

Innovative Behavior in Public Sector Services Public Service Motivation and Private Sector Experience*

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Abstract: The demand for innovation in public organizations is increasing. In this study, I explore factors that contribute to the innovative behavior of civil servants at the individual level. The theoretical distinction between public and private organizations has long been a subject of debate, and certain characteristics of innovation in public organizations mimic innovation in the private sector, even though the purpose of innovation in public organizations is to secure public goods. In order to examine the innovative behavior of public employees who face such contradictory circumstances, I parameterized the characteristics of each sector, using whether or not the employee had worked in the private sector prior to entering the public service as the characteristic for the private sector and the effect of public service motivation on innovative behavior as the characteristic for the public sector and found that at the individual level, the two are not mutually exclusive.

Keywords: innovative behavior, public service motivation, private sector experience

INTRODUCTION

The need for innovation in public organizations is growing (Osborne & Brown, 2011). These needs are closely related to changes in the external environment, which include global and social changes (Walker, 2014).

Historically, calls for government innovation have lined up with social change,

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such as in response to the growth of civil society and a demand for a welfare state (Damanpour & Schneider, 2009), to a need for government reform from a new public management perspective (Pollitt & Bouckaert, 2004), to an entreaty for a change in the working paradigm of the government from a government to governance model (Rhodes, 1996), to an appeal to develop e-government using information and communication technology (Bekkers & Homburg, 2005), and to a demand for government innovation in line with the fourth industrial revolution (Brynjolfsson & McAfee, 2014).

Research on government innovation is also increasing (de Vries, Bekkers, & Tummers, 2016). In particular, the innovative behavior of civil servants has been shown to be positively related to improved effectiveness, efficiency, and citizen involvement, which are the key performance aspects of public organizations (Salfge & Vera, 2012). Many countries are encouraging innovative behavior in their civil servants and are striving to provide better public services to the public (Hartley, 2013; Windrum & Koch, 2008).

Research about the innovation of public organizations can be divided into three types (de Vries et al., 2016; Walker, 2008). The first type seeks to define and classify it and is typically theoretical in nature (Moore & Hartley, 2008; Rogers, 2003). The second explores the purpose and outcomes of innovation of public organizations and is generally based on case studies (Kuipers et al., 2014). The third concerns the antecedents of innovation in public organizations and is usually grounded in quantitative methods (Borins, 2000; de Vries et al., 2016; Kim, 2019). This study is of the third sort.

Organizational innovation inevitably brings new changes that cause stress to the organizations' members (Cowan, Sanditov, & Weehuizen, 2011). In order for public organizations to successfully integrate innovation into their mindset, it is important that their leaders encourage members to accept, adapt, and actively participate in the process of innovation. The creation of a working culture in which employees actively participate in innovation is a key factor in the success or failure of innovation in the public sector.

Studies on the antecedents of innovative behavior explore what causes civil servants to actively engage in it. However, these studies do not adequately deal with the relationship between public organizations and innovation nor have they even settled on the similarities and differences between public and private organizations when it comes to innovation (Kuchina-Musina, Morris, & Steinfeld, 2020; Rainey, Backoff, & Levine, 1976), as one camp claims that innovation is the same in both (Boyne, 2002; Herzberg, 2017), while another argues that it is different (Bozeman & Bretschneider, 1994; Rainey et al., 1976). In this context, first of all, it is necessary

to identify whether public organization innovation differs from private organization innovation.

Another area that has not been sufficiently explored is innovation at the individual level as opposed to the organizational level (Miao, Newman, Schwarz, & Cooper, 2018). Given that innovation can be accomplished through an individual's participation and action, it is necessary to explore the antecedents that affect the individual's innovative behavior (Abdullah, Omar, & Panatik, 2016; Janssen, 2000; Scott & Bruce, 1994).

There is also a lack of research that examines similarities and differences between public and private organizations as variables. Whether an organization pursues a public interest or private interest affects its characteristics and its management methods. Accordingly, it can be predicted that the characteristics of an organization's members, who form the core of it, will also be different. This study explores the similarities and differences between public and private organizations in terms of motivation for innovation at the individual level.

This article is structured as follows. First I explore the differences between public and private sectors, focusing on the public-private distinction theory through a review of the literature on the key variables I use and develop hypotheses, the first of which is based on the claim that private and public organizations are similar, the second of which is based on the argument that public and private organizations are fundamentally different, and the third of which synthesizes the first two. After a description of the research context and my methodology, I test hypotheses using standardized regression analyses. Lastly, I discuss the importance of the results and suggest more useful practical ideas that can foster innovative behavior in the public sphere.

This study uncovers further commonalities and differences between public and private sector innovation. At the individual level, the attributes of public and private organizations are not mutually exclusive. Therefore, differences with respect to innovation can be identified through a comparison of the behavioral motivation of public organizations, namely, public service motivation (PSM), and that of private organizations, namely, an openness to experience.

This study also highlights the deep connection between intrinsic motivation and extrinsic motivation in public sector innovation. At the individual level, the characteristics of intrinsic and extrinsic factors suggest that synergy can be achieved in innovative behavior through them and that the innovative behavior of public organizations at the individual level can be most powerful when a proper balance of intrinsic and extrinsic factors has been achieved. This study further suggests that innovation will become increasingly important for the survival and prosperity of public

organizations. and offers provide practical methods for encouraging innovation. In order for innovation in public organizations in a closely connected digital society to thrive, it is important for employees to think creatively and participate in initiatives designed to put into practice new ways of doing things. I suggest that the degree of motivation to be innovative among civil servants offers practical ideas for forming successful public organizations.

LITERATURE REVIEW

Public-Private Distinction Theory and Innovative Behavior

Publicness can be defined as “a characteristic of an organization which reflects the extent the organization is influenced by political authority” (Bozeman & Bretschneider, 1994, p. 197), and innovation can be defined as “an idea, practice, or project that is perceived as new by an individual or other unit of adoption” (Rogers, 2003, p. 13), while public servants’ innovative behavior in public organizations can be understood as the implementation of new and useful ideas (Bysted & Hansen, 2015). Innovation is different from creation. Creation generates new ideas whereas innovation emphasizes applying the ideas (Scott & Bruce, 1994).

Until now, research on innovation in public organizations has been mainly focused on innovation’s importance to economic survival (Miao et al., 2018). The demand for innovation in public organizations has increased with the global spread of neoliberalism (Fernandez & Moldogaziev, 2013), which called for the adoption of private sector organizational practices in the public sector. These reforms have been introduced in phases by increasing privatization, enhancing the power of executive agencies, and reducing the size of government (Pollitt & Bouckaert, 2004). The premise of neoliberal reform is that there is no distinction between private and public organizations and that the same management methods used in private organizations work well for public ones (Christensen & Lægheid, 2001; Boyne, 2002).

However, the argument that public organizations can be distinguished from private organization has a long history (Chun & Rainey, 2005; Rainey, 2009). The public-private distinction theory (Perry & Rainey, 1988; Rainey & Bozeman, 2000) suggests that public organizations are distinguished from private organizations in being more sensitive to environmental impacts than private organizations (Rainey et al., 1976) and are strongly influenced by the political environment. In addition, the public demands high accountability from public institutions but not as much

from private ones. Further, the purposes of public organizations are more diverse and ambiguous than those of private organizations (Chun & Rainey, 2005) and the goals of public organizations are the result of political compromise. Public organizations are also more formal and centralized than private ones; they have many rules and much red tape (Rainey, Pandey, & Bozeman, 1995). Finally, while private organizations are motivated by external types of compensation such as wages, public organizations are motivated by intrinsic incentives such as PSM. PSM has been explored in various ways since the idea was introduced by James Perry and Lois Wise in 1990 as a key variable representing the main characteristics of public organizations and civil servants (Ritz, Brewer, & Neumann, 2016).

It can be argued that the distinctive characteristics of public organizations affect civil servants' innovative behavior in ways that distinguishes it from the innovative behavior of private sector employees. First, public organizations are more sensitive to political influences than private ones, innovations in public organizations, because with each major election the public has a chance to voice its opinion. Second, since the goals of the public organization are ambiguous and diverse, variations in innovative behavior will vary depending on the organization's leadership and group culture (Miao et al., 2018). Third, public organizations are strictly controlled by layers of procedures, which means front-line officials have to work hard to ensure that an innovative approach is institutionalized. Rune Bysted and Kristina Jespersen (2014) have pointed out that innovative behavior from public organizations tends to be perceived as an added feature rather than as something built in to the framework, unlike in the case of private enterprises. Fourth, public sector employees are regarded as being guided by PSM (Ritz et al., 2016), which is different from what is thought to motivate private sector employees. This difference in motivation suggests that the sources of innovative behavior in each sector will also be different.

In his meta-analysis of 34 studies that consider the differences between public and private organizations, George Boyne (2002) isolates 13 hypotheses regarding these differences and argues that only 3 of them—namely, that public organizations are more bureaucratic, that public managers are less materialistic, that public managers' organizational commitment is weaker than their private sector counterparts—were found to empirically support the idea that they are distinct. He concludes that more empirical studies need to verify whether in fact such a distinction exists.

Openness to Experience and Innovative Behavior

Various factors contribute to innovative behavior (Jung, 2001; Farmer, Tierney, & Kung-Mcintyre, 2003; Sung & Choi, 2009; Tierney, 2015). According to Susanne Scott and Reginald Bruce (1994)'s pioneering research, the most important are leadership factors (leader-member exchange, leader role expectations), workgroup factors (team-member exchange), and personal factors (intuitive problem-solving style, systematic problem-solving style).

However, there are few studies about how personal factors affect innovative behavior in a public organization. I underscore several traits that contribute to innovative behavior in public servants (Chen, Wu, & Chen, 2010; McCrae & Costa, 1997)—extraversion, openness to experience, and emotional stability, all of which are positively related to innovation and innovative behavior (Sung & Choi, 2009). Because extroversion is associated with adventurousness, it can encourage innovative behavior. Emotional stability helps an individual approach the unfamiliar positively and calmly, and so an emotionally stable person is well suited to putting new ideas into practice. And an openness to experience means an individual is likely to be imaginative curious, traits that are positively related to innovative behavior (McCrae & Costa, 1997; Sung & Choi, 2009).¹ People who have an openness to experience are more likely to have various careers because of their low resistance to new situations. Further, according to a study by Kimberly Jaussi, Amy Randel, and Shelley Dionne (2007), hobbies and interests not connected to work in daily life are positively related to an individual's ability to effect creative solutions. Likewise, public employees are more likely to be innovative if their experiences are diverse.

In Korea, the entrance exam is the way many people secure civil servant jobs, although recently selection methods have expanded owing to government reforms (Kim, 2010). The number of public employees in national level positions was 10,025 in 2018, 54% (6,490) were hired based on their experience rather than based on their performance on an entrance examination, an increase of nearly 20% compared to 35% in 2009.² I postulate that public employees with private sector experience (PSE) are more likely to be innovative than public employees who are hired through the entrance examination.

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1. On the other hand, the consensus is that agreeableness and conscientiousness is negatively related or not related to innovative behavior (Zhou & George, 2001).
 2. Ministry of Personnel Management, May 13, 2020.

PSM and Innovative Behavior

The difference in the organizational environment of the public and private sector can be summed up by observing that public organizations are organizations that target publicness (Bozeman & Bretschneider, 1994), and this concern for publicness is likewise manifested in the propensities and motivations of people joining public organizations. Public servants tend to be motivated more by an intrinsic to serve than by external compensation (Crewson, 1997; Georgellis, Iossa, & Tabvuma, 2011; Rainey & Steinbauer, 1999). Public servants' PSM is defined as "a particular form of altruism or prosocial motivation that is animated by specific dispositions and values arising from public institutions and missions" (Perry, Hondeghem, & Wise, 2010, p. 682).

TPSM is theorized as assuming three forms. The first is rational and is based on the maximization of personal utility. The second one is norm-based and is manifested in efforts to follow social and organizational norms. The third one is affective and is revealed in the way an individual emotionally responds to various social situations (Perry & Wise, 1990). Perry (1996) draws on these theories of PSM to create a construct with six dimensions that can be used to measure PSM: attraction to attraction to public policy making, commitment to the public interest, civic duty, social justice, compassion, and self-sacrifice. In what follows, I address all of these except social justice.

Few studies have empirically tested the idea that public service motivation contributes to innovative behavior (Miao et al., 2018; Wright et al., 2013). A study by Bradley Wright, Robert Christensen, and Kimberley Isett (2013) hypothesizes that attraction to public service, commitment to the public interest, compassion, and self-sacrifice are positively related to employee commitment to change, but the results of their empirical analysis shows that self-sacrifice is the only significant variable. However, it is difficult to generalize from these results because the dependent variable in their study is employee commitment to change, not innovative behavior, and the analysis data is limited to 449 local officials in the southeastern United States in 2010.

Qing Miao and colleagues (2018) explain the relationship between PSM and innovative behavior using psychological empowerment theory. They empirically test the idea that having a high PSM psychologically empowers civil servants in a way that is linked to innovative behavior. However, this study does not explain how PSM is directly linked with innovative behavior. Since each of the dimensions of PSM that Perry describes is associated with a different theory about PSM, it is necessary to examine the relationship between these theories and PSM in detail (Perry & Wise,

1990).

The attraction to public policy making is connected to rational motivation (Perry & Wise, 1990) because creating public policy is a meaningful activity for public servants that instills pride in them. The rewards that shape public service provision are closely related to making meaningful contributions to one's community. Public officials who are take pleasure in public policy making find their work satisfying (Caillier, 2016).

I postulate that the attraction to public policy making will be positively related to innovative behavior because it is not merely a theoretical undertaking but a practical one, because human beings are strongly motivated when they have the responsibility to act (March & Simon, 1993 [1958]), because public officials who are interested in public policy making believe it is important for public organizations to contribute to society and so are likely to support innovative behavior (Perry & Wise, 1990, p. 371), and because policy formation is a process of creatively exploring and applying new and novel appropriate policy alternatives in response to social problems.

Commitment to the public interest is a normative concept related to social obligations such as serving the community and working to achieve social equity. Commitment to the public interest can also be seen as connected to the altruistic tendencies of civil servants (Rainey & Steinbauer, 1999), which amounts to a belief that it is one's civic duty to serve the community rather than to pursue personal interests.

In this context, commitment to the public interest is expected to be positively related to innovative behavior. Since civil servants believe that working for the common good is important, they are likely to have critical insights as to how to improve the operation of public organizations. I posit public servants who want to contribute to the public interest not only can isolate problems in the public sphere but also have the capacity to actualize and implement innovative ideas.

Compassion and self-sacrifice correspond to the emotional dimension of public service motivation. Individuals with these traits seek to improve the quality of life of the poor and marginalized groups and in this way realize the public interest and secure the publicness that public organizations strive for. I predict that compassion and self-sacrifice will also be positively related to innovative behavior. Individuals with such traits are likely both to passively embrace organizational policies or changes within the organization (Wright et al., 2013) and to actively address problems with existing public services.

The two hypotheses I have presented thus far—that that public employees with PSE are likely to be innovative and that PSM is related to innovative behavior—are not mutually exclusive, which leads to the third hypothesis, namely, that there will

be significant differences in innovative behavior depending on the level of PSM and the existence of PSE.

First, it can be expected that the combination of high PSM and PSE will contribute the most to innovative behavior because high PSM drives innovation in public organizations, while PSE provides one with new ideas and perspectives.

Conversely, the combination of low PSM and no experience in the private sector will contribute the least to innovative behavior. This is because PSM, is the prime motivation for civil servants, and so if it is low and if an individual has no experience outside the public sector, the willingness and capacity to innovate will be low.

In between are civil servants with no PSE and high PSM and civil servants with PSE but low PSM. The question as to which of these combinations is more likely foster innovative behavior in the public sector can be answered by considering the nature of innovative behavior in public organizations. In general, civil servants are driven by intrinsic motivation rather than external motivation (Wright, 2004) and innovative behavior in the public sector will more strongly reflect the characteristics of public servants. Therefore, it can be expected that of these two combinations, high PSM and no PSE will contribute more to innovative behavior than that of low PSM and PSE. In summary, the order of the combination of PSM and PSE thus ranges from low PSM and no PSE to low PSM with PSE, high PSM with no PSE, and high PSM with PSE.

Table 1. Ordered Index Based on the Combination of PSE and PSM

| | PSE | No PSE |
|--------------------------|------------|---------------|
| High Level of PSM | 4 (YH) | 3 (NH) |
| Low Level of PSM | 2 (YL) | 1 (NL) |

YH: private sector experience and high level of PSM

NH: no private sector experience and high level of PSM

YL: private sector experience and low level of PSM

NL: no private sector experience and low level of PSM

RESEARCH METHODS

Data and Samples

The present study used a 2018 subset of data addressing public service motivation and innovative behavior from the Public Employee Perception Survey of central government and local government employees in Korea that has been conducted since 2011 by the Korea Institute of Public Administration.

The 2018 data comprise a sample of 4,000 respondents, 50 % of whom worked for the central government and 50% of whom worked for local governments and 35.6% of whom were female. The average age of respondents was 37.6 years old ($SD = .89$), and the average length of the time the respondent had worked for the organization was about 18 years ($SD = 1.8$).

Measures

The dependent variables include innovative behavior, PSM, and PSE.

I measured innovative behavior using two items adapted from Scott and Bruce (1994): “searches out new technologies, processes, techniques, and/or product ideas” and “develops adequate plans and schedules for the implementation of new ideas.” Items were scored on a 5-point Likert scale ranging from 1 = strongly disagree to 5 = strongly agree.

I measured PSM using Wright, Christensen, and Isett’s (2013) global scales. Their five items include “Meaningful public service is very important to me,” “I am often reminded by daily events about how dependent we are on one another,” “Making a difference in society means more to me than personal achievements,” “I am prepared to make enormous sacrifices for the good of society,” and “I am not afraid to go to bat for the rights of others even if it means I will be ridiculed.” Items were scored on a 5-point Likert scale ranging from 1 = strongly disagree to 5 = strongly agree. Cronbach’s α was .87.

In South Korea, there are two paths of entry to public service employment. One is via the official entry examination, the most common way into such employment. The data used in this study show that 81% of respondents became public officials through the entry exam. The other path is through experience or expertise in the private sector. In the data used in this study, 19% of respondents became civil servants as a result of the experience they secured in the private sector.

Using the relationship between innovative behavior, PSM, and PSE, I constructed a structural matrix of PSM and PSE that can be operationalized from no PSE and

a low level of PSM (NL) (1) to PSE and a low level of PSM (YL) (2), no PSE and a high level of PSM NH (3), and no PSE and a high level of PSM (YH) (4). The NL sample size is 1,041, the YL is 187, the NH is 2,198, and the YH is 574.

To rule out potential confounding factors, I controlled for gender, age, educational attainment, work experience, and job rank as individual-level covariates and organization type as an organizational-level covariate. A meta-analysis of studies on innovative behavior has found a significant relationship between an individual's gender, age, job rank, education level, and work experience and innovative behavior (Bysted & Hansen, 2015). Organizational type (0 = central government, 1 = local government) is included in the model to control for the potential confounding effect of the varying size of organizations and variation in available resources.

Analysis

The present data set was multilevel in nature, consisting of 4,000 employees nested within two types (i.e., central or local) of government. The independence of observations assumption that underlies ordinary least squares regression could not be assured (Gelman & Hill, 2006). I analyzed the data on the basis of hierarchical linear modeling because employees within the central government are likely to be more interchangeable with each other than with those working in local governments, and the same goes for local government employees (e.g., Vashdi, Vigoda-Gadot, & Shlomi, 2013).

I treated individual public employees level 1 data and the two types of government as the level 2 data. To estimate the variation in innovative behavior between governmental types, I first tested a null (unconditional) model with no predictors. Variance decomposition between the two levels for innovative behavior showed that 99% of the total variance lay at the individual level and only 1% at the organizational level, which means that the intraclass correlation coefficient is lower than .05 and so that a single-level model cannot be used (Mehmetoglu & Jakobsen, 2016).

I checked correlation between variables to prevent multicollinearity. I found a high correlation (.81) between age and tenure. To prevent multicollinearity problems, I eliminated the age variable.

Results

Descriptive Statistics and Correlation

Table 2 shows the means, standard deviations, and correlations of the research variables and indicates that there are positive correlations between innovative

behavior and PSM as well as positive correlations between innovative behavior and each of the control variables.

Table 2. Means, Standard Deviations, and Correlations among the Variables

| | Mean | Standard Deviation | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|------|--------------------|--------|--------|--------|--------|--------|--------|-------|--------|
| 1 PSM | 3.49 | .66 | 1 | | | | | | | |
| 2 PSE | .19 | .39 | .05** | 1 | | | | | | |
| 3 Ordered Index of PSE and PSM in relation to Innovative Behavior | 4.31 | 1.51 | .74** | .32** | 1 | | | | | |
| 4 Innovative Behavior | 3.40 | .71 | .52** | .03* | .38** | 1 | | | | |
| 5 Gender | .36 | .48 | -.18** | .12** | -.09** | -.18** | 1 | | | |
| 6 Educational Attainment | 3.10 | .72 | .08** | .05** | .06** | .12** | -.09** | 1 | | |
| 7 Work Experience | 3.54 | 1.78 | .21** | .00 | .19** | .20** | -.05** | -.06** | 1 | |
| 8 Job Rank | 2.28 | .75 | .17** | -.03 | .13** | .19** | -.24** | .28** | .38** | 1 |
| 9 Organizational Type | .5 | .5 | .05** | -.17** | -.02 | .09** | .02 | -.11** | .17** | -.22** |

Notes: gender code (0 = male and 1 = female); educational attainment code (1 = high school, 2 = vocational college, 3 = undergraduate degree, 4 = master's degree, 5 = doctorate); work experience code (1 = <5 years, 2 = 6-10 years, 3 = 11-15 years, 4 = 16-20 years, 5 = 21-25 years, 6 = > 25 years); job rank code (1 = lowest level (9th, 8th), 2 = middle level (7th, 6th), 3 = high level (5th), 4 = highest level (4th, 3rd, 2nd, 1st)); organizational type code (0 = central government, 1 = local government)

* $p < .05$; ** $p < .01$.

Test of Hypotheses

All three of my hypotheses were supported by the results of the analysis. As is shown in table 3, PSE is positively related to innovative behavior in model 1 ($\beta = .07$, $p < .01$) and in model 3 ($\beta = .03$, $p < .10$), while models 2 ($\beta = .48$, $p < .01$) and 3 ($\beta = .47$, $p < .01$) demonstrate that PSM is positively related to innovative behavior and model 4 indicates that PSE and a low level of PSM (YL), no PSE and a high level of PSM (NH), and no PSE and a high level of PSM (YH) are positively related to innovative behavior ($\beta = .34$, $p < .01$).

Table 3. Results of Regression Analysis on the Hypothesized Correlates

| | Model 1 PSE | Model 2 PSM | Model 3 PSE and PSM | Model 4 Relationship between the Ordered Index of PSE and PSM and Innovative Behavior |
|----------------------------|------------------|------------------|---------------------------|--|
| PSE | .07*** (.03) | | .03* (.02) | |
| PSM | | .48*** (.02) | .47*** (.02) | |
| YL | | | | .03** (.05) |
| NH | | | | .37*** (.02) |
| YH | | | | .29*** (.03) |
| Gender | -.15*** (.02) | -.07*** (.02) | -.08*** (.02) | -.11*** (.02) |
| Education | .09*** (.02) | .07*** (.01) | .07*** (.01) | .08*** (.02) |
| Work Experience | .15*** (.01) | .07*** (.01) | .07*** (.02) | .09*** (.01) |
| Job Rank | .09*** (.02) | .05*** (.02) | .06*** (.02) | .07*** (.02) |
| Organizational Type | .11*** (.06) | .07*** (.08) | .08*** (.08) | .10*** (.02) |
| R-Squared | .0962 | .3013 | .3020 | .2022 |

Note: Standardized regression coefficients are reported with robust standard errors in parentheses.

* p < .10; ** p<.05; *** p < .01

Overall, 10% percent of the variance (model 1) to 30% of the variance (model 3) in innovative behavior was explained by my model, representing a moderate to large effect by conventional standards (Cohen, 1992).

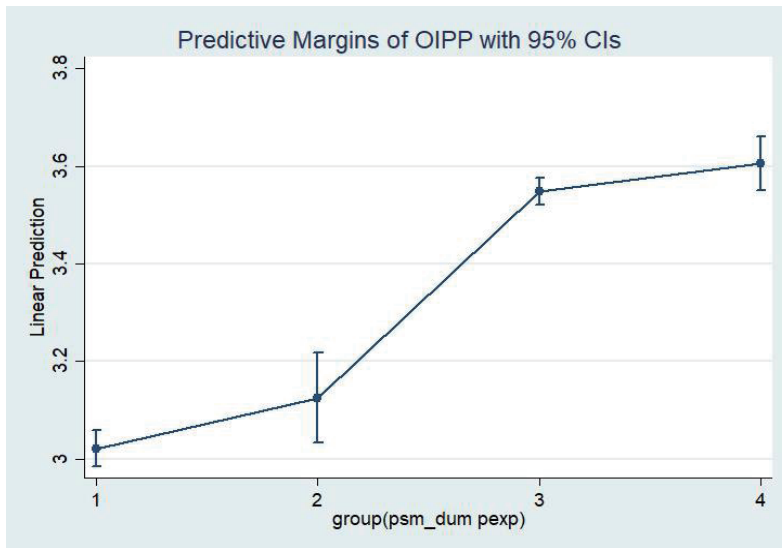
DISCUSSION

The present study found that public servants’ PSM is an inherent and powerful driver that fosters civil servants’ innovative behavior by enhancing their normative, rational, and affective motives for choosing a career in public service. Furthermore, previous experience in private sector, highly linked with openness to experience,

also encourages innovative behavior. More specifically, findings suggest that prior PSE elicits innovative behavior by enhancing employees' external experiences and that PSM elicits innovative behavior by stimulating internal motivation. These results are consistent with Yannis Georgellis, Elisabetta Iossa, and Vurain Tabvuma (2011)'s argument that public servants are intrinsically rather than extrinsically motivated.

To examine the nature of the innovative behavior of public servants, I plotted estimated regression lines representing the relationship between the ordered index of PSE and PSM and innovative behavior for NL, YL, NH, and YH. As shown in figure 1, the relationship is stronger (that is, the steeper slope) in the case of PSE and a high level of PSM.

Figure1. Relationship between the Ordered Index of PSE and PSM and Innovative Behavior



My findings have both important theoretical and practical implications. First, they suggest that motives specific to the public sector are more likely to foster innovative behaviors in it than the extraversion, openness to experience, and emotional stability that drive individuals working in other sectors.³ Of these, I measured open-

3. These findings are in line with person-environment fit theory (Edwards, Caplan, & Harrison, 1998), as a comparison of the standardized coefficients suggests (PSE = .03*, PSM = .47**).

ness to experience, which is known to be most strongly related to innovative behavior, as a proxy, as a way of assessing whether or not public officials had PSE. This analysis revealed that even those with PSE had a positive relationship with innovative behavior, although PSM turns out to be a strong motivator. The reason for this is that there is a good fit between the organizational environment of a public organization and what motivates public officials.

Second, my findings suggest that both PSE and PSM can drive encourage innovative behavior by expanding the internal and external motivation of employees. When the needs of the workplace are consistent with their values and desires, humans are motivated to try to perform well (Spreitzer, 1995). PSM reflects an individual's rational desires, normative and emotional motives and has a number of dimensions, including attraction to public policy making, commitment to civic duty and the public interest, compassion, and self-sacrifice. The high PSM of public officials makes them well suited to public organizations, whose purpose is to serve the public interest (Brewer, Selden, & Facer, 2000, p. 417). And for civil servants with high PSM, PSE provides external experiences that helps them transform innovative ideas into action. The intrinsic motivation of PSM and the experience of working in the private sector create synergies that maximize the possibility of innovative behavior on the part of civil servants.

The role of PSM in civil servants' innovation is clearly seen in model 4, which measures effect of the combination of high PSM and PSE on it. These results are the same even if the combination of PSE and PSM is not assumed to stand in a linear relationship but is instead analyzed as a category variable. In other words, the innovative behavior of civil servants is maximized when high PSM and PSE are combined.

This research also has important practical implications. First, given that public servants with high levels of PSM and PSE were found foster innovative behavior, hiring practices that assess job candidates' PSM and PSE would be beneficial. In Korea, it has become increasingly common for individuals to be hired as civil servants based on their work experience in the private sector (Han, 2017). However, simply selecting a person who has PSE is not enough to maximize the innovative behavior of public servants. It is also important to select people with PSE who are well suited to public organizations—that is, individuals with strong PSM. That is, hiring civil servants based only their level of PSM is inadequate, as is selecting civil servants with PSE without considering their PSM. Because innovation and innovative behavior are becoming increasingly important in the government sector (Ismail, 2014), it is necessary to change how civil servants are hired.

Second, human resources management in the public sector ought to encourage

not just prospective employees but also its already existing employees to seek out experiences beyond the public sector. Varying experiences provide concrete materials for public sector innovation, making it easy to actualize new ideas. Postgraduate programs and overseas training, for example, can encourage innovative behavior.

Third, my study shows that PSM, the intrinsic motivation of civil servants, is the most powerful tool in the fostering of innovative behavior in public servants, and so human resources management needs identify and remove elements that hinder PSM. Furthermore, it is necessary to institutionalize those qualities that can strengthen PSM.

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