-order needs (Conley & Woosley, 2000), which include a need for growth, responsibility, prestige, achievement, and the work itself, refer to self-esteem and self-actualization in Maslow's (1954) needs hierarchy, the growth need in Alderfer's (1969) ERG theory, and motivators (in contrast to hygiene factors) in Herzberg's (1966) two-factor theory. Facilitating an autonomy-supportive environment where people are allowed to pursue intrinsic and identified rewards (Ryan & Deci, 2000) is a crucial way in satisfying higher-level needs.<sup>1</sup> In cases where an autonomy-supportive environment is unlikely, appropriate material rewards may still bring the perception of higher-level need satisfaction. Sizable bonus that reflects individual effort can recognize one's contribution and achievement, increase employees' perceived competence (Eisenberger et al., 1999), and eventually bring prestige, enjoyment, and satisfaction (Green & Heywood, 2008).

A small size of performance bonus, by contrast, first crowds out individual intrinsic motivation and imposes control that compromises perceived autonomy, impeding the pursuit of intrinsic reward as well as higher-level need satisfaction. In addition, different from sizable bonus that signifies achievement, a small size of bonus that accompanies the interpretation of "insulting" (Gneezy & Rustichini, 2000) makes employees feel that their talent is not well appreciated, and accordingly, they have little opportunity to grow and enjoy the work.

*H3: The relationship between the size of performance bonus and perceived higher-level need satisfaction resembles a U-shape curve.*

#### Confidence in organizations

Employee satisfaction with resource availability, social support, and higher-level needs can eventually transfer to confidence in organizations, a concept comprised of both perceived organizational effectiveness and individual psychological attachment to organizations. It also refers to the ideal of committed employees who believe that their organizations can run effectively (Feeney & Boardman, 2011; Smith & DeJoy, 2012). Confidence in organizations has important implications to public organizations. According to Feeney and Boardman (2011), organizational confidence reduces much of the managerial challenge as positive workers are easy to induce to work towards public service missions. Their positivity may help counterbalance negative bureaucratic experience (Hummel, 1994) such as political interference, hierarchical control, red tape, citizen cynicism, accordingly reducing the possibility of work alienation.

As a small size of bonus can do harm to employee satisfaction with resource availability, social support, and higher-level needs, and the three aforementioned factors contribute to confidence in organizations, a small size of performance bonus should negatively affect employees' confidence in organizations. That is, satisfaction with resource availability, social support, and higher-level needs mediates the bonus-confidence relationship.

*H4a: The relationship between the size of performance bonus and confidence in organizations resembles a U-shape curve.*

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<sup>1</sup> Intrinsic reward concerns whether the work content is interesting to individuals. Identified reward may not be interesting. It is something judged valuable or useful by individuals (Ryan & Deci, 2000). Growth, responsibility, prestige, and achievement fall into the category of identified reward (Gagné et al., 2014). To pursue intrinsic or identified reward, an autonomy-supportive environment is essential.

*H4b: The relationship in H4a is mediated by perceived resource availability, perceived social support, and satisfaction with higher-level needs.*

## 5 Data and variables

The current study uses pooled data from the US General Social Survey (GSS) in the years of 2002 and 2006.<sup>1</sup> GSS is a highly reputed series of surveys conducted by the National Opinion Research Center (NORC) of the University of Chicago. Although GSS has a nation-wide scope that covers respondents from all jobs/industries in both the public and private sectors, only public sector data are used in the present study.<sup>2</sup> In total, the sample size reaches  $n=656$  ( $n=312$  in the year of 2002 and  $n=344$  in the year of 2006). The main dependent and independent variables emanate from two survey modules: the Quality of Working Life module and the Employee Compensation module.

Regarding dependent variables, perceived resource availability is measured with three ordinal items (1=strongly disagree; 4=strongly agree; Cronbach's  $\alpha=0.71$ ) that concern equipment, time, and information. An example is "I receive enough help and equipment to get the job done." Perceived social support is measured with four ordinal items (1=strongly disagree; 4=strongly agree; Cronbach's  $\alpha=0.74$ ) that capture both supervisory support and peer support. Two examples are "My supervisor is helpful in getting the job done" and "The people I work with take a personal interest in me." Satisfaction with higher-level needs is measured with four ordinal items (1=strongly disagree; 4=strongly agree; Cronbach's  $\alpha=0.70$ ) that ask whether employees have an opportunity to use their skills, develop themselves, and have a say. It also concerns whether work is a main source of employees' life satisfaction. An example is "I have an opportunity to develop my own special abilities." The aforementioned three variables can affect the last dependent variable, confidence in organizations. This variable is measured with three ordinal items (1=strongly disagree; 4=strongly agree; Cronbach's  $\alpha=0.76$ ) that capture one's perception of organizational effectiveness and psychological attachment to organizations. Two examples are "The place where I work is run in a smooth and effective manner" and "I am proud to be working for my employer."

The main independent variable, performance bonus size, is a continuous variable ranging between 0 and 30000, asking respondents "the approximate total dollar value of performance-based payments in 2001/2005." However, using the amount of bonus as the predictor variable may lack precision as the true size of bonus may be relative to people's base income. In this, in addition to the amount of bonus, the present study uses "bonus/income ratio" as a supplementary variable. The approach of differentiating absolute value from relative value has been employed in prior studies that examine the impact of pay change (Gardner, Dyne, & Pierce, 2004). Employees' actual income in GSS is an ordinal variable where under 1000=1, 1000-2999=2...10000-12499=9...25000-29999=15...130000-149999=24, and 150000 or over=25.<sup>3</sup> It should be acknowledged that the interpretation of the bonus-income ratio value in regression is not easy as income is an ordinal variable whereas bonus is a continuous variable.

This study controls for the following demographic variables: Age (continuous), gender (male=1; female=0), race (white=1; nonwhite=0), education (ordinal),<sup>4</sup> marital status (yes=1; no=0), number of

1 It should not be taken for granted that findings emanating from an American dataset can be readily generalized to different cultural contexts. For example, Chinese people are a lot more secular and "being rich" is often used in the New Year's greetings. More evidence from different cultural regions would be desirable.

2 An existing public/private dichotomous variable in GSS asks respondents to choose whether their current employer is government or business organizations. This variable helps winnow out private sector data.

3 The size of bonus among public sector workers is indeed quite small in general. For example, for the income groups of 18 (40000-49999), the bonus mean=1996. For the income group of 19 (50000-59999), the bonus mean=2186. For the income group of 21 (75000-89999), the bonus mean=2960. Among those who received bonus in an earlier year, the bonus mean=2682.

4 Education is an ordinal variable where no formal schooling=0, 1st grade=1, 2nd grade=2...12th grade=12, 1 year of college=13, 2 years of college=14...8 years of college=20.

children (count), and occupational prestige (continuous).<sup>1</sup> Work arrangement (1=standard; 0=nonstandard) is an important control variable as nonstandard arrangement, except independent contractors, is often considered as “bad jobs” in the United States (Kalleberg, 2011). The levels of job security (1=strongly disagree; 4=strongly agree) and health condition (1=poor; 5=excellent) both influence perceived quality of work and should be controlled for. Personal negative experiences in organizations such as discrimination (due to age, race, and gender; yes=1; no=0), sexual harassment (yes=1; no=0), and violence (being threatened; yes=1; no=0) may affect perceived quality of work as well. Finally, this study uses pooled data from the years of 2002 and 2006, so the year is controlled for (the year of 2006=1; the year of 2002=0). Please refer to Table 1 for descriptive statistics.

**Table 1 Descriptive statistics**

	Obs.	Mean	Std. Dev.	Min	Max
Perception of resource availability (RA)	649	9.71	1.92	3	12
Perception of social support (SS)	624	13.03	2.55	4	16
Perception of higher-level need satisfaction (HN)	649	11.66	2.34	4	16
Confidence in organizations (CO)	640	9.18	1.77	3	12
Bonus size (thousand)	641	0.24	1.61	0	30
Bonus/salary ratio	568	0.02	0.97	0	1.76
Marital status (yes=1; no=0)	656	0.51	0.50	0	1
Social prestige score	649	51.45	13.94	17	86
Number of children	656	1.62	1.42	0	8
Age	654	44.26	12.76	18	88
Education	655	15.01	2.88	0	20
Gender (male=1; female=0)	656	0.41	0.49	0	1
Race (white=1; nonwhite=0)	656	0.77	0.42	0	1
Job security	641	3.47	0.80	1	4
Health condition	652	3.78	1.01	1	5
Work type (standard=1; nonstandard=0)	650	0.87	0.34	0	1
Age discrimination (yes=1; no=0)	650	0.10	0.30	0	1
Racial discrimination (yes=1; no=0)	651	0.08	0.28	0	1
Gender discrimination (yes=1; no=0)	651	0.10	0.29	0	1
Sexual harassment (yes=1; no=0)	650	0.04	0.21	0	1
Being threatened (yes=1; no=0)	650	0.15	0.36	0	1
Year (2006=1; 2002=0)	656	0.52	0.50	0	1

## 6 Analyses

Given the index nature of dependent variables, OLS regression is employed for modeling. To test whether the absolute size of bonus and bonus/income ratio are correlated with perceived resource availability, perceived social support, and perceived satisfaction with higher-level needs in a U-shape, the present study uses polynomial regression to examine the relationships. Polynomial regression helps researchers examine whether a given DV is related to a given IV in a nonlinear form. Polynomial regression fits data to this equation (Kleinbaum, Kupper, Muller, & Nizam, 2008):

$$y = a_0 + a_1x + a_2x^2 + a_3x^3 + \dots + a_nx^n + \varepsilon$$

One can include any number of terms. Assuming one stops at the term of  $x$ , it is called a first-order polynomial equation, which is identical to the equation for a straight line. If one stops after the term of  $x^2$ , it is called a second-order, or quadratic, equation. If one stops after the term of  $x^3$ , it is called a

<sup>1</sup> Occupational prestige is measured by asking respondents to rank a sample of occupational titles with respect to the occupation’s “general standing.” The occupational prestige scores in GSS rely on the NORC prestige scale by putting together occupational prestige ratings from several prestige surveys (Stevens & Hoisington, 1987). For example, the prestige score is 60.30 for legislators; 55.88 for accountants and auditors; 73.80 for physicians and astronomers; 78.30 for postsecondary science teachers. Regarding low-end jobs, for example, the score is 29.38 for sales workers; 15.84 for news vendors; 18.67 for protective service (guards).

third-order, or cubic, equation. The present study uses the second-order equation. If is negative but is positive, the regression line resembles a U shape. By contrast, if is positive but is negative, the regression line resembles an inverse U shape. Table 3 reports the impacts of the absolute amount of bonus. In the models of resource availability, perceived social support, perceived satisfaction with higher-level needs, and the summation of the three variables (M1, M2, M3, and M4 respectively), is consistently negative but is consistently positive. Except two statistically insignificant coefficients ( in M1,  $p < .07$ ; in M3,  $p < .12$ ), others are statistically significant at the level of  $\alpha = 0.05$ . Results in Table 4, the impacts of the bonus/income ratio, are similar to the results in Table 3: is consistently negative but is consistently positive. The only insignificant coefficient appears in M3 where =  $-3.90$  ( $p < .07$ ), but it is quite close to the level of  $\alpha = 0.05$ . Therefore, results in Table 2 and Table 3 support Hypotheses 1, 2, and 3.

[Insert Table 2 and Table 3 Here]

**Table 2 OLS regression: Predicting RA, SS, and HN with absolute bonus size**

	M1: RA	M2: SS	M3: HN	M4: ALL
<b>Bonus size</b>	<b>-0.20* (0.04)</b>	<b>-0.33* (0.01)</b>	<b>-0.19 (0.12)</b>	<b>-0.69** (0.00)</b>
<b>Bonus size square</b>	<b>0.01 (0.07)</b>	<b>0.01* (0.01)</b>	<b>0.01* (0.04)</b>	<b>0.03** (0.00)</b>
Marital status	-0.10 (0.49)	-0.09 (0.65)	0.01 (0.94)	-0.27 (0.51)
Social prestige score	-0.01* (0.04)	-0.01 (0.45)	0.03** (0.00)	0.01 (0.44)
Number of children	0.09 (0.10)	-0.02 (0.78)	-0.04 (0.56)	0.03 (0.84)
Age	-0.10** (0.00)	-0.10* (0.03)	-0.04 (0.37)	-0.23* (0.01)
Age square	0.11** (0.00)	0.12* (0.02)	0.05 (0.26)	0.27* (0.01)
Education	-0.10** (0.00)	0.02 (0.60)	0.13** (0.00)	0.04 (0.62)
Gender	0.02 (0.91)	-0.31 (0.11)	-0.04 (0.83)	-0.36 (0.36)
Race	-0.21 (0.23)	0.26 (0.28)	-0.28 (0.21)	-0.26 (0.59)
Job security	0.27** (0.00)	0.87** (0.00)	0.54** (0.00)	1.69** (0.00)
Health condition	0.20* (0.01)	0.37** (0.00)	0.21* (0.02)	0.80** (0.00)
Work type	-0.63* (0.01)	-0.03 (0.92)	-1.18** (0.00)	-1.50* (0.02)
Age discrimination	-0.58* (0.02)	-0.04 (0.91)	-0.06 (0.84)	-0.71 (0.30)
Racial discrimination	-0.94** (0.00)	-0.91* (0.02)	-0.12 (0.73)	-1.95* (0.01)
Gender discrimination	-0.54* (0.04)	-1.19** (0.00)	-0.96** (0.00)	-2.95** (0.00)
Sexual harassment	-0.71* (0.05)	-0.48 (0.32)	-0.35 (0.43)	-1.47 (0.14)
Being threatened	-0.36 (0.08)	-0.94** (0.00)	0.09 (0.73)	-1.34* (0.02)
Year of 2006	-0.08 (0.55)	-0.11 (0.58)	-0.43* (0.02)	-0.66 (0.09)
Constant	13.17** (0.00)	11.00** (0.00)	7.77** (0.00)	31.64** (0.00)
N	623	604	624	603
Adjusted R square	0.19	0.20	0.16	0.22

Coefficients reported; p values in parentheses; \*\* $p < .01$ ; \* $p < .05$

**Table 3 OLS regression: Predicting RA, SS, and HN with bonus/salary ratio**

	M1: RA	M2: SS	M3: HN	M4: ALL
<b>Bonus/salary ratio</b>	<b>-3.60* (0.04)</b>	<b>-5.64* (0.02)</b>	<b>-3.90 (0.07)</b>	<b>-12.62** (0.00)</b>
<b>Bonus/salary ratio square</b>	<b>2.38* (0.05)</b>	<b>3.91* (0.02)</b>	<b>3.51* (0.02)</b>	<b>9.50** (0.00)</b>
Marital status	-0.15 (0.35)	-0.17 (0.42)	0.06 (0.77)	-0.38 (0.37)
Social prestige score	-0.01 (0.07)	0.00 (0.65)	0.03** (0.00)	0.02 (0.31)
Number of children	0.12* (0.04)	0.01 (0.86)	-0.01 (0.85)	0.13 (0.43)
Age	-0.09* (0.01)	-0.09 (0.06)	-0.03 (0.52)	-0.22* (0.03)
Age square	0.10* (0.01)	0.11* (0.03)	0.04 (0.39)	0.26* (0.02)
Education	-0.10** (0.00)	0.00 (0.97)	0.13** (0.00)	0.03 (0.71)



	M1: RA	M2: SS	M3: HN	M4: ALL
Gender	0.04 (0.81)	-0.38 (0.07)	-0.11 (0.57)	-0.46 (0.27)
Race	-0.16 (0.40)	0.44 (0.08)	-0.14 (0.54)	0.09 (0.85)
Job security	0.25* (0.01)	0.89** (0.00)	0.51** (0.00)	1.66** (0.00)
Health condition	0.20* (0.01)	0.40** (0.00)	0.21* (0.03)	0.82** (0.00)
Work type	-0.68* (0.01)	-0.05 (0.89)	-1.25* (0.00)	-1.49* (0.04)
Age discrimination	-0.64* (0.02)	-0.07 (0.85)	-0.15 (0.64)	-0.97 (0.18)
Racial discrimination	-0.97** (0.00)	-0.85** (0.03)	-0.09 (0.80)	-1.90* (0.02)
Gender discrimination	-0.39 (0.16)	-1.18** (0.00)	-0.87* (0.01)	-2.77** (0.00)
Sexual harassment	-0.61 (0.12)	-0.57 (0.28)	-0.63 (0.18)	-1.77 (0.09)
Being threatened	-0.35 (0.11)	-1.04** (0.00)	0.06 (0.82)	-1.45* (0.02)
Year of 2006	-0.07 (0.65)	-0.11 (0.57)	-0.36* (0.05)	-0.61 (0.14)
Constant	13.01** (0.00)	10.78** (0.00)	7.49** (0.00)	31.06** (0.00)
N	557	542	558	541
Adjusted R square	0.17	0.20	0.16	0.21

Coefficients reported; p values in parentheses; \*\*p<.01; \*p<.05

Table 4 reports the results for confidence in organizations as the dependent variable. M1 and M3 show that both the absolute size of bonus and the bonus/income ratio are related to confidence in organizations in a U shape as well: is consistently negative, is consistently positive, and both of them are statistically significant at the level of  $\alpha=0.05$ . This result supports Hypothesis 4a. To examine Hypothesis 4b, mediation analysis is required. A variable may be considered a mediator when it carries the influence of an independent variable (IV) to a given dependent variable (DV) (Mackinnon & Dwyer, 1993; Shrout & Bolger, 2002). Mediation occurs when the IV significantly predicts the mediator and the mediator significant predicts the DV. However, the requirement is that the IV should significantly affect the DV in the absence of the mediator (Baron & Kenny, 1986; Preacher & Leonardelli, 2006).<sup>1</sup> Because the size of bonus significantly predicts confidence in organizations, meeting the last requirement, perceived resource availability, perceived social support, and perceived higher-level need satisfaction are thus entered into the models to test mediation effects. Accordingly to M2 and M4, the statistical significance of both and disappears, an indication that the three variables greatly mediate the relationship between bonus size and confidence in organizations. Therefore, Hypothesis 4b is supported as well.

[Insert Table 4 Here]

**Table 4 OLS regression: Predicting confidence in organizations**

	M1: Original	M2: Mediation	M3: Original	M4: Mediation
<b>Bonus size</b>	<b>-0.21* (0.02)</b>	<b>-0.06 (0.42)</b>	--	--
<b>Bonus size square</b>	<b>0.01* (0.02)</b>	<b>0.00 (0.48)</b>	--	--
<b>Bonus/salary ratio</b>	--	--	<b>-3.98* (0.01)</b>	<b>-1.17 (0.37)</b>
<b>Bonus/salary ratio square</b>	--	--	<b>2.89* (0.01)</b>	<b>0.78 (0.40)</b>
Marital status	0.14 (0.30)	0.19 (0.09)	0.18 (0.22)	0.22 (0.06)
Social prestige score	0.00 (0.86)	0.00 (0.47)	0.00 (0.45)	0.00 (0.79)
Number of children	0.00 (0.93)	0.00 (0.97)	0.03 (0.61)	0.01 (0.85)
Age	-0.06* (0.04)	-0.02 (0.53)	-0.04 (0.20)	0.00 (0.93)
Age square	0.08* (0.02)	0.03 (0.37)	0.06 (0.10)	0.01 (0.67)
Education	-0.04 (0.14)	-0.05* (0.05)	-0.04 (0.18)	-0.05* (0.04)
Gender	-0.40** (0.00)	-0.32** (0.00)	-0.40* (0.01)	-0.30* (0.01)

<sup>1</sup> The standard Sobel mediation test formula is  $z\text{-value} = \frac{a*b}{\sqrt{b^2*sa^2 + a^2*sb^2}}$  and Goodman mediation test formula is  $z\text{-value} = \frac{a*b}{\sqrt{b^2*sa^2 + a^2*sb^2 - sa^2*sb^2}}$ , in which “a” and “b” denote coefficients and “s” denotes standard error.

	M1: Original	M2: Mediation	M3: Original	M4: Mediation
Race	0.05 (0.75)	0.10 (0.46)	0.15 (0.40)	0.12 (0.38)
Job security	0.31** (0.00)	-0.07 (0.30)	0.28** (0.00)	-0.07 (0.33)
Health condition	0.26** (0.00)	0.09 (0.12)	0.29** (0.00)	0.11 (0.06)
Work type	-0.76** (0.00)	-0.21 (0.26)	-0.77** (0.00)	-0.25 (0.23)
Age discrimination	-0.26 (0.27)	-0.11 (0.56)	-0.35 (0.16)	-0.13 (0.52)
Racial discrimination	-0.67* (0.01)	-0.31 (0.14)	-0.58* (0.03)	-0.21 (0.34)
Gender discrimination	-0.92** (0.00)	-0.34 (0.09)	-1.00** (0.00)	-0.44* (0.04)
Sexual harassment	-1.27** (0.00)	-0.94** (0.00)	-1.34 ** (0.00)	-0.96** (0.00)
Being threatened	-0.26 (0.19)	-0.03 (0.84)	-0.24 (0.24)	0.00 (0.99)
Year of 2006	-0.03 (0.83)	0.08 (0.44)	-0.02 (0.87)	0.09 (0.43)
RA	--	0.21** (0.00)	--	0.22** (0.00)
SS	--	0.18** (0.00)	--	0.18** (0.00)
HN	--	0.27** (0.00)	--	0.26** (0.00)
Constant	9.79** (0.00)	2.80** (0.00)	8.95** (0.00)	2.22* (0.01)
N	614	595	553	538
Adjusted R square	0.20	0.51	0.20	0.50

Coefficients reported; p values in parentheses; \*\*p<.01; \*p<.05

Regarding controls, the interpretation mainly relies on the results in Model 4 in both Table 3 and 4 and Model 1 and 3 in Table 5. Some of the controls appear to be insignificant in predicting outcome variables. For example, marital status, social prestige score, education, and race are in general not statistically significant predictors. Age is correlated with outcome variables in a U-shape form. Gender significantly predicts confidence in organizations, but not other three outcomes. Job security and health condition both positively predict outcome variables, whereas various forms (especially gender and race) of discrimination, sexual harassment, and the experience being threatened negatively predict outcome variables. Workers in standard arrangements, surprisingly, are in general less positive than nonstandard workers with respect to all outcome dimensions. This is probably because independent contractors, whose working conditions (E.G. compensation) prevail over that of other nonstandard workers, are oversampled. Finally, the variable of year dummy is not statistically significant.

## 7 Implications

Findings from the regression analysis confirm that performance bonus size in public organizations is small on average, and a small size of bonus is, compared to zero bonus and sizable bonus, much more harmful to perceived resource support, perceived social support, satisfaction with higher-level needs, and confidence in organizations, pretty much in line with the assertion of “pay enough or don’t pay at all” (Gneezy & Rustichini, 2000). The implications of these findings are twofold: theoretical and practical.

### Theoretical implications

First, most empirical studies of motivation crowding in public administration focuses on whether crowding appears. More precisely, scholars investigate whether *the presence* of monetary reward affects motivational, attitudinal, and behavioral outcomes such as the loss of PSM or intrinsic motivation, compromised trust in management, gaming behaviors, and performance (Andersen & Pallesen, 2008; Georgellis et al., 2011; Langbein, 2008; Weibel et al., 2010). If fact, the theory of motivation crowding is never independent from *the size* of monetary reward, as Gneezy and Rustichini (2000) indicate. In many cases, sizable bonus can arouse enough extrinsic motivation and make up the loss of intrinsic motivation, so the overall levels of work motivation and related attitudes and behaviors can remain. The present study complements prior studies grounded in motivation crowding by emphasizing the importance of bonus size.

The second theoretical contribution centers on self-determination theory (Ryan & Deci, 2000). Indeed, the debate between compensation specialists and self-determination theorists has existed for

over 35 years: self-determination theorists argue that contingent rewards can undermine autonomous motivation and disagree with compensation specialists that incentives improve motivation and performance (Gagné & Forest, 2008). The present study offers a way to reconcile the conflict. Self-determination theorists probably overemphasize the loss of an autonomy-supportive environment resulting from monetary rewards. They neglect the possibility that the increase of perceived competence along with external reward may be able to offset the loss of perceived autonomy, as long as the reward size is large enough. Perhaps the loss of autonomy, which requires only a small amount of monetary reward, is more obvious and observable than the increase of competence based on large compensation. Of course, regarding the debate on monetary compensation, the size of bonus is only one of the many lenses that researchers can look through. Features such as task clarity, hierarchical level, and the difficulty of performance appraisal all determine whether monetary rewards improve or harm work motivation and perceived self-determination (Gagné & Forest, 2008).

#### Practical implications

Practically, findings in this study remind public managers that unless the size of bonus is large enough, keeping PFP for political purposes can be pernicious. If so, a pertinent question is “how much should be regarded as large enough”? According to some additional analyses, in general, the decline of outcome variables including perception of resource availability, social support, satisfaction with higher-level needs, and confidence in organizations, does not stop until the bonus/income ratio is greater than 0.6.<sup>1</sup> As bonus is a continuous variable whereas income is an ordinal variable, the ratio needs to be transformed to actual bonus size for further interpretation. For example, the bonus for the category of income=19 (50000-59999 US dollars) needs to be at least  $0.6 \times 19 = 11.4$  (thousand dollars), and the bonus for the category of income=20 (60000-74999 US dollars) needs to be at least  $0.6 \times 20 = 12$  (thousand dollars). In fact, only 5 out of over 600 people in the current sample received bonus greater than 10000 US dollars, so the size goes far beyond what most public organizations are willing to pay. It is worth mentioning that such a huge size is still ineffective. For the 5 people who received bonus greater than 10000 USD, their perceived resource availability, perceived social support, satisfaction with higher-level needs, and confidence in organizations are 8.8, 12.8, 11.6, and 9.0 respectively in terms of mean values. Compared to those who received zero bonus (mean=9.76, 13.08, 11.67, and 9.19 respectively), these values are still slightly smaller. That is, in most situations, sizable bonus is neither feasible nor effective.

In fact, this finding is not entirely unreasonable. According to the collecting donation money experiment in the paper by Gneezy and Rustichini (2000), in terms of overall performance, giving zero (mean=238.6 and median=200) is not only better than giving little (1%) (mean=153.6 and median=150) but also better than giving a sizable amount (10%) (mean=219.3 and median=180). One may infer that in a context where the desired activities are expected to be altruistic or prosocial, the power of monetary reward is so limited that 10% of collected donation is still worse than giving nothing and relying on people's intrinsic or prosocial motivation. Given that public service work greatly emphasizes commitment to the public interest, compassion, and self-sacrifice (Perry, 1996), relying on intrinsic motivation and prosocial motivation without monetary reward is probably a better alternative.

There are various methods that public managers can use to enhance and maintain employees' intrinsic motivation. Focusing on rewards, verbal praise presented in a non-judgmental manner is less likely than money to impose control and reduce intrinsic interest (Eisenberger & Cameron, 1996). Instead, it promotes a higher level perceived supervisory support and crowds in autonomous motivation. In cases where managers still prefer material rewards, increasing base pay is probably less controlling than giving contingent PFP (Frey & Osterloh, 2005). Evidence supports that base pay level, not bonus level, is positively related to both self-reported work performance and affective commitment (Kuvaas, 2006). Material reward is not limited to money. An attractive insurance package, for example, is especially useful in the public sector. Andersen and her colleagues (2012) find that people high in PSM are more interested in health care packages than bonus payments. If attracting and retaining public service motivated people is an important goal, improving health insurance packages is a better idea

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1 The coefficients of bonus/salary ratio and bonus/salary ratio square in Model 4 of Table 3 are -12.62 and 9.50 respectively. The value of  $y$  stops decreasing between 0.6 and 0.7 in the following equation: .

than giving bonus. Of course, methods used to maintain employee intrinsic motivation is not limited to rewards. Training and mentoring programs that provide updated skills and knowledge can improve employees' perceived competence, and accordingly, help employees internalize extrinsic work values. Assigning difficult and specific goals, according to goal-setting theory (Locke & Latham, 1990), may also improve people's perceived self-efficacy, which in turn, contributes to higher levels of intrinsic motivation.

## 8 Future research directions

Although the research examining the consequences of PFP bonus size is scant, scholars have conducted ample studies that examine the impact of PFP adoption on various perceptual, motivational, and behavioral outcomes. Expanding the scope of PFP bonus research to embrace these outcomes such as job satisfaction, intrinsic motivation, PSM, trust in management, organizational citizenship behavior, and maybe performance are one of the many future directions.

Another direction concerns methodology. The present study uses variables from GSS, an existing cross-sectional dataset, to test whether PFP bonus size affects employees' perceived quality of working life. Technically, causal inference should be avoided if the data nature is cross-sectional, but the design of questions in GSS, asking respondents current perceptions and bonus received in the last year, to a great extent mitigates the concern for causality. Despite this, with cross-sectional data, researchers are not allowed to test the change of outcome variables before and after employees receive the bonus. For example, in the present study, it would be more desirable if one can control for before-the-fact perceived quality of working life and test the impact of bonus on the before-after change. In this case, a pretest-posttest quasi-experiment (Wellington & Szczerbinski, 2007) will make the inference more precise.

Variable measurement can be improved as well. As mentioned, GSS measures personal income and bonus size using an ordinal-scale item and a continuous variable respectively. This complicates the interpretation of findings. Regarding the amount of bonus, GSS does not differentiate individual-based bonus from group-based bonus. Although the individual-group distinction is not a core theme in motivation crowding theory and the claim of "pay enough or don't pay at all," it would be interesting to compare the impacts of the two types of bonus. In theory, compared to group-based or organization-based profit sharing, individual-based PFP creates much stronger control that erodes one's perceived autonomy and crowds out intrinsic motivation (Gagné & Forest, 2008).

In sum, most public administration scholars neglect the importance of bonus size in PFP research, and the present study makes up the insufficiency. The findings show that keeping PFP with a small size of bonus in exchange for political purposes is a bad idea: it harms employees' perceived resource availability, perceived social support, perceived higher-level need satisfaction, and confidence in organizations. More importantly, a desirable size of bonus is usually unattainable. In this situation, managers should consider the use of alternative measures that foster intrinsic motivation. Deeper discussion about enhancing intrinsic motivation goes beyond what can be addressed in the present study, but more research effort should be made to this topic in the future.

## Appendix A. The measurement of dependent variables

Perception of resource availability (RA) (Cronbach's alpha=0.71)

- I have enough information to get the job done.
- I receive enough help and equipment to get the job done.
- I have enough time to get the job done.

Perception of social support (SS) (Cronbach's alpha=0.74)

- My supervisor is helpful to me in getting the job done.
- My supervisor is concerned with the welfare of those under him or her.

- The people I work with take a personal interest in me.
- The people I work with can be relied on when I need help.

Perception of higher-level need satisfaction (HN) (Cronbach's alpha=0.70)

- I have a lot of say about what happens on my job.
- My job lets me use my skills and abilities.
- I have an opportunity to develop my own special abilities.
- My main satisfaction in life comes from work.

The aforementioned 11 items (RA + SS + HN) (Cronbach's alpha=0.80)

Confidence in organizations (CO) (Cronbach's alpha=0.76)

- Conditions on my job allow me to be about as productive as I could be.
- The place where I work runs in a smooth and effective manner.
- I am proud to be working for my employer.

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