

연구논문

How democracy is related with innovation in organizations: in public organizations in Korea*

Kim, Eunsol**
Lee, Suk-Won***

- I. Introduction
- II. Literature Review
- III. Data and Methods
- IV. Results and Discussion
- V. Implications and Conclusion

< Abstract >

Major streams of government reform place a larger emphasis on improving the work environment in public organizations. As part of this movement, empowerment, and horizontal communication are regarded as key components, which convey democratic decision-making. In this aspect, the current study investigates how democratic communication yields positive results in employee-driven innovation and output innovation, drawing on the theories of Organizational Citizenship Behavior. The analysis results show that organizational democracy is positively and significantly related to both employee-driven and output innovation. It is implied that improvements in the organizational environment bring changes to the innovative behavior of the employees.

[key words: organizational democracy, communication, innovation, employee-driven innovation, output innovation, work environment]

* This paper is developed from the first author's master's thesis paper.

** Graduate School of Public Administration, Seoul National University(miniak@snu.ac.kr)

*** Corresponding Author, Professor at Graduate School of Public Administration, Seoul National University(sw14305@snu.ac.kr)

I . Introduction

Since Indik (1968) coined the idea that organizational environment interacts with and affects an individual's behavior, organizational structure and the climate or environment created in the organization have been studied from various perspectives. These encompass studies of how the formalized structure (Porter & Lawler, 1965; Blankenship & Miles, 1968; Dischner, 2015), leadership (Ghiselli & Siegel, 1972), and psychological climate (James et al., 2008) are associated with individual behavior within the organization. The organization is not considered as a physical boundary but is rather regarded as an organic structure that creates an environment where the members work, interact, and make efforts for the group.

For such reason, improving or making changes to the organization environment has been a useful tool when enhancing some aspects of the organization. One of the targets has been organizational innovation, identified as outcomes from the organizational environment (Baldrige & Burnhan, 1975; Pierce & Delbecq, 1977). The studies on innovation have similarly attributed the innovative outcome to organizational context and environment fostering innovative behavior. Specifically, the organizational environment in the studies refers to empowerment and decentralization to promote individual participation in decision-making and discussions in the organizations (Rappaport, 1987). Such movement has been similarly observed in the public sector, following Osborne and Gaebler (1992) and the New Public Management.

While efforts for innovation has led to empowerment and decentralization via participative decision-making in the private sector, similar achievement had not been thoroughly observed in public organizations. Especially in Korea, where traditional and cultural norms value strict hierarchies, empowerment and dispersion of power had been hampered even more. However, with constant discussion on enhancing organizational efficiency, public organizations in Korea are going through a shift from old hierarchical organizations to more horizontal and decentralized ones, thereby adopting such mechanisms mentioned above. Given the

cultural context, adopting innovation and implementing it seemed difficult. Therefore, this paper is aimed to explore how a participatory environment has been fostered in public organizations in Korea and how such environment is related to innovation in the organizations.

II . Literature Review

1. Theoretical Background

Much literature emphasizes the importance of empowerment and its effect on innovation within an organization (Amabile, 1988). Empowerment does not simply mean a shift of power, but it rather works as a medium to encourage participation and involvement in various works within the company (Leitch et al., 1995). Especially pointed out is the importance of communication on horizontal structures rather than across the vertical hierarchies, as such communication is identified as a determinant of individual empowerment and self-determination (Siegall & Gardner, 2000). This study aims to investigate through what mechanisms such participatory communication would be encouraged and to question whether a participatory environment could lead to more innovative behavior of the organization, based on the theories of organizational democracy, and innovation, in alignment with organizational citizenship behavior.

1) Organizational Democracy

Organizational democracy refers to providing a forum for discussion and a realistic platform for participation in decision-making within the organization (Adobor, 2020). Recently, systemizing the platform for organizational democracy has been the agenda for many organizations, offering participation from the members of the organization. These reforms often emphasize horizontal communication, sharing

power and discretion among the members of the organization.

Much literature illustrates the political effects of adopting horizontal communication and sharing discretionary power across hierarchies. When given voting powers in decision-making, the members are shown to voluntarily take more important roles (Bille, 2001), to get involved and consider the matter with more sincerity (Olsen, 1972). At the same time, the managers act more accountable to the other members in the organization, due to political support (Finkel, 1987). Overall, the members of the organization exhibit enhanced organizational commitment, to either formally practice their power in decision-making or act responsively (Weber, Unterrainer, & Seyr, 2012)

Organizational commitment in turn enhances individual skills and competence, and responsibilities regarding the final decision, leading to a better decision overall (Harrison & Freeman, 2004). Giving individuals the freedom to participate implicitly allocates accountability for results at the organizational level, thus individuals would be expected to act in accordance with the societal or organizational norms, promoting coherence within the organization (Collins, 1997). Such positive and cooperative stances suppress individuals to act against organizational norms or ideals, thereby creating a more coherent organizational climate overall (Harrison & Freeman, 2004). Creating a participatory environment at organizational level leads to the internalization of organizational value (Losada & Heaphy, 2004) to promote better performance, thereby encouraging innovative behaviors (Melman, 2001). Since changes through democratic procedures can help overcome resistance (McArthur, 2002), organizational democracy is also considered important from management perspective.

There are also criticisms that implementing organizational democracy is a trade-off with efficiency since gathering and incorporating broad and different opinions is often time and cost-consuming (Harrison & Freeman, 2004). Also, legitimizing democracy to frontline workers or those lower in the hierarchy includes less knowledgeable and less experienced opinions, which could be short-sighted (Harrison & Freeman, 2004). In spite of such drawbacks, organizational democracy

in public organizations has a positive effect where less of buck-passing, higher job satisfaction, and more creative solutions to public problems (Smith, 1976). Though impediments such as the needs, customs, interests of the powered, organizational norm, bureaucratic social values and reward systems, the current paper argues that organizational democracy would bring larger advantages overall.

Organizations in the public sector has so far been renowned for its rigidity, hierarchy, and rule-adherence (Dalton et al., 1980; Foster, 1990; Currie, 1996; Wright & Pandey, 2010; Deverell, 2010), and organization was only considered a physical boundary that groups the employees. Constant research, however, on organizations have revealed that organizations play more than outlining the members, but rather has an effect in their behavior (Staw et al., 1981). At the same time, recent movements in the public sector actively implements changes to organizational environment to adopt new organizational culture and foster new behavior. It is therefore recommended that organizations take measures to institutionalize and promote organizational democracy.

2) Organizational Innovation

Innovation has been studied under three streams of definitions. The first perspective regards innovation as something totally new. A new idea, tactic, or process that is newly introduced to the individuals or the organization is considered an 'innovation' (Rogers & Shoemaker, 1971; Kimberly, 1981; Steiner, 1965; Myers & Marques, 1969). The second perspective focuses on the process of innovation. Anything new that is created, implemented, or adopted as well as the process of practicing the new policy, product, or service are both labeled as innovation (Urabe, 1988). The last perspective pertains to the interaction of the organization with the environment, considered as a measure to adapt to the changing surroundings for survival (Damanpour, 1991).

Similarly, the definition of organizational innovation refers to discovering something completely new to the organization (Schumpeter, 1928; Barnett, 1953), or

a new product or process adopted for the first time (Mansfield, 1963). Specifically, organizational innovation focuses on improving the means or processes of work (Thompson, 1965; Evan & Black, 1967; Mohr, 1969), for a shared goal. In recent studies, innovation also includes small changes made to the organization (Wakonen, 1997), in process, product, or services.

Now that not only radical changes are considered as innovation, but small changes are also comprehended as innovation, inputs from individual workers are encouraged (Bharadwaj & Menon, 2000). In fact, innovation at the organizational level has much more impact than at the individual level, signaling systematic support within the organization. Acknowledging that an individual and their idea is supported in the organization helps them develop innovative ideas or attitudes without an apparent reward (Eisenberger et al., 1990). Under such logic, the current study argues that individual input is important in promoting innovation at the organizational level.

How individual input for innovation is fostered in the organization is associated with environmental aspects such as leadership (Boerner et al., 2007; Sarros, Cooper, & Santora, 2008; Gumusluoglu & Ilsev, 2009; Garcia-Morales, Jimenez-Barrionuevo, & Gutierrez-Gutierrez, 2012) or structures (Miller & Friesen, 1982). Namely, organic structures, defined as complex hierarchy, joint specialty, decentralization, and informal communications (Burns & Stalker, 1961), facilitate more innovation (Aiken & Hage, 1971). At the same time, strict bureaucratic control is considered a major deterrent to innovation (Aiken & Hage, 1971; Pierce & Delbecq 1977). Especially in public organizations where bureaucratic hierarchy prevails, managers are often resistant to allocating power to their subordinates, partly due to high external control (Holdaway et al., 1975). Such factors make managers in public organizations hold more bureaucratic control than private organizations, thereby inhibiting innovation even further.

Since organizational structure and hierarchy are stressed for public organizations to function, bureaucratic cultures often emphasize top-down approaches when considering innovation. However, in an empirical study, the majority of innovative

actions come from the middle or frontline workers (Borins, 2001). Especially in developed countries, the proportion of innovation arising among the middle or frontline workers reaches almost 70 percent of all the innovations happening within the public organizations. This type of innovation refers to innovative behaviors and actions that are proactively suggested and acted upon by employees to make changes or improve the work process. Not necessarily directed or led by the top managers, but voluntarily invented by the workers themselves, employee-led innovations make it easier for organizations to implement various changes to the organization at multiple levels (Hurley & Hult, 1998). Learning and development on a personal level, and participatory decision-making are several concepts valued in these organizations, creating a climate for personal development. Employee-driven innovations are especially significant in that they are observed in the public sector. Innovation from the bottom seemed a very difficult idea in public organizations due to rigid structures and hierarchies that limit actions outside the duties. Still, as mentioned above, innovation from front-line workers in public organizations is constantly being encouraged. The key would be to discover how to promote and foster such innovation from the employees.

The current study takes the approach that employee-driven innovation is heavily influenced by organizational culture. Organizations where potential demands for change and premises that such change is implemented would observe more innovation (Billett, 2012). A study by De Spiegelaere and Van Gyes (2012) shows that direct participation in an organization is positively related to employee-driven innovation and indirect participation is only partially related. The belief that one's contribution to making a change would actually be put into practice fosters innovative behaviors. In consent with the study, it is important for leaders to create an organizational climate for a bottom-up approach to innovation (Borins, 2002). Employee-driven innovations involve communication back and forth within the organization, which in turn requires collaborations within the organization (Bardach, 1998). In large organizations, or in public organizations where inter-organization communication is lacking, formal structures to aid the communication might be

required (Borins, 1998). Therefore, the current aims to examine how such enhanced communication and democratic decision making could affect innovation in the public sector.

3) Organizational Citizenship Behavior

The key assumption of how the organizational environment can induce innovation at the employee level is the concept of organizational citizenship behavior (OCB). First coined by Organ (1988), 'Organizational Citizenship Behavior (OCB) is a person's voluntary commitment within an organization or company that is not part of his or her contractual tasks.' It refers to individuals' attitudes or behavior that is voluntary and that is not necessarily compensated through a formal reward system or credited directly but accumulates to help the organization perform more effectively. In the long run, it is closely related to organizational performance or effectiveness (Bateman & Organ, 1983; Smith, Organ & Near, 1983). There are 7 dimensions of OCB: (1) Helping Behavior, (2) Sportsmanship, (3) Organizational Loyalty, (4) Organizational Compliance, (5) Individual Initiative, (6) Civic Virtue, and (7) Self Development (Podsakoff et al., 2000). Among these, individual initiatives refer to taking initiatives to develop genuine and innovative ideas in order to enhance personal and organizational work performance, innovation dealt with within this paper.

Various antecedents to OCB exist, such as job satisfaction, organizational commitment, perceived fairness, or participation (Podsakoff et al., 1996). Components of OCB proposed by Van Dyne et al. (1994) include loyalty, obedience, and participation in the organization. Since participation functions as both an antecedent and a component, organizational democracy could also trigger OCB. Another antecedent is perceived fairness, which can be divided into distributive and procedural fairness. Distributive fairness refers to one's output compared to inputs asserted in work, also output compared with co-workers. Procedural fairness refers to fairness in the process, to other persons and time, in line with ethical standards (Leventhal, 1980). Organizational democracy could function with the procedural

fairness perceived by the individuals, which could arouse OCB consequently.

As such, organizational environment refers to values, beliefs, or assumptions that are internalized, institutionalized, and shared within the organization. The organizational environment also helps to determine in-role behavior and extra-role behavior (Morrison, 1994; Van Dyne, Grahman & Dienesch, 1994). Specifically, the organizational environment helps to clarify or blur the boundaries defining the in-role behavior or extra-role behavior. Managers actually take advantage of OCB to create an organizational environment, thereby adjusting individuals' in-/out-role behavior (Farh, Earley, & Lin, 1997). This suggests that OCB could work as a mechanism for producing innovation. The motivation behind such adoption of changes is to improve the function and efficiency of an individual, group, or organization (George & Jones, 1997).

Drawing on the theoretical concepts from organizational citizenship behavior, the study examines the relationship between organizational democracy fostered by a participatory environment and innovation at organizational level.

2. Hypothesis

As discussed above, the study examines how organizational democracy is related to innovation. Specifically, organizational democracy refers to how formal structures to systematize and execute such democracy are in place, to gather opinions and consider them for decision-making. In terms of innovation, the study takes into account two types of innovation: employee-driven and output innovation. Employee-driven innovation pertains to innovation occurring at the individual level, and output innovation means innovation regarded with the output as an organization. Specific hypotheses are as follows:

Hypothesis 1: Organizational democracy is positively correlated with
employee-driven innovations

Hypothesis 2: Organizational democracy is positively correlated with output
innovations

III. Data and Methods

1. Data

The study uses Workplace Panel Survey by the Korea Labor Institute. The Korea Labor Institute has consistently collected data from the workplace, through multilevel surveys. WPS has been conducted every two years since 2005, which shows the integrity and consistency of the data provided. Data across the years are all used in the analysis, and controlled for the year since the number of repeated measures for public organizations was not enough for statistical analysis. For the current study, data from public organizations will be used.

2. Measures

Since WPS data conducts surveys on various features of organizations, the survey items are selected for measures in the current study. To measure the independent variable, organizational democracy, 4 survey items asking about communication channels that exist in the organization are selected. These questions ask about bottom-up communication channels that exist within the organization that contributes to decision-making since organizational democracy emphasizes two-way communication and open communication and participation are related to innovation (De Spiegelaere & Van Gyes, 2012). Positive responses to each question are rated as having a value of '1' and the four items are cumulated as a new variable. These questions for formal participation are 'Meeting with top management and all the employees (all or partial)', 'Operating hotline for direct communication with the executives', 'Get together with the affiliated team to share information on administration', and 'survey on regular basis to find out opinion and attitudes of the employees'.

In terms of dependent variables, two items measuring two types of innovation are used in the analysis. The question asks the level of employee-driven innovation

compared to the market average, based on the previous year, measured in a 5-point Likert scale, and answers for 'N/A' are eliminated for analysis. The measure for output innovation asks the level of output innovation compared with the market average, also based on the previous year. It is measured using a 5-point Likert scale, and is coded equally but 'N/A' answers are eliminated.

The corresponding control variables are also included, while some are created for analysis purposes: female-to-male ratio is created by dividing the number of female employees by the number of male employees; the age of the organization is calculated using the year of establishment and year of measurement.

1) Dependent Variable

Innovation is measured using two different constructs: employee-driven innovation and output innovation. Bottom-up innovation occurring voluntarily from the frontline workers is referred to as employee-driven innovation. Focusing on the source of innovation, employee-driven innovations refer to changes in the work process adopted by the workers at the lower level of the hierarchy. Public organizations have constantly observed this phenomenon where implementation at the managerial level is reduced and is overrun by such changes initiated at the lower level (Hasu, Saari, & Mattelmaki, 2011). It is also related to organizational commitment and job satisfaction (Høyrup, 2010), ultimately resulting in radical change brought to the organization, implying that its potential impact on the organization is understudied. Employee-driven innovation is directly and strongly related to the direct participation of the employees (Wihlman et al., 2014), where open and direct communication forums are suggested to foster such innovations. Thus, this study aims to investigate the relationship between the two constructs.

Output innovation refers to innovative approaches and development to the final output produced by organizations. It is often regarded in two dimensions: technical and administrative innovation (Damanpour, 1987). Technical innovations refer to technical or systematic changes made in the organization, which are directly related

to the activity and performance of the organization, and administrative innovation means changes in the process and way of work within the organization. These two types of innovation often go hand-in-hand, creating synergies within the organization. For example, when accompanied by administrative innovation, the effect of technical innovation persists longer (Damanpour & Evan, 1984), compared to innovations applied separately. Changes made via administrative innovation result in social change, which aids technical innovation later in time (Damanpour, Szabat, & Evan, 1989), and sometimes administrative competence is required when technical innovation is implemented (Nord & Tucker, 1987). While technical innovations entail a direct change in organizational performance, administrative innovations account for a rather indirect effect, through new management system or personnel capacity-building systems to improve the functioning of the organization overall (Kimberly & Evanisko, 1981).

In the survey used for the current study, output innovation is defined as innovation in a product or service, which would fall under technical innovation from the definition provided above. However, since the study deals with public organizations only, innovation in products or services could create confusion, so the wording is, row adjusted to output innovation.

2) Independent Variables

The independent variable is organizational democracy and is operationalized as formal channels for participation. Previous research shows that structurally institutionalized and stable participation channels make individuals perceive that their level of participation is high (Unterrainer et al., 2011), enhancing the affective commitment of the individuals. Also, such legitimate structures results in more egalitarian and humanitarian moral attitudes in individuals. Therefore, this study focuses on the formal structures institutionalized for organizational democracy. It is worth noting that the perceived level of participation is also important since it creates a socio-moral climate, and fosters organizational commitment (Weber,

Unterrainer, & Schmid, 2009), thereby creating organizational citizenship behavior (Podsakoff et al., 1996), but since the study sample is based on a survey from a range of organizations, the response can be subjective. For this reason, the current study limits the definition of organizational democracy as the presence and use of formal structures for democratic discussion in decision-making.

3) Control Variables

Since this study takes in data from both individual levels and organizational level, various factors might affect the result. Firstly, individuals' characteristics need to be controlled. 'Opinion leaders' who practice a significant influence in the organization are likely to be men, and old in age (Rogers, 1962; Carlson, 1967). Thus, the gender and age of respondent is controlled. Gender is also considered at the organizational level, by controlling for female to male ratio in each organization. Also at the organizational level, various factors affecting innovation are to be controlled. According to Kimberly and Evanisko (1981), these can be classified into three clusters: the leader, organization, and environment. In terms of the leader, whether the person is in a powered position, as they exert larger change in organizational performance (Lieberson & O'Connor, 1972). As previously discussed, hierarchy and empowerment are closely linked with innovation (Baldridge & Burnham, 1975). Thus, the job tenure of the individual or position within the organization is controlled. At the organizational level, the size, and age of the company is to be controlled for, as they have a significant influence on innovation (Stinchcombe, 1965). In a competitive situation, organizations tend to be more accepting of innovations (Utterback, 1974), and thus competitiveness of the major product or service is included as a control variable. The year that data was measured is also included in the control variable, to control for any social or national changes that happen at the macro level. Although the data is designed as panel data, the portion of data selected to be used for the analysis lacks enough repeated measurement to yield any significant result. Thus, data here is considered as separate measurements taken

every other year and it is controlled accordingly.

The table on the following page summarizes variables to be considered in the current research, as well as measurements that are included in the original survey, to be used for analysis for the study.

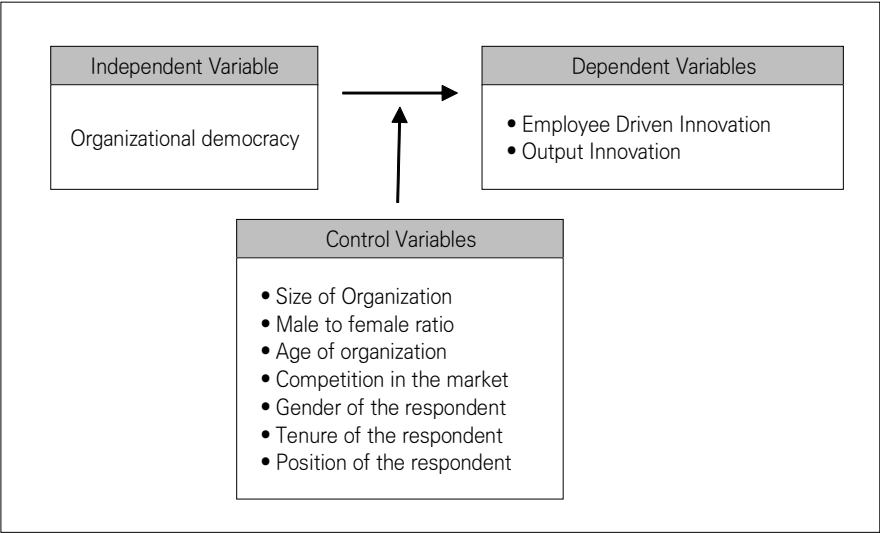
〈Table 1〉 Variables in the study

Variable	Operational Definition	Reference
Independent Variable		
Organizational Democracy	The level of formal channels for organizational democracy within organization	(Unterrainer et al., 2011)
Dependent Variables		
Employee-Driven Innovation	The perceived level of employee-driven innovation	(Hasu, Saari, & Mattelmaki, 2011)
Output Innovation	The perceived level of output innovation of the organization	(Damanpour, 1987)
Control Variables		
Size of the organization	The number of employees in the organization at the time of measurement	(Stinchcombe, 1965).
Age of organization	The age of organization at the time of measurement	
Gender ratio	Female to male ratio in comparison with all the employees in organization	'Opinion Leaders' (Rogers, 1962; Carlson, 1967)
Gender, tenure, and position of respondent	Basic information about the person responsible for completing the survey – gender, tenure and position in the organization	
Competition in the market	The perceived level of market competitiveness	(Utterback, 1974).

4) Conceptual Framework

The study proposes to examine the relationship between organizational democracy and innovation, specifically how formal channels for democracy within the organization impact employee-driven innovation and output innovation. The diagram below briefly shows how the study is designed.

〈Figure 1〉 Conceptual Framework of the study



3. Methodology

Although WPS data is initially formed as panel data, the repeated measures from all public organizations have not been obtained throughout the data period. Therefore, the analysis takes on a fixed-effect model but using an unbalanced panel. The number of samples for each year of measurement is shown in the table below.

〈Table 2〉 Number of samples for each year of measurement

Year	Observations	Percentage
2005	290	27.59%
2007	125	11.89%
2009	116	11.04%
2011	117	11.13%
2013	119	11.32%
2015	100	9.51%
2017	87	8.28%
2019	97	9.23%
Total	1051	100%

IV. Results and Discussion

1. Descriptive Analysis

The tables below shows descriptive analysis for each major variables.

〈Table 3〉 Descriptive Statistics for the independent variable

		Formal Participation						
		1	2	3	4	5	Total	Average
Year	2005	14 (4.83%)	46 (15.86%)	89 (30.69%)	85 (29.31%)	56 (19.31%)	290 (100%)	2.42
	2007	5 (4.00%)	21 (16.80%)	37 (29.60%)	40 (32.00%)	22 (17.60%)	125 (100%)	2.42
	2009	9 (7.76%)	24 (20.69%)	39 (33.62%)	21 (18.10%)	23 (19.83%)	116 (100%)	2.22
	2011	10 (8.55%)	28 (23.93%)	39 (33.33%)	24 (20.51%)	16 (13.68%)	117 (100%)	2.07
	2013	16 (13.45%)	37 (31.09%)	35 (29.41%)	22 (18.49%)	9 (7.56%)	119 (100%)	1.76
	2015	10 (10.00%)	19 (19.00%)	26 (26.00%)	27 (27.00%)	18 (18.00%)	100 (100%)	2.24
	2017	14 (16.09%)	18 (20.69%)	20 (22.99%)	21 (24.14%)	14 (16.09%)	87 (100%)	2.03
	2019	17 (17.53%)	24 (24.74%)	24 (24.74%)	17 (17.53%)	15 (15.46%)	97 (100%)	1.89

The table above shows frequencies of response for each level of formal participation, classified in years of survey. The number in parenthesis shows row percentages, and the last column shows the average from the year. From the table, it can be seen that the average level of formal participation varies across years and does not follow a distinct trend. The variable is seen to have variability to be used as the independent variable.

〈Table 4〉 Descriptive Statistics for Employee-Driven Innovation

		Employee Driven Innovation						
		1	2	3	4	5	Total	Average
Year	2005	2 (0.85%)	5 (2.13%)	118 (50.27%)	90 (38.30%)	20 (8.51%)	235 (100%)	3.51
	2007	0 (0%)	4 (4.55%)	44 (50.00%)	35 (39.77%)	5 (5.68%)	88 (100%)	3.47
	2009	0 (0%)	3 (3.80%)	48 (60.76%)	24 (30.38%)	4 (5.06%)	79 (100%)	3.37
	2011	0 (0%)	6 (7.50%)	50 (62.50%)	21 (26.25%)	3 (3.75%)	80 (100%)	3.26
	2013	0 (0%)	3 (3.75%)	50 (62.50%)	25 (31.25%)	2 (2.50%)	80 (100%)	3.33

〈Table 4〉 shows the total responses for employee-driven innovation, grouped in the years of measurement. The responses are focused around 2-3, with averages varying across the years without certain trends. The variability of the average level of employee-driven innovation implies that analysis results would not be attributable to any time-based contexts.

〈Table 5〉 Descriptive Statistics for the variable: Output Innovation

		Output Innovation						
		1	2	3	4	5	Total	Average
Year	2005	0 (0%)	6 (2.56%)	103 (44.02%)	108 (46.15%)	17 (7.26%)	234 (100%)	3.58
	2007	0 (0%)	3 (3.30%)	43 (47.25%)	43 (47.25%)	2 (2.20%)	91 (100%)	3.48
	2009	0 (0%)	2 (2.44%)	36 (43.90%)	43 (52.44%)	1 (1.22%)	82 (100%)	3.52
	2011	0 (0%)	5 (6.25%)	46 (57.50%)	27 (33.75%)	2 (2.50%)	80 (80%)	3.33
	2013	0 (0%)	6 (7.23%)	53 (63.86%)	20 (24.10%)	4 (4.82%)	83 (100%)	3.27

Descriptive statistics for the response for output innovation variable is displayed in Table 5. There was no response for 0 or 1 level of output innovation, and almost

all the responses revolved around 3 or 4. The organizations tend to report having high output innovation overall. In the meanwhile, average of each year varies and does not follow a noticeable trend, and therefore analysis results for the current study would not follow the contextual trend.

2. Panel Analysis

〈Table 6〉 Results from panel analysis

Variables	Employee-Driven Innovation	Output Innovation
Formal participation	0.048* (0.026)	0.083*** (0.024)
Size of organization	5.07e-05*** (1.31e-05)	3.53e-05*** (1.24e-05)
Female-to-Male ratio	-0.064* (0.033)	-0.045 (0.031)
Age of company	-0.002 (0.002)	-0.001 (0.002)
Market competition	-0.013 (0.025)	0.047** (0.023)
Gender of respondent	-0.115 (0.083)	0.008 (0.077)
Tenure of respondent	0.003 (0.005)	-0.001 (0.005)
Position of respondent	0.019 (0.033)	-0.064** (0.031)
Constant	3.288*** (0.229)	3.769*** (0.212)
Observations	562	570
R-squared	0.050	0.061
Number of year	5	5
Standard errors in parentheses, *** p<0.01, ** p<0.05, * p<0.1		

1) Employee Driven Innovation

The main effect for the existence of a formal participation channel on employee-driven innovation is statistically significant, suggesting that the addition of a channel for participation for employees would boost employee-driven innovation

by 0.048 level. This rejects the first null hypothesis that organizational democracy is not positively related to employee-driven innovation. Aligned with previous research, participation through institutionalized channel is seen to have an effect in enhancing employee-driven innovation (Unterrainer et al., 2011). Since employee-driven innovations refer to bottom-up innovations stemming from employees in the lower hierarchy, it is intuitive that more participation from them would encourage more innovation (Wihlman et al., 2014). As active and valid participation promotes organizational commitment for better decision-making (Bille, 2001), it is likely that measures to secure such participation in formal institutions would have brought about innovative ideas from the employee level, possibly through organizational citizenship behavior.

Notable is that the female-to-male ratio also showed a significant negative relationship with employee-driven innovation. As the female-to-male ratio increases, employee-driven innovation decreases by 0.0641. As female-to-male ratio (calculated by dividing the number of female by the number of male employees in the organization) increases, i.e. female proportion increases within the organization, the level of employee-driven innovation decreases. According to the ideas of opinion leaders put forward by Rogers (1962) and Carlson (1967), men are likely to be the ones with more voice and discretionary power within the organization, and thus the result shows.

2) Output Innovation

As seen in the table above, the formal measure of participation is significantly correlated with the output innovation of the organization, by 0.0833. It is interpreted that having formal structures or institutions for the participation of employees have a positive effect on output innovation produced by the organization. Organizational democracy, as measured by the current study, empowers the employees, which in turn promotes organizational commitment (Weber, et al., 2012). According to theories of organizational citizenship behavior, such an increase in commitment

fosters behavior that is for the overall benefit of the organization, even outside of the individuals' roles (Morrison, 1994; Van Dyne et al., 1994).

From this analysis, market competition of the product of the organization is shown to have a significant positive relationship with output innovation. It can be interpreted that organizations that produce final products whose market is highly competitive are more likely to have innovations in their output making. How the organizations perceive competitive environment of their product is important for promoting organizational innovation (Tang, 2006), and this is embedded in their product innovation.

V. Implications and Conclusion

1. Implications

This study yields important findings regarding the relationship between organizational democracy and innovation. Especially in current times where innovation is pursued and stressed throughout public organizations, introducing one method to induce innovation at the organizational level could help the executives and the management to gain strategies for their organizations in the near future.

With such significant results, the current research also contributes to the field of public administration, where theories of democracy and innovation are supported. It can be said that this study is interdisciplinary, in the sense that it brings the psychological concept of organizational citizenship behavior to explain the relationship between organizational democracy and innovation. The logical flow of theories behind the current study implies that organizational democracy grants more authority and ownership to the members of the organization, which in turn activates organizational citizenship behavior innate within the employees. Consequently, organizational citizenship behavior motivates individuals to act outside of their role, namely 'out-role behavior', where people make extra efforts out of their assigned

roles to make the organization a better place. Such behaviors include taking the initiative to make work process efficient, and enhance job satisfaction and work commitment. One way of doing so would be coming up with innovations regarding the work and performance of the organization. Such a finding yields implications for both fields of public administration and psychology.

2. Limitations and further research

While the result of the analysis could be significant, there is plenty of room for improvement in different parts of this study. First, although WPS is initially designed as panel data, it was an unbalanced panel with not enough repeated measurements from each organization for the recurring years. Panel regression did yield meaningful results and it would be better if a balanced panel on the same variables could be obtained to capture the full effect of organizational democracy on innovation.

Similarly, multiple responses from the same organization are also encouraged to enhance the representativeness of data for all measures. Especially since the concept of organizational democracy pertains to all employees in different hierarchies, using data with a comprehensive perspective from across hierarchies would lead to fruitful results concerning organizational data. In making an addition to data, adding an individual perceived levels of organizational democracy would be also of help since it can broaden understanding of the organization's level of organizational democracy in general and may add essential analysis to the study. The addition of such data would also inform how the formal channels of organizational democracy actually function in reality. For measures of innovation, multiple accounts of how innovative the organization is could be added to improve the validity and applicability of the study.

Organizational Commitment Behavior (OCB) is considered a key mechanism in inducing innovation through organizational democracy in the study, but research on the OCB itself was not conducted. Therefore, how democracy is related to

organization is only assumed to occur via OCB, and the exact causal inference using OCB cannot be fully completed. If data can be supplemented to measure the level of OCB in the organizations considered, the causal link would be more clarified and the study would gain larger strength in its argument.

Other general limitations of the self-response survey also apply, including the subjectivity of the response and underrepresentation of the organization is also noted. For example, to enhance the validity and credibility of study results, measures for output innovation could be supplemented with hard statistical data.

Future research could include leadership to explain either organizational democracy or innovation within the organization, as leadership is considered an important factor in fostering innovation, proposed by many scholars (Boerner et al., 2007; Sarros, Cooper, & Santora, 2008; Gumusluoglu & Ilsev, 2009; Garcia-Morales et al., 2012). While the study only focuses on the occurrence of democracy, and innovation or innovative behaviors on individual and organizational levels, more discussion could be focused on how these innovations could lead to organizational performance. As mentioned above, organizational democracy is not strictly related to performance, and rather it could reduce the efficiency of the organization. Further research could examine how such democracy-based innovation could be related to the tangible performance of the organization.

The study provides practical implications in terms of organization management, where promoting organizational democracy through formal and informal channels could foster innovations in the employees and output overall. Organizations could take measures such as active communication systems, horizontal structures, allocating discretion, and sharing opinions in decision making, to actively encourage innovation.

References

Aiken, M., & Hage, J. (1971). The organic organization and innovation. *Sociology*, 5(1), 63-82.

- Amabile, T. M. (1988). A model of creativity and innovation in organizations. *Research in organizational behavior*, 10(1), 123-167.
- Armbruster, H., Bikfalvi, A., Kinkel, S., & Lay, G. (2008). Organizational innovation: The challenge of measuring non-technical innovation in large-scale surveys. *Technovation*, 28(10), 644-657.
- Baldrige, J. V., & Burnham, R. A. (1975). Organizational innovation: Individual, organizational, and environmental impacts. *Administrative science quarterly*, 165-176.
- Bardach, E. (1998). *Managerial craftsmanship: Getting agencies to work together*. Brookings Institution.
- Barnett, H. G. (1953). Innovation: the basis of cultural change.
- Bateman, T. S., & Organ, D. W. (1983). Job satisfaction and the good soldier: The relationship between affect and employee "citizenship". *Academy of management Journal*, 26(4), 587-595.
- Becker, S. W., & Whisler, T. L. (1967). The innovative organization: A selective view of current theory and research. *The Journal of Business*, 40(4), 462-469.
- Bharadwaj, S., & Menon, A. (2000). Making innovation happen in organizations: individual creativity mechanisms, organizational creativity mechanisms or both?. *Journal of product innovation management*, 17(6), 424-434.
- Bille, L. (2001). Democratizing a democratic procedure: Myth or reality? Candidate selection in Western European parties, 1960-1990. *Party politics*, 7(3), 363-380.
- Billett, S. (2012). Explaining innovation at work: A socio-personal account. In *Employee-Driven Innovation* (pp. 92-107). Palgrave Macmillan UK.
- Blankenship, L. V., & Miles, R. E. (1968). Organizational structure and managerial decision behavior. *Administrative Science Quarterly*, 106-120.
- Boerner, S., Eisenbeiss, S. A., & Griesser, D. (2007). Follower behavior and organizational performance: The impact of transformational leaders. *Journal of Leadership & Organizational Studies*, 13(3), 15-26.
- Borins, S. (1998). *Innovating with integrity: How local heroes are transforming American government*. Georgetown University Press.
- Borins, S. (2001). *The challenge of innovating in government*. Arlington, VA: Pricewaterhouse Coopers Endowment for the Business of Government.
- Borins, S. (2002). Leadership and innovation in the public sector. *Leadership & Organization Development Journal*, 23(8), 467-476.

- Currie, W. L. (1996). Organizational structure and the use of information technology: Preliminary findings of a survey in the private and public sector. *International Journal of Information Management*, 16(1), 51-64.
- Daft, R. L. (1982). Bureaucratic versus nonbureaucratic structure and the process of innovation and change. *Research in the Sociology of Organizations*, 1, 129-166.
- Dalton, Dan R., William D. Todor, Michael J. Spendolini, Gordon J. Fielding, and Lyman W. Porter. "Organization structure and performance: A critical review." *Academy of management review* 5, no. 1 (1980): 49-64.
- Damanpour, F. (1991). Organizational innovation: A meta-analysis of effects of determinants and moderators. *Academy of management journal*, 34(3), 555-590.
- Damanpour, F., & Evan, W. M. (1984). Organizational innovation and performance: the problem of "organizational lag". *Administrative science quarterly*, 392-409.
- Damanpour, F., Szabat, K. A., & Evan, W. M. (1989). The relationship between types of innovation and organizational performance. *Journal of Management Studies*, 26(6), 587-602.
- De Spiegelaere, S., & Van Gyes, G. (2012). Employee-Driven Innovation and Industrial Relations. In *Employee-Driven Innovation* (pp. 230-245). Palgrave Macmillan UK.
- Deverell, E. (2010). Flexibility and rigidity in crisis management and learning at Swedish public organizations. *Public Management Review*, 12(5), 679-700.
- Dischner, S. (2015). Organizational structure, organizational form, and counterproductive work behavior: A competitive test of the bureaucratic and post-bureaucratic views. *Scandinavian Journal of Management*, 31(4), 501-514.
- Earley, P. C., & Ang, S. (2003). *Cultural intelligence: Individual interactions across cultures*. Stanford University Press.
- Eisenberg, R., Fasolo, P., & Davis-LaMastro, V. (1990). Perceived organizational support and employee diligence, commitment, and innovation. *Journal of Applied Psychology*, 75(1), 51-59.
- Evan, W. M., & Black, G. (1967). Innovation in business organizations: some factors associated with success or failure of staff proposals. *The Journal of Business*, 40(4), 519-530.
- Fernandez, S., & Moldogaziev, T. (2012). Using employee empowerment to encourage innovative behavior in the public sector. *Journal of Public Administration Research and Theory*, mus008.
- Foster, J. L. (1990). Bureaucratic rigidity revisited. *Social Science Quarterly*, 71(2), 223.

- García-Morales, J. B. Gutiérrez-Gutiérrez (2012) García-Morales, VJ, Jiménez-Barrionuevo, MM, & Gutiérrez-Gutiérrez, L.(2012). Transformational leadership influence on organizational performance through organizational learning and innovation. *Journal of Business Research*, 65(7), 1040-1050.
- George, J. M., & Jones, G. R. (1997). Organizational spontaneity in context. *Human performance*, 10(2), 153-170.
- Ghiselli, E. E., & Siegel, J. P. (1972). Leadership and managerial success in tall and flat organization structures. *Personnel Psychology*, 25(4), 617-624.
- Gumusluoglu, L., & Ilsev, A. (2009). Transformational leadership, creativity, and organizational innovation. *Journal of business research*, 62(4), 461-473.
- Hansén, S. O., & Wakonen, J. (1997). Innovation, a winning solution?. *International Journal of Technology Management*, 13(4), 345-358.
- Harrison, J. S., & Freeman, R. E. (2004). Special Topic: Democracy in and Around Organizations Is organizational democracy worth the effort?. *The Academy of Management Executive*, 18(3), 49-53.
- Hasu, M., Honkaniemi, L., Saari, E., Mattelmäki, T., & Koponen, L. (2014). Learning employee-driven innovating: Towards sustained practice through multi-method evaluation. *Journal of Workplace Learning*, 26(5), 310-330.
- Hasu, M., Saari, E., & Mattelmäki, T. (2011). Bringing the employee back in: integrating user-driven and employee-driven innovation in the public sector. *User-based innovation in services*, 251-278.
- Holdaway, E. A., Newberry, J. F., Hickson, D. J., & Heron, R. P. (1975). Dimensions of organizations in complex societies: The educational sector. *Administrative Science Quarterly*, 37-58.
- Høyrup, S. (2010). Employee-driven innovation and workplace learning: basic concepts, approaches and themes.
- Hurley, R. F., & Hult, G. T. M. (1998). Innovation, market orientation, and organizational learning: an integration and empirical examination. *The Journal of Marketing*, 42-54.
- Indik, B. P. (1968). The scope of the problem and some suggestions toward a solution. *People, groups, and organizations*, 3-30.
- James, L. R., Choi, C. C., Ko, C. H. E., McNeil, P. K., Minton, M. K., Wright, M. A., & Kim, K. I. (2008). Organizational and psychological climate: A review of theory and research.

- European Journal of work and organizational psychology, 17(1), 5-32.
- Jarle Gressgård, L., Amundsen, O., Merethe Aasen, T., & Hansen, K. (2014). Use of information and communication technology to support employee-driven innovation in organizations: a knowledge management perspective. *Journal of Knowledge Management*, 18(4), 633-650.
- Kerr, J. L. (2004). The limits of organizational democracy. *The Academy of Management Executive*, 18(3), 81-95.
- Kesting, P., & Parm Ulhøi, J. (2010). Employee-driven innovation: extending the license to foster innovation. *Management Decision*, 48(1), 65-84.
- Kimberly, J. R., & Evanisko, M. J. (1981). Organizational innovation: The influence of individual, organizational, and contextual factors on hospital adoption of technological and administrative innovations. *Academy of management journal*, 24(4), 689-713.
- Leitch, J., Nieves, D., Burke, G., Little, M., & Gorin, M. (1995). Strategies for involving employees. *The Journal for Quality and Participation*, 18(5), 68.
- Leventhal, G. S. (1980). What should be done with equity theory?. In *Social exchange* (pp. 27-55). Springer US.
- Leung, K., Ang, S., & Tan, M. L. (2014). Intercultural competence. *Annu. Rev. Organ. Psychol. Organ. Behav.*, 1(1), 489-519.
- Losada, M., & Heaphy, E. (2004). The role of positivity and connectivity in the performance of business teams: A nonlinear dynamics model. *American Behavioral Scientist*, 47(6), 740-765.
- Mansfield, E. (1963). Size of firm, market structure, and innovation. *Journal of Political Economy*, 71(6), 556-576.
- Melman, S. (2001). *After capitalism: From managerialism to workplace democracy*. Knopf.
- Miles, R. E., & Snow, C. C. (1992). Causes of failure in network organizations. *California management review*, 34(4), 53-72.
- Miller, D., & Friesen, P. H. (1982). Innovation in conservative and entrepreneurial firms: Two models of strategic momentum. *Strategic management journal*, 3(1), 1-25.
- Mohr, L. B. (1969). Determinants of innovation in organizations. *American political science review*, 63(01), 111-126.
- Nord, W. R., & Tucker, S. (1987). *The organizational dynamics of implementing innovation. Implementing Routine and Radical Innovations*. Lexington Books, Lexington, MA, 3-39.

- Organ, D. W. (1988). OCB: The good soldier syndrome.
- Osborne, D., & Gaebler, T. (1992). *Reinventing government: How the entrepreneurial spirit is transforming government*. Reading Mass. Adison Wesley Public Comp.
- Pierce, J. L., & Delbecq, A. L. (1977). Organization structure, individual attitudes and innovation. *Academy of management review*, 2(1), 27-37.
- Pircher Verdorfer, A., Weber, W. G., Unterrainer, C., & Seyr, S. (2012). The socio-moral climate concept: A contribution in exploring effects of the ethical context in organizations. *Economic and Industrial Democracy*, 34(3), 423-449.
- Podsakoff, P. M., MacKenzie, S. B., & Bommer, W. H. (1996). Transformational leader behaviors and substitutes for leadership as determinants of employee satisfaction, commitment, trust, and organizational citize. *Journal of management*, 22(2), 259-298.
- Podsakoff, N. P., Whiting, S. W., Podsakoff, P. M., & Blume, B. D. (2009). Individual-and organizational-level consequences of organizational citizenship behaviors: A meta-analysis.
- Porter, L. W., & Lawler, E. E. (1965). Properties of organization structure in relation to job attitudes and job behavior. *Psychological bulletin*, 64(1), 23.
- Rappaport, J. (1987). Terms of empowerment/exemplars of prevention: Toward a theory for community psychology. *American journal of community psychology*, 15(2), 121-148.
- Rogers, E. M., & Shoemaker, F. F. (1971). *Communication of Innovations: A Cross-Cultural Approach*.
- Sarros, J. C., Cooper, B. K., & Santora, J. C. (2008). Building a climate for innovation through transformational leadership and organizational culture. *Journal of Leadership & Organizational Studies*, 15(2), 145-158.
- Schumpeter, J. (1928). The instability of capitalism. *The economic journal*, 38(151), 361-386.
- Siegall, M., & Gardner, S. (2000). Contextual factors of psychological empowerment. *Personnel Review*, 29(6), 703-722.
- Smith, C. A., Organ, D. W., & Near, J. P. (1983). Organizational citizenship behavior: Its nature and antecedents. *Journal of applied psychology*, 68(4), 653.
- Smith, M. P. (1976). Barriers to organizational democracy in public administration. *Administration & Society*, 8(3), 275-317.
- Sørensen, J. B., & Stuart, T. E. (2000). Aging, obsolescence, and organizational innovation. *Administrative science quarterly*, 45(1), 81-112.
- Staw, B. M., Sandelands, L. E., & Dutton, J. E. (1981). Threat rigidity effects in organizational

- behavior: A multilevel analysis. *Administrative science quarterly*, 501-524.
- Steiner, G. A. (1965). *Creative organization*.
- Tang, J. (2006). Competition and innovation behaviour. *Research policy*, 35(1), 68-82.
- Thompson, V. A. (1965). Bureaucracy and innovation. *Administrative science quarterly*, 1-20.
- Unterrainer, C., Palgi, M., Weber, W. G., Iwanowa, A., & Oesterreich, R. (2011). Structurally anchored organizational democracy: Does it reach the employee?. *Journal of Personnel Psychology*, 10(3), 118.
- Van Dyne, L., Graham, J. W., & Dienesch, R. M. (1994). Organizational citizenship behavior: Construct redefinition, measurement, and validation. *Academy of management Journal*, 37(4), 765-802.
- Weber, W. G., Unterrainer, C., & Schmid, B. E. (2009). The influence of organizational democracy on employees' socio-moral climate and prosocial behavioral orientations. *Journal of Organizational Behavior*, 30(8), 1127-1149.
- Whaley, A. L., & Davis, K. E. (2007). Cultural competence and evidence-based practice in mental health services: a complementary perspective. *American Psychologist*, 62(6), 563.
- Wihlman, T., Hoppe, M., Wihlman, U., & Sandmark, H. (2014). Employee-driven Innovation in Welfare Services. *Nordic Journal of Working Life Studies*, 4(2), 159.
- Wilson, J. (1989). *Bureaucracy: What government agencies do and why they do it*. Basic Books.
- Wright, B. E., & Pandey, S. K. (2010). Transformational leadership in the public sector: Does structure matter?. *Journal of public administration research and theory*, 20(1), 75-89.
- Zaltman, G., Duncan, R., & Holbek, J. (1973). *Innovations and organizations* (Vol. 1973). New York: Wiley.
- Yoon, J. (2014) The Impact of the Government's Intervention on Union's Organizational Strategy in the Public Sector - Focusing on the National Health Insurance Service's Unions-. *Korean Journal of Labor Studies*, 20(2), 67-105.

국문요약 및 주제어

조직의 민주성과 혁신의 관계: 한국의 공공기관을 중심으로

김 은 솔

서울대학교 행정대학원

이 석 원

서울대학교 행정대학원

공공부문의 혁신의 주된 흐름은 업무의 환경을 향상 시키는데에 중점을 둔다. 이 중 권력 위임과 커뮤니케이션의 향상이 주요 요인으로 꼽힐 수 있는데, 이는 조직 내에서 수평적 커뮤니케이션의 중요성을 나타낸다. 업무의 환경, 그리고 커뮤니케이션과 관련하여 다양한 학계에서 중요한 연구가 이루어지고 있으며, 특히 커뮤니케이션의 향상이 조직의 업무 환경에 긍정적인 효과를 야기한다는 것을 볼 수 있다. 본 연구에서는 조직 내에서의 커뮤니케이션과 혁신의 관계를 조사 하고자 한다. 조직시민행동의 이론에 근거하여, 조직 내의 민주성이 근로자 주도 혁신과 산출물 혁신에 긍정적인 영향을 줄 수 있는지를 연구하였다. 통계분석을 통하여 조직의 민주성이 두 가지 혁신과 모두 긍정적이고 유의미한 연관성이 있다고 확인되었다. 조직의 민주성을 향상시킴으로써 조직 내의 다양한 혁신에 긍정적인 영향을 미칠 것이라고 해석될 수 있다.

[주제어: 조직 민주성, 커뮤니케이션, 혁신, 근로자 주도 혁신, 산출물 혁신, 업무 환경]