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# Understanding the role reward types play in linking public service motivation to task satisfaction: evidence from an experiment in China

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## ABSTRACT

There is an unsettled debate among scholars about how rewards impact the relationship between public service motivation (PSM) and job satisfaction (JS). To weigh in on this controversy, task satisfaction (TS) was measured as a proxy of JS after a public goods game experiment was conducted among 195 university students. During the experiment, reward types were manipulated (money vs. medals), PSM was measured at both explicit and implicit levels (EPSM and IPSM), and JS was separated at the task-completion level into cognitive and affective satisfaction (CS and AS). Results revealed that irrespective of the reward types, there was a significant positive relationship between EPSM and CS. Furthermore, the reward types had a significant impact on the relationship between IPSM and AS. Specifically, when nonmonetary rewards were given, participants with low IPSM were less enthusiastic about completing the assigned task whereas their high-IPSM counterparts were much keener about accomplishing the same task.

## ARTICLE HISTORY

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## Introduction

Ever since Hoppock's (1935) pioneering effort into investigating the emotional wellbeing of employed adults in a typical local community in the U.S., job satisfaction (JS) has gradually become a globally popularized concept and garnered a vast amount of attention from researchers who have investigated its causes and effects (Akgunduz, Kizilcalioglu, and Sanli 2018). Similarly, public administration scholars have dedicated themselves to exploring the role that Public Service Motivation (PSM) plays in influencing JS. While a positive PSM-JS relationship has been supported by much empirical evidence (Homberg, McCarthy, and Tabvuma 2015), crucial questions about whether and how various rewards affect its strength and direction remain insufficiently addressed. In order to achieve a clearer understanding of this relationship, this study turns to the task-level of JS and utilizes an experimental design to explore how reward types (monetary vs. nonmonetary) moderate the PSM-JS relationship, particularly when PSM is measured using two distinct approaches (implicit and explicit) and JS at the task-completion level is separated into two components (cognitive and affective).

Specifically, an important strand of JS research can be traced back to Thorndike's (1917) experiment on task satisfaction (TS). In the fields of industrial-organizational (I-O) psychology and human resource management (HRM), as a matter of fact, situational TS has long been used as proxy of JS in experimental-related inquiries (Umstot, Bell, and Mitchell 1976; Reichel, Neumann, and Saad 1986; Gardner 1990; Roberson, Korsgaard, and Diddams 1990; Perdue,

Reardon, and Peterson 2007; Schulte and Maier 2019). Additionally, rewards often take the form of intrinsic and extrinsic incentives. The former elicits feelings of satisfaction and enjoyment from the activity in and of itself, while the latter is external to the activity and takes the form of either monetary or nonmonetary compensation. Although nonmonetary rewards, such as verbal praise, have consistently proven to enhance individuals' PSM (Bright 2009) and JS (Samotyj 2010), the relationships among monetary rewards, PSM, and JS are highly contentious (Taylor and Westover 2011; Corduneanu, Dudau, and Kominis 2020). Some scholars believe that pecuniary rewards do not necessarily squelch one's impetus for prosocial acts (Alonso and Lewis 2001; Stazyk 2013; Voorberg et al. 2018) and the undermining effects of monetary rewards are not as pervasive as previously assumed (Voorberg et al. 2018). In certain situations, the presence of monetary rewards can even result in positive outcomes (Liu and Tang 2011; Stazyk 2013). For instance, it is reported that monetary rewards can serve as an effective stimulus for enhancing the JS of teachers (Magyezi 2014). Yet, many still assert that because material rewards are incompatible with the altruistic intentions of public employees, their use may lead to counterproductive outcomes (Moynihan 2008; Houston 2009; Chen and Hsieh 2015; Qian and He 2018; Hsieh 2018).

Against the backdrop of the abovementioned mixed findings in the literature, we draw upon the insights of Self-Determination Theory (SDT) (Ryan and Deci 2000) to better understand the role that reward types play in the relationship between PSM and TS, which can be considered as a manifestation of JS under a task setting. An experiment, widely known as the Public Goods Game (PGG) (Ledyard 1994), was conducted with a convenience sample of 195 university students in China to mimic not only the essential aspect of public service jobs—working together to achieve the public as well as private goods, but also the real-life decisions that “people must make regarding contributions to public welfare at personal expense” (Bowe 2020). It must be noted that numerous experiments using student samples have already confirmed PGG to be a vital tool for examining the relationship between prosocial or cooperative behavior and PSM (Li 2011; Dal Bó, Finan, and Rossi 2013; Esteve et al. 2016; Tepe and Vanhuyse 2017; Bouwman et al. 2019).

To generate a deepened and nuanced understanding of how rewards exert influence on the PSM-TS relationship, we (1) separated TS into cognitive and affective components, (2) measured PSM at both explicit and implicit levels, and (3) incorporated two types of rewards (monetary vs. nonmonetary). To our knowledge, this study is the first to examine the relationship between PSM and JS utilizing an experimental design in which multiple measures and dimensions of focal variables are incorporated. The findings of this study will not only advance current research on employee motivation and satisfaction within the public sector, but they will also help managers to minimize any adverse effects when using rewards to motivate their employees.

The remainder of this article is organized as follows. We first explain the theoretical foundation of the hypothesized relationships among TS, PSM, and rewards. Subsequently, a detailed account of the experimental design is provided, followed by a discussion of the analytical results. The paper concludes by elucidating how our findings may contribute to the advancement of both public management theory and practice.

## **Conceptual framework**

### ***Cognitive and affective components of satisfaction***

Even though JS has primarily been measured at the cognitive level, it conceptually includes both cognitive and affective components (Fisher 2000). According to Moorman's (1993) definition, cognitive satisfaction (CS) is based on a logical and rational evaluation of job conditions, opportunities, or outcomes, whereas affective satisfaction (AS) denotes individual's emotional appraisal of the job and is measured by asking questions about one's feelings or mood while working. Thompson and Phua (2012) further argued for the importance of distinguishing between CS and

AS. Likewise, Dalal and Credé (2013) differentiated the cognitive vis-à-vis the affective aspects of JS, referring the former to the satisfaction with job characteristics and the latter to the state of enjoyment triggered by events that occur on the job.

This separation has proven to be effective for examining their respective precedents and outcomes. Compared to AS, CS has been found to be more strongly related to organizational citizenship behavior (Moorman 1993) and performance (Lee, Lee, and Kim 2019). AS, however, has been suggested to be more tightly correlated with skill use (Fernández-Salineró et al. 2020) and loyalty (Sinha, Mishra, and Kaul 2014). More notably, AS and CS are not mutually exclusive. On the contrary, the more consistent they are, the stronger explanatory power they possess to predict relevant organizational behaviors (Kraus 1995; Schleicher, Watt, and Greguras 2004). In our PGG experiment, the task-level CS and AS combine to represent individuals' attitudes toward the experimental task immediately upon its completion. More concretely, CS refers to one's contentment with the embedded incentive system in use, whereas AS indicates the enjoyment that participants derive from partaking in the experimental task itself. By separating TS into these two distinct elements, we surmise that a clearer and more precise picture of the PSM-JS relationship can be attained.

### ***Explicit and implicit PSM***

PSM has been defined as the orientation to deliver services to people with the purpose of doing good for others and society (Hondegheem and Perry 2009). Akin to studies in other motivation areas, PSM research carries the torch of the dual motive theory (McClelland, Koestner, and Weinberger 1989) and focuses heavily on the development of measurement approaches with validity and reliability. The explicit PSM (EPSM) measured by self-reported responses and the implicit PSM (IPSM) assessed by indirect tactics are two cases in point.

### ***The differences between explicit and implicit motivations***

Explicit motivations are acquired through socialization at the conscious level, operate within the individual's awareness and control system, and are directed toward socially approved behavioral outcomes such as planned helping behaviors (Aydinli et al. 2014). In contrast, implicit motivations are developed in the very early stages of one's childhood (McClelland and Pilon 1983). They operate outside of the individual's control system and unconsciously guide his or her behaviors toward affectively rewarding end states (Schultheiss 2008). Consequently, one's implicit motivations more reliably predict one's spontaneous helping behaviors, intra-organizational collaborative decisions (Srivastava and Banaji 2011), and long-term preferences for activities in which he or she engages (Perugini, Conner, and O'Gorman 2011).

### ***The merits of measuring IPSM***

While both implicit and explicit motivations have been shown to be capable of predicting the variability in outcome variables, the credibility of self-reporting is much lower particularly when socially sensitive topics are probed (Kim and Kim 2016). In addition, self-reported measures cannot effectively reveal implicit motivations, which are unconscious needs that drive one's behavior to attain a positive affective experience (McClelland et al. 1989). To reveal these motivations, the Implicit Association Test (IAT, Greenwald, McGhee, and Schwartz 1998) is developed. As contended by Marvel and Resh (2019), EPSM shapes individuals' exhibited attitudes and conscious behaviors in a deliberate and controllable way. It is thus highly malleable if not manipulatable. The IPSM, as they subsequently argue, is unconscious, automatic, and largely uncontrollably manifested; hence, it is resistant to social desirability bias.

## **Monetary and nonmonetary rewards**

Rewards are situational stimuli that drive employees to pursue goals associated with positive affects (Beckmann and Heckhausen 2018). Lawler III and Porter (1967) divided job-related rewards into two categories: monetary and nonmonetary rewards. The former includes base pay, merit pay, incentives, commissions, bonuses, and health allowances; the latter oftentimes consist of praise, recognition, acknowledgement, promotion, decision-making roles, company uniforms, and flexible working hours (Harunavamwe and Kanengoni 2013).

## **Hypothesis development**

### ***Bridging PSM-JS and PSM-TS***

Given that the concept of PSM captures individuals' propensity to do good for the public, scholars have speculated that public employees with high levels of PSM may experience a great deal of JS because they have abundant opportunities to fulfill their prosocial goals by serving the public (Perry and Wise 1990; Perry and Hondeghem 2008; Scott and Pandey 2005). Evidence of such a direct, positive PSM-JS relationship has been found across cultural contexts in both individual studies and through meta-analyses (Brewer and Selden 1998; Sunaryo and Suyono 2013; Homberg et al. 2015; Palma and Sepe 2017; Kjeldsen and Hansen 2018; Prysmakova and Vandenabeele 2020; Stefurak, Morgan, and Johnson 2020; Lin and Wang 2020). That being said, there are also a few studies revealing statistically insignificant, or even negative, PSM-JS relationship (Giauque, Anderfuhren-Biget, and Varone 2012; van Loon, Vandenabeele, and Leisink 2015).

To make sense of these mixed findings, researchers often incorporate a third variable to detect an effect on that relationship. According to this line of reasoning, the relationship between PSM and JS, which is far from straightforward, can be moderated at the macro and meso levels by a variety of factors such as person-job and person-organization fit (Prysmakova and Vandenabeele 2020), the attributes of the public sector workplace (Kjeldsen and Hansen 2016), contact with citizens (Prysmakova 2021), incentive schemes (Corduneanu et al. 2020), etc. However, these researchers have yet to analyze in depth the measurement of both PSM and JS, which may also account for the inconsistencies in the literature.

In this study, we explored the PSM-TS relationship in an experimental situation to simulate the real-world association between PSM and JS. JS is an inherently ambiguous construct, as it is conventionally measured by asking the participant to recall vague memories that are intertwined with both individual cognitive appraisal and affective experience. Although TS is only a partial proxy of JS, the former could be regarded as a reasonable simplification of the latter.<sup>1</sup> Besides, we believe that if TS is measured immediately after a task is completed, we will obtain a clearer picture of the effect of reward types. Due to the fact that common methods utilized to measure PSM are susceptible to social desirability bias (Kim and Kim 2016), which may complicate the PSM-TS relationship, we further included an implicit measure of PSM to remedy this issue. Next, we will elaborate on the theoretical foundation of this PSM-TS model.

### ***EPSM vs. IPSM and CS vs. AS***

Taking into account the two components of TS (i.e., cognitive- and affective-) and the two measures of PSM (i.e., explicit- and implicit-) detailed in the preceding section, the overarching PSM-TS relationship can be divided into four pairs: EPSM-CS, IPSM-CS, EPSM-AS, and IPSM-AS. Specifically, the EPSM-CS relationship has been well studied and a positive correlation between the two has been supported by innumerable extant studies (Brewer and Selden 1998; Sunaryo and Suyono 2013; Homberg et al. 2015; Palma and Sepe 2017; Kjeldsen and Hansen 2018;

Prysmakova and Vandenabeele 2020; Stefurak et al. 2020). Thus, our first hypothesis is stated below:

*Hypothesis 1: Participants with higher EPSM are expected to report greater levels of CS.*

While the IPSM-AS relationship has not been directly investigated in the literature, we can logically infer that the correlation between the two is positive. Theoretically, IPSM, like other implicit motivations, represents a primitive motivational system that drives one to attain positive affective experiences (McClelland et al. 1989) and houses individuals' intuitive capacities to regard public service work as desirable and pleasurable (Perugini et al. 2011). Moreover, in accordance with SDT (Ryan and Deci 2000), PSM ought to be considered as either an internalized extrinsic motivation (Chen, Chen, and Xu 2018; Corduneanu et al. 2020), or a type of intrinsic motivation (Linga 2020; Kim and Torneo 2021) that compels individuals to serve the public good. Following this line of thought, the fulfillment of individuals' needs for beneficence – an essential contributor to PSM – is instrumental to their subsequent attainment of positive affection (Martela, Ryan, and Steger 2018; Corduneanu et al. 2020). Taken together, it is reasonable to infer that participants with high levels of IPSM are more likely to derive intrinsic enjoyment from the process of accomplishing tasks that are collective interest-oriented. We therefore posit the following hypothesis:

*Hypothesis 2: Participants with higher IPSM are expected to report greater levels of AS.*

To our knowledge, there is no compelling evidence to show a significant correlation between EPSM and AS or between IPSM and CS. In this scenario, we speculate neither the direction nor the magnitude of these relationships.

### **Reward types on the EPSM-CS relationship**

Since conventional wisdom focuses predominantly on understanding whether and the extent to which individuals' holistic appraisals of on-the-job satisfaction can be ascribed to their varying PSM levels measured using self-reported responses, the existing PSM-JS studies can serve as a valid point of reference for us to reckon the contingencies of EPSM-CS relationship. To begin with, the power of non-monetary rewards in enhancing JS (or TS) for public employees had been supported by quite a number of researchers in their studies (Cnaan and Cascio 1999; Westover and Taylor 2010; Yousaf 2020; Kamath, Dean, and Verma 2020; Widodo and Damayanti 2020). However, these studies fail to overcome the confounding social desirability bias stemming from both the measure of PSM and the self-reported satisfaction with the task design. Apart from these inquiries, nonetheless, other scholarly work in this vein shows inconsistent or even contradictory findings. For instance, some studies insist that both monetary and non-monetary rewards matter in enhancing JS among teachers (Magyezi 2014) and nurses (Hassana and Selvarajah 2015), while others suggest no discernible differences between reward types in predicting JS (Fernandez 2012). Similarly, one study indicates that the positive PSM-JS relationship is more pronounced among love-of-money public employees in China (Liu and Tang 2011),<sup>2</sup> whereas Hassan, Zhang, and Ahmad (2020) recently conclude a null effect of pay cuts on the PSM-JS relationship. In a nutshell, it appears that the moderating effects of reward types on the EPSM-CS relationship remain inconclusive. To err on the side of caution considering both the above inconclusive results and the social desirability bias in measuring EPSM, we propose our third hypothesis as follows:

*Hypothesis 3: Reward types do not moderate the EPSM-CS relationship.*

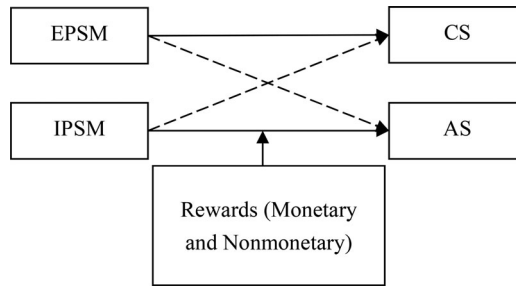


Figure 1. The hypothesized model.

### Reward types on the IPSM-AS relationship

Notwithstanding the fact that direct empirical evidence supporting the moderating effects of reward types on the IPSM-AS relationship is scarce, some pertinent insights can still be drawn from previous studies. First and foremost, the implicit measure of PSM minimizes the occurrence of social desirability bias, and AS sheds light on individuals' instant, unvarnished reaction to the task. These improvements made in measurement precision have opened the possibility for probing the nuances inherent in the IPSM-AS relationship (Thorndike 1917; Taber and Alliger 1995; Putman 2002; Cerasoli, Nicklin, and Ford 2014).

In addition, SDT (Ryan and Deci 2000) contends that the adequacy of perceived autonomy helps individuals gain the feelings of self-importance and job meaningfulness, which, in turn, elicit their positive emotions such as joy and excitement (Ryan, Kuhl, and Deci 1997; Gagné and Deci 2005). Compared with pecuniary benefits, nonmonetary rewards are commonly viewed as less controlling particularly in the eyes of employees with genuinely greater motivation to advance the greater good (Chen et al. 2018; Corduneanu et al. 2020). In other words, the presence of nonmonetary rewards is probably able to help enhance high-PSM individuals' predilection for their jobs/tasks. Emboldened by these discoveries, we can reasonably surmise that social (nonmonetary) rewards may strengthen the upward trend between individuals' genuine prosocial motivation (i.e., IPSM) and their affective response to public service-related tasks (i.e., AS). The final hypothesis can thus be formulated below (see Figure 1 for a full visualization of our hypothesized PSM-TS relationships):

*Hypothesis 4: Reward types moderate the IPSM-AS relationship (i.e., nonmonetary rewards enhance AS for high IPSM individuals).*

## Data and methods

### Experimental design

In the quest to understand better the moderating effect of external rewards on the PSM-TS relationship that is operationalized from different measurement angles, we have developed a randomized experiment. The experiment, made up of four consecutive phases, was administered via a computer program designed and run in Inquisit 3.0. As a powerful software, Inquisit is widely used in experimental studies and recent IPSM assessments (Resh and Marvel 2016; Marvel and Resh 2019). Figure 2 details our experimental procedures.

In Phase 1, we administered a questionnaire to measure the respondents' EPSM level. Phase 2 involved a Single Category IAT (SC-IAT) used to gauge the respondents' IPSM level. Phase 3 was a public investment task similar to the Public Goods Game (abbreviated as PGG, Ledyard 1994). In this game, each participant was given a token worthy of 20 renminbi (RMB) as the initial capital. He or she was then offered a chance to donate money to a fictional public forestation project



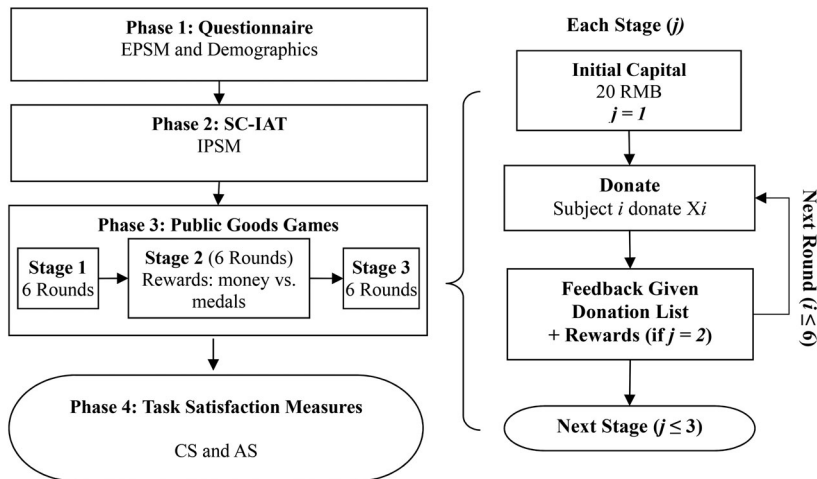


Figure 2. The layout of the research design.

led by a group of four virtual people. Participants were told that their compensation would be commensurate with their performance and they would benefit from collaboration. For example, if everyone donated 20 tokens, each would receive 40 tokens from the public account, resulting in a 20-token net gain for each of them. They were also warned that free riders would put the rest of the group at risk for losing money. For example, if only one member donated 20 tokens, he or she would lose half, but each of the others (i.e., those who freeride) would gain 10 tokens. Lastly, regardless of whether participants personally gained or lost money, the public organization would keep their donations. To some extent, this scenario captures the nature of public service work in that participants are collectively serving in the best interest of not only the group but also the society as a whole. There were a total of 18 rounds (three stages, six rounds each) for the participants to donate. Feedback about the amounts donated and gained were given at the end of each round.

In the first stage, all participants donated freely without receiving any rewards. In the second stage, each member was randomly assigned into one of the two groups (money reward vs. medal reward). Those in the money reward group received the following note: *“If you are one of the top five investors, you will win a reward of five RMB in each round.”* The donation amounts, ranging from 0 to 20 tokens, from the three virtual partners were randomly assigned. Once participants had invested no less than 10 tokens in each round, they received the following reward message: *“Congratulations! Because your investment is relatively high, the public organization has rewarded you with five RMB as encouragement!”* Similarly, those in the medal reward group were given the following message: *“If you are one of the top five investors, you will win a medal in each round. You’ll win an upgraded medal if you win multiple times!”* Once each had invested no less than 10 RMB, the group received the following message: *“Congratulations! Because of your great contribution to this public investment, you are hereby awarded a special contributor medal!”* In the third stage, this reward setting was removed.

At the end of the experiment (Phase 4), we measured the extent to which participants 1) liked the game in general (CS), 2) and enjoyed the specific activities associated with it (AS).

### Sample

The participants in this study were preservice teachers from three normal universities located in Nanjing, Yangzhou, and Xixiang in China. The reasons behind this sample choice are as follows. To begin with, they are trained to make a positive difference in the lives of others and are



expected to become teachers or take on public service jobs after graduation. In the existing literature, the concept of PSM has been referenced on as an important antecedent to understand not only in-service teacher's prosocial commitments (Mintrop and Ordenes 2017), turnover tendency and JS (Choi and Chung 2018), performance (Sarnacchiaro et al. 2019), susceptibility to monetary rewards (Glass 2011), etc., but also pre-service teachers' work ethic (Christensen et al. 2012), social justice perception (Demirkaya and Ünal 2018), and diversity awareness (Lane 2019). In addition, students trained to be teachers are found to resemble public employees in China. For one, they constantly struggle to strike a delicate balance between the public and private interests in completing certain tasks at work or during their credit-bearing internships. Their TS can thus be instantly measured as a proxy of their overall JS. Moreover, convenience samples consisting of university students have been proven to be acceptable in experimental studies (Esteve et al. 2016). For instance, several published studies have used PGG to investigate the factors contributing to college teachers' free-riding behavior (McCorkle and Watts 1996), cooperative tendencies with parents (Barr, Packard, and Serra 2014), prosocial orientations (McCannon and Rodriguez 2016), and willingness to punish individuals with below-average contributions to public goods (Gaduh et al. 2020).

Initially, 230 students participated in our study. 195 respondents, with an average age of 21.2 (sd. = 1.60), eventually completed all the experimental activities, among whom 99 were males and 96 were females. Their majors included physics, education, psychology, English, etc. Data were collected by groups online. Participants were compensated with 20 RMB or a gift of the same value after completion of the study and were debriefed immediately in person or later via email.

### **Variable measurements**

In the present study, PSM was measured at both explicit and implicit levels and TS was separated into cognitive and affective satisfaction. In this section, we offer a thorough explanation of these measures:

#### **Measuring EPSM and IPSM**

The construct of EPSM was measured by an adapted version of Perry (1996) and Kim's (2009) 12-item scale, which was revised in accordance with the unique semantic context of the Chinese language (see Table 1 below).

**Table 1.** The EPSM measurement.

Sub-dimension	Item
Attraction to Policy Making	AP1: I am interested in making public programs that are beneficial for my country or the community I belong to. AP2: Sharing my views on public policies with others is attractive to me. AP3: I admire politicians.
Commitment to the Public Interest	CP1: I consider public service my civic duty. CP2: Meaningful public service is very important to me. CP3: I would prefer that public officials do what is best for the whole community even if this ran counter to [harmed] my interests.
Compassion	CO1: To me, the prerequisite of patriotism includes seeing to the welfare of others. CO2: I often consider the welfare of others, even of those I have never met. CO3: I feel sympathetic to the plight of the underprivileged.
Self-sacrifice	SS1: I feel people should give back to society more than they get from it. SS2: I am prepared to make enormous sacrifices for the good of society. SS3: I am one of those rare people who would risk personal loss to help someone else.

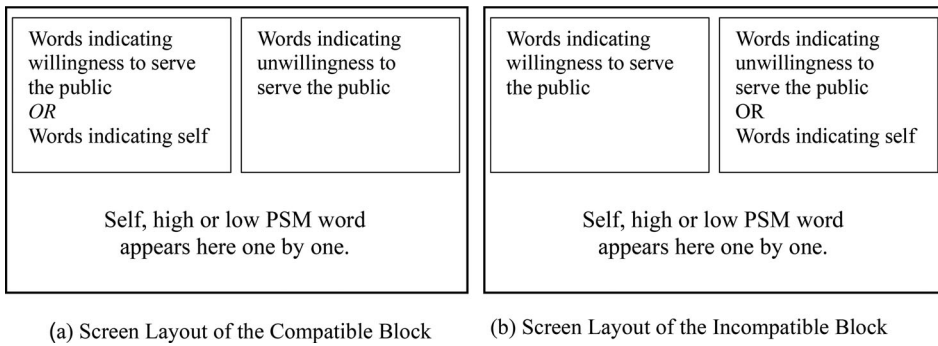


Figure 3. An illustration of the SC-IAT screen blocks.

Respondents were asked to indicate the extent to which each statement fit them on a 6-point scale (1 = “does not fit at all” and 6 = “fits very well”). We applied a translation-back-translation method to develop the corresponding Chinese version of the scale and performed a confirmatory factor analysis using AMOS 18.0 to assess and ensure the construct validity of it ( $\chi^2 = 82.377$ ,  $df = 48$ ,  $p = .001$ ,  $\chi^2/df = 1.716$ ; GFI = .940, CFI = .925, RMSEA = .059). The Cronbach’s Alpha was .75 for the EPSM scale, indicating an acceptable internal consistency level.

The measurement for the IPSM, adapted from Karpinski and Steinman (2006) SC-IAT, quantifies the strength of evaluative associations between concepts. In recent years, this test has become increasingly popular to gauge individual’s levels of IPSM (Li 2011; Resh and Marvel 2016; Marvel and Resh 2019; Resh, Marvel, and Wen 2019). Our version of the SC-IAT design contained a self-concept category and two PSM attribute categories. The former included “self” and its three synonyms, such as *I*, *me*, and *myself*. The latter contained two categories, one of which was labeled, “words indicating one’s willingness to serve the public.” This category was comprised of four items, including *willingness to negotiate for the public good*, *service*, *compassion*, and *sacrifice*. The other category was labeled “words indicating one’s unwillingness to serve the public,” which was separated into four items: *arbitrariness*, *sitting-by*, *indifference*, and *self-interest*. All of these items were translated into two-character Chinese words to avoid the possible confounding effects stemming from the differences in word length.

The computer-based SC-IAT has two stages and two blocks: one practice block (24 trials) is immediately followed by a test block (72 trials). As shown in Figure 3, in each stage, one of the two types of block sequences – compatible and incompatible – was randomly assigned to the participants. For the compatible block, two labels appeared in the upper corners: “Words indicating willingness to serve the public” OR “Words indicating self” on the left and “Words indicating unwillingness to serve the public” on the right. When a word indicating the self and a word indicating “high PSM” appeared in the lower middle of the screen, participants were asked to respond by pressing the “E” key on the keyboard. When shown a word indicating low PSM, they would respond by pressing the “I” key. In the incompatible block, we reversed the word pairings and changed their labels accordingly. When a “self” word or a term associated with “low PSM” appeared, participants were expected to respond by pressing the “I” key; otherwise, they would press the “E” key. The logic of the SC-IAT method is that it should be easier for participants to “classify items when paired categories are more strongly associated in subjects’ minds” (Marvel and Resh 2019; also see: Greenwald and Banaji 1995). For example, participants with high IPSM should be able to respond more quickly in this key-pressing task when “self”-related words are paired with “high PSM”-related phrases. Simply put, the more compatible, the less response time.

The level of IPSM was measured utilizing the IAT effect ( $d$ ). The scoring algorithm of  $d$  was calculated according to the Greenwald, Nosek, and Banaji (2003) D-score algorithm, in which

data from the practice blocks and responses slower than 350 milliseconds were eliminated due to the possibility of inattentiveness and carelessness. Erroneous responses were replaced with the block mean plus an error penalty of 400 milliseconds. The average response time for the compatible block was subtracted from the average response time from the incompatible block. This difference was divided by the standard deviation of all the correct response times within the test blocks. Thus, the  $d$  scores indicate the magnitude of the relative associative strength between the self and high-PSM compared to that between the self and low-PSM.

### **Single-item measures of CS and AS at the task level**

Single-item measure of JS was pioneered by Scarpello and Campbell (1983) and has been validated with strong correlation with multi-item measures of JS (corrected  $r = 0.67$ ,  $SD = .08$ ) in a meta-analysis (Wanous, Reichers, and Hudy 1997). Inspired by the popularized single-item measurement of JS, Mossholder (1980) operationalized TS at both cognitive and affective level using two separate questions: "How satisfying was working with the task itself?" and "How much did you enjoy working on this task". Another highly cited study measured TS with similarly worded items: "to what extent are you satisfied with your first task" and "how much do you like your first task". We thus used "To what extent did you feel content with the design of this public investment game?" to capture the cognitive and contextual essence of CS in this study. To measure AS, we instead adopted Taber and Alliger (1995) question, "To what extent did you enjoy this public investment task?" Both were measured on a 5-point single-item scale (1 = "not at all", 5 = "very much") and administered immediately after the participants completed the task.

## **Results**

We first confirmed the validity of separating task-level JS (namely, TS) into CS and AS by conducting a significance test of difference between correlation coefficients. If the participants considered CS and AS to be identical, the correlation between the two should be no different than  $\rho = 1$ . We found that not only the actual correlation between CS and AS was  $r = 0.62$  ( $p < 0.001$ ) but also the difference between  $\rho$  and  $r$  reached a statistically significant level ( $Z_{r-\rho} = (Z_r - Z_\rho) / \text{Sqr}(1/n-3) = 31.51$ ,  $p = 0.000$ ). In other words, the separation was valid, as CS and AS were found to be non-identical constructs and the participants were able to identify one from the other.

Table 2 shows the descriptive statistics broken down into the two randomly assigned groups, i.e., the group rewarded with money and that rewarded with a medal. In our experiment, we utilized Inquisit 3.0 for the randomization. Non-significant differences across demographic categories indicated that the randomization was successful. To further examine the effect of PSM on CS and AS, we included a set of demographic variables as statistical controls, including age, gender, academic major, birthplace, only child status, and family economic status. We included the only child status of the participants due to the fact that most were born under the family planning policy in mainland China. In a highly cited paper published in Chinese, college students who were only children were empirically found to have higher PSM than their counterparts with siblings (Cun 2013).

In order to highlight the differences among participants, we created a  $2 \times 2$  framework of the two reward types and transformed EPSM and IPSM into ordinal variables using Hughes (2003) 27% technique. Specifically, participants with the top 27% of the scores were treated as having high levels and the bottom 27% as having low levels of both EPSM and IPSM. It must be noted that only the highest and lowest percentages were included in the following covariance (ANCOVA) analyses.

To investigate the statistical relationships between variables, a correlation analysis was conducted (see Table 3). The pairwise correlation between EPSM and IPSM was insignificant ( $r = 0$ ).

12). This is no surprise because low correlations between implicit and explicit measures of PSM have long been found in previous studies (e.g., Hofmann et al. 2005).

The hypotheses were tested via ANCOVA (a combination of ANOVA and regression analysis) run in jamovi 1.2 (jamovi project 2020), which is a free and open statistical software program that utilizes R statistical language. This technique allows us to determine if conditional mean scores differ after the influence of other variables on these scores has been equated across groups (Rutherford 2011:1). Basic requirements for conducting the ANCOVA model were met by

**Table 2.** Descriptive statistics of randomized groups (n = 195).

Variables		Money Group		Medal Group		Difference among Groups	
		Counts	Percent (%)	Counts	Percent (%)	$\chi^2/df$	p
Gender	Male	50	25.64	49	25.13	.257/1	.612
	Female	45	23.08	51	26.15		
Major	Art	58	29.74	52	26.67	1.650/2	.438
	Science	23	11.79	29	14.87		
	Other	14	7.18	19	9.74		
Birthplace	Urban	33	16.92	36	18.46	.527/2	.768
	Rural	42	21.54	47	24.10		
	Town	20	10.26	17	8.72		
Only child	Yes	54	27.69	52	26.67	.460/1	.497
	No	41	21.03	48	24.62		
Family Economic Status	Low	13	6.67	10	5.13	2.789/2	.248
	Middle	4	2.05	1	0.51		
	Upper	78	40.00	89	45.64		

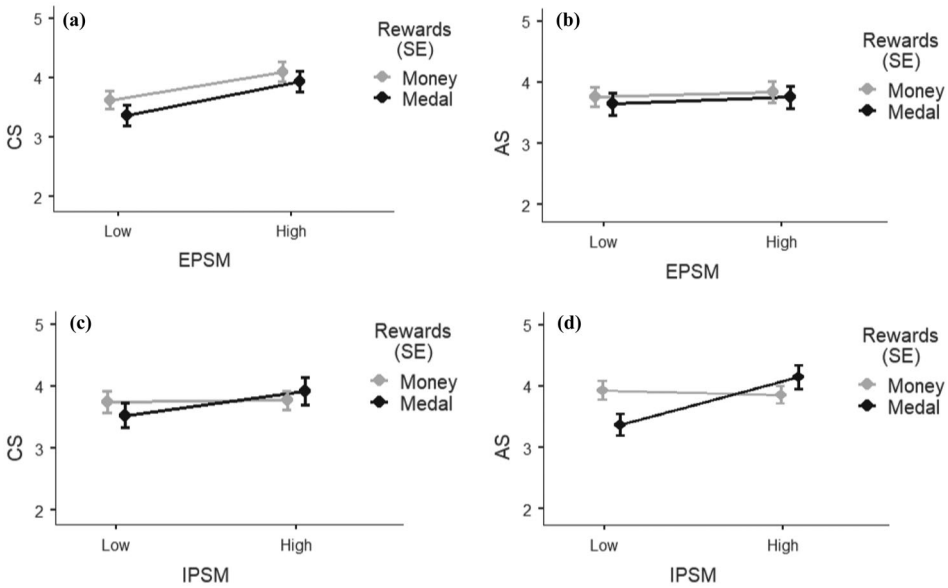
**Table 3.** Correlation matrix (n = 195).

	1	2	3	4	5	6	7	8	9	10	
Gender	—										
Age	-.043	—									
Rewards	-.036	-.010	—								
Major	-.487	***	-.131	-.088	—						
Birthplace	-.089	.068	.037	-.034	—						
Only child	.251	***	.004	-.049	-.215	**	-.221	**	—		
Family Economic Status	.158	*	.000	-.081	-.156	*	-.037	.083	—		
EPSM	-.151	.061	.075	.247	*	.027	-.190	-.075	—		
IPSM	.096	-.041	-.119	-.050	.000	-.058	.149	.121	—		
CS	.102	-.038	-.032	.015	.065	-.041	.012	.321	***	.099	
AS	.101	-.057	-.063	.036	.011	-.057	.035	.068	.145	.624	***

Note. \*  $p < .05$ , \*\*  $p < .01$ , \*\*\*  $p < .001$

**Table 4.** ANCOVA analysis results: the effect of EPSM, IPSM, and rewards on CS and AS.

	df	EPSM-CS				EPSM-AS				IPSM-CS				IPSM-AS			
		SS	F	p	$\eta^2p$	SS	F	p	$\eta^2p$	SS	F	p	$\eta^2p$	SS	F	p	$\eta^2p$
Model	9	11.232	1.819	.074	.15	2.081	.310	.970	.03	2.882	.390	.937	.04	7.319	1.299	.248	.11
Age	1	.162	.236	.628	.00	.004	.006	.940	.00	.134	.164	.687	.00	.392	.626	.431	.01
Gender	1	.643	.937	.335	.01	1.002	1.344	.249	.01	.359	.438	.510	.01	.021	.034	.854	.00
Major	1	.852	1.241	.268	.01	.402	.539	.465	.01	.001	.001	.979	.00	.088	.141	.708	.00
Birthplace	1	.091	.132	.717	.00	.005	.007	.935	.00	.227	.276	.600	.00	.252	.402	.528	.00
Only-child	1	.170	.247	.620	.00	.350	.470	.495	.01	.060	.073	.788	.00	.043	.069	.793	.00
Family Economy	1	.095	.138	.711	.00	.005	.007	.932	.00	.126	.153	.697	.00	.476	.760	.386	.01
Rewards	1	1.058	1.541	.217	.02	.226	.304	.583	.00	.024	.029	.865	.00	.378	.603	.439	.01
EPSM	1	<b>6.430</b>	<b>9.371</b>	<b>.003</b>	<b>.09</b>	.219	.294	.589	.00								
IPSM										1.014	1.236	.269	.01	<b>2.683</b>	<b>4.286</b>	<b>.041</b>	<b>.04</b>
EPSM*Rewards	1	.051	.074	.786	.00	.003	.004	.952	.00								
IPSM*Rewards										.824	1.004	.319	.01	<b>3.976</b>	<b>6.352</b>	<b>.013</b>	<b>.06</b>
Residuals	96	65.872				71.541				77.108				58.835			



**Figure 4.** (a) Effects of EPSM and reward types on CS. (b) Effects of EPSM and reward types on AS. (c) Effects of IPSM and reward types on CS. (d) Effects of IPSM and reward types on AS.

random grouping, independent sampling, and a normal distribution of dependent variables (Kolmogorov-Smirnov  $p > .05$ ). CS and AS were entered as dependent variables, reward types and high and low EPSM/IPSM groups were regarded as treatments, and age, gender, academic major, birthplace, only child status, and the economic status of the family were viewed as the control variables. Table 4 and Figures 4a–4d shows a comparison of the magnitudes of the moderating effects of reward types on the four pairs of relationships concerned.

As can be seen in Table 4, there was a significant direct path from EPSM to CS. However, reward types neither directly affected CS nor moderated the EPSM-CS relationship. Thus, hypotheses 1 and 3 were supported. Moreover, the confirmed positive relationship between EPSM and CS resembles the findings of many extant studies on the direct PSM-JS relationship (Homberg et al. 2015; Harari et al. 2017).

Hypothesis 2 was also supported – albeit to a much lesser extent than the EPSM-CS dyad – by virtue of the significant path from IPSM to AS. Reward types exerted no direct influence on AS but had significant moderating effects on the IPSM-AS relationship, thus lending strong support to hypothesis 4. The simple effect test of reward types further suggested that participants with low IPSM were most susceptible to this moderating effect ( $\beta = .55$ ,  $t = 2.31$ ,  $p = .02$ , see Figure 4d).

## Discussion

By randomly assigning participants into either the monetary or medal rewards group, this study probed the moderating effects of reward types on the overarching PSM-JS relationship in task level. Specifically, we gauged the PSM levels of 195 Chinese university students using both explicit and implicit measures prior to them performing a PGG task. Their satisfaction with this task (i.e., TS) were subsequently measured at both the affective and cognitive levels (i.e., using AS and CS scales). Our findings highlight the importance of both assessing individuals' PSM at an implicit level and of separating task-level JS into CS and AS dimensions.

The contributions we made to the existing literature are primarily fourfold.

First and foremost, our findings not only confirmed the previously established PSM-JS relationship proxied by the EPSM-CS dyad (Brewer and Selden 1998; Sunaryo and Suyono 2013; Homberg et al. 2015; Palma and Sepe 2017; Kjeldsen and Hansen 2018; Prysmakova and Vandenberg 2020; Stefurak et al. 2020; Lin and Wang 2020), but also identified the positive correlation between IPSM and AS. The effort put into establishing the connection between PSM and JS that are respectively measured at the implicit and affective levels is particularly trailblazing and of great theoretical importance.

In addition, we found that reward types had no moderating effects on the EPSM-CS relationship, which at its core is consistent with an early finding that monetary rewards exert quite limited influence on TS (Farrell and Rusbult 1981). In hindsight, we can perhaps ascribe this phenomenon to the fact that the virtual incentive system adopted in our experiment was not sufficiently desirable to exert a noticeable influence on the PSM-TS relationship because 20 RMB is such a tiny sum and the medals are, as bluntly put by Voorberg et al. (2018), merely symbolic. Besides, the EPSM-CS relationship may be spurious in the first place because the measurements of both EPSM and self-reported CS are subject to severe social desirability bias (Kim and Kim 2016). In short, the role that rewards play in the PSM-TS relationship can hardly be identified with accuracy when both focal variables are quantified in a self-rated fashion.

Moreover, this article suggests that when PSM and TS are measured at implicit and affective levels, respectively, their relationship can be discernibly moderated by reward types. While we are unable to pinpoint the exact extent to which rewards affect the IPSM-AS relationship, we can opine on the possible directions of the moderating effects by comparing the results derived from the two experimental groups. Specifically, the influence of medal rewards on the IPSM-AS relationship was positive, substantiating the crowding-in effect that nonmonetary rewards are extremely appealing to those with high IPSM. On the contrary, there existed no positive correlation between IPSM and AS when money was offered as a reward. This result echoes and enriches the “crowding-out” argument held in the mainstream literature (Moynihan 2008; Houston 2009; Chen and Hsieh 2015; Qian and He 2018; Hsieh 2018; Stater and Stater 2019).

Finally, SDT, through which a “reconciliation of incentive theory in economics with intrinsic motivation theory in psychology was made possible” (Fall and Roussel 2014:207), proves to be extremely useful for revealing the subtleties inherent within the PSM-TS relationship. As pointed out by Deci, Koestner, and Ryan (1999), material rewards undermined individuals’ intrinsic motivation for task completion mainly because they eroded autonomy; verbal rewards, on the other hand, significantly increased individuals’ intrinsic motivation. In their most recent work, Corduneanu et al. (2020) also drew on the SDT perspective to make sense of the dynamic between extrinsic rewards and PSM. They argued that only when individuals’ basic psychological needs for autonomy, competence, relatedness, and beneficence were met would extrinsic rewards (in both monetary and nonmonetary forms) help to promote PSM. In our study, participants with high IPSM expressed the most AS when nonmonetary rewards were given, whereas their low-IPSM counterparts expressed the least AS in the same scenario. This critical finding can be perfectly explained under the SDT framework. According to SDT, individuals with high IPSM are longing to be recognized or praised, relate to others, or experience feelings of beneficence. The medal rewards helped satisfy these basic needs and ultimately enhanced the participants’ enjoyment derived from completing the task (that is, AS). Individuals with low IPSM, however, are not motivated to seek satisfaction by helping others. As a corollary, they may be bored or even become aversive to chasing after “virtual honor” rewards. Imaginably, their sentiments in regard to task completion will likely be negative. In short, a firmer grasp of SDT has enabled us to more logically account for an intricate role reward types play in the PSM-TS relationship in which the former is measured at both implicit and explicit levels (i.e., EPSM and IPSM) and the latter is refracted through cognitive and affective lenses (i.e., CS and AS).



## Conclusion

The essential goal of this study is to explore the effects of reward types (monetary vs. nonmonetary) on the PSM-JS relationship in which PSM is measured at both implicit and explicit levels (i.e., EPSM and IPSM) and task-based JS (i.e., TS) is separated into cognitive and affective dimensions (i.e., CS and AS). Results show that the PSM-TS relationship can be comprehended in two significant ways: one is the positive EPSM-CS relationship without any moderating effects of reward types; the other is the positive IPSM-AS relationship that is significantly moderated by reward types.

Our findings contribute immensely to the PSM literature by measuring our respondents' IPSM level with an IAT to counteract social desirability bias that is particularly prevalent in the Chinese culture. Through revealing the moderating effects of reward types on the IPSM-AS relationship alone, this article also justifies the necessity for a finer conceptualization of JS at the task level and provides empirical support for the uniqueness of its affective side (Dalal and Credé 2013; Bowling, Wagner, and Beehr 2018).

It merits mentioning that this study will provide important practical implications for human resource managers in the public sector. With regard to personnel selection, to begin with, job applicants' high EPSM should be interpreted with caution due to the presence of social desirability bias. Although this attribute may be correlated with public servants' contentment with their job, it contributes nothing to their happiness at work. IPSM, on the other hand, has been found to be significantly correlated with happiness and thus should be taken into account in the hiring process. Additionally, in order for the incentive design process to be successful, managers must know that EPSM is less sensitive than IPSM to reward types. Therefore, not only should monetary rewards be prudently used due to the possible risk of motivation crowding (Hsieh 2018; Stater and Stater 2019), but also the character of the beneficiary must be carefully considered when allocating nonmonetary rewards, since this alternative compensation could potentially be construed as meaningless and even disturbing for employees with low IPSM. In a nutshell, to avoid incentive-motivation misfit and the subsequent counterproductive effects, agency leaders are advised to recruit individuals with high implicit PSM and customize incentive policies that prevent diminishing the service motive of internal employees with distinct attributes.

Inevitably, this study has several limitations. The most notable is the use of task satisfaction as a proxy for JS. Although researchers have found a considerable degree of consistency between these elements (Park and Lee 2015), they are not technically equivalent after all. The second limitation has to do with the limited generalizability of our findings, as we used a convenient sample of university students in China. Thus, one should be cautious when applying the findings of this study to public sector employees as a whole. The third limitation stems from the absence of comparison groups in the experimental design. Without placebo or alternative treatments other than the simple "money vs. medals" manipulation, it is difficult to obtain the "pure" effect of rewards and to capture the dynamic effect of reward settings on the PSM-JS relationship. On a related note, this study uses medals to represent non-monetary rewards. However, there is no denying that some participants may consider a medal, particularly the virtual one as doled out in our experiment, of no intrinsic value at all. Lastly, there are many reasons for the several null findings in this study. Future inquiries may focus on collecting JS data in a panel format using a random sampling strategy, leveraging other non-tangible forms of rewards such as positive feedback and verbal praise (Corduneanu et al. 2020), as well as directly examining the impact of social desirability bias and its levels of context-sensitivity in light of an experimental and cross-cultural design.

## Notes

1. As tasks per se constitute an essential aspect of one's job (Sonnentag 2017) and the task delight serves as an irreplaceable prerequisite for securing employee motivation towards better workplace outcomes (Farrell



and Rusbult 1981; Cerasoli, Nicklin, and Ford 2014), we assume situational TS as a proxy of JS in this article. In fact, since Thorndike's (1917) seminal experiment on causally attributing the decreased level of TS to the physical fatigue of human subjects, TS has often been used interchangeably with JS in I-O psychology and HRM studies.

- In their article, Liu and Tang (2011) find that financial incentives “crowd in” intrinsic motivation and increase employees’ job satisfaction. This counterintuitive finding makes sense in hindsight. Specifically, the data were collected in 2010 when China’s massive corruption crackdown had not yet begun. At the time, public sector employment must be of utmost attractiveness to money-loving individuals with high prosociality. This is because working in the Chinese government during that period not only provided individuals with intangible sources of satisfaction derived from serving the public, but also came with ample and continuous opportunities for corruption and for enjoying “what is like to be well off” and powerful (p. 724).

## Declaration of conflicting interests

The authors declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

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