



RESEARCH ARTICLE

How do policy environments shape public service motivation during the national disaster? Evidence from large-scale survey experiments

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Abstract

This study examines the impact of COVID-19-induced policy environments on civil servants' public service motivation (PSM), a topic not yet adequately researched. Using a vignette survey experiment, we investigate how four types of COVID-19 policy environment information – 1) total deduction of annual leave compensation, 2) a significant increase in working hours, 3) positive assessments of government responses from domestic audiences, and 4) positive assessments of government responses from other advanced democracies – shape civil servants' PSM during the pandemic. We analyze original data from over 4,000 South Korean civil servants in central and local governments, gathered as part of a representative survey. Results show that reducing compensation to prepare the disaster relief fund has a negative impact, whereas recognition by advanced democracies has a positive impact on PSM. Our analysis suggests the importance of policy environments in both motivating and demotivating civil servants during a pandemic crisis.

Keywords: Public service motivation; policy environment; pandemic crisis; survey experiment; self-determination theory; natural disaster

Introduction

The COVID-19 pandemic has significantly disrupted the work environment of civil servants. In many governments, civil servants were compelled to work overtime (Lee and Na 2024; Mar and Buzeti 2022) and, in some instances, even sacrificed various forms of financial compensation in order to allocate necessary resources.¹ Such disruptive changes in the work environment can significantly impact civil servants' motivation (Lee and Na 2024). Despite the extensive research on the impact of

¹<https://www.joongang.co.kr/article/23766581#home> (accessed July 28, 2024).

COVID-19 on public servants' work in recent years (Berry *et al.* 2022; Castro *et al.* 2022; Fischer *et al.* 2023; Schuster *et al.* 2020; Sciepora and Linos 2022; Williamson, Colley and Foley 2022), studies examining its effects on civil servants' motivation have been rare. To our knowledge, only one study has specifically examined the impact of COVID-19-induced work intensity and organizational support on civil servants' public service motivation (PSM) (Lee and Na 2024). Given the existence of various COVID-19-induced policy environments, our understanding of whether and how these environments motivate or demotivate civil servants can offer important policy implications and lessons in preparing for future pandemics.

It is in this context that this research aims to make contributions to the literature on PSM and COVID-19. Employing a novel survey experiment that leverages real-world situations relating to the COVID-19 pandemic, we address the important question of how a set of different types of policy environment information affects civil servants' level of PSM during the COVID-19 pandemic. Policy environments can be broadly defined as a policy sector or domain, and stages of policy cycles in terms of phases of agenda setting, formulation, implementation, and evaluation (Anderfuhren-Biget, Varone, and Giauque 2014). Further, they also include working conditions and environments generated in relation to policies. Recent studies have just begun to pay attention to policy environments and their impact, because policies, like political forces, do have important consequences for public administration practice, including PSM (Moynihan and Soss 2014). One of the clear benefits from studying policy environments is obtaining an actionable prescription for the government and policymakers to implement and manage policies (Meyer-Sahling *et al.* 2021).

In this study, we explore how different types of policy environment information concerning evaluations affect civil servants' levels of PSM. Policy environment information concerning evaluations means the situations of how certain policies or policy implementations are assessed by civil servants themselves or by clients and audiences outside the government. Previous studies identify two types of policy environment information which may significantly motivate or demotivate civil servants. On the one hand, when civil servants perceive certain policies as intended to constrain their working conditions – namely, budget cuts and layoffs – this may undermine their work motivation, due to a misfit between an individual's motivation to serve others and the opportunities that their environment offers (Jensen *et al.* 2020; Kiefer *et al.* 2015). Moreover, civil servants may perceive regulatory policies as decreasing their motivation, due to the nature of such policies (Gagné and Deci 2005). By contrast, policies or government responses that are evaluated as collective appreciation from inside and outside can enhance civil servants' PSM, as such recognition might energize public servants to work harder (Davis, Stazyk and Dickman, 2021).

We further develop a mechanism of how policy environment information shapes civil servants' PSM, borrowing insights from self-determination theory. This theory offers three conditions where individuals' motivation can increase or decrease in workplaces, so that it provides empirical implications that are testable through our experimental approach. Specifically, we propose four treatment conditions that are closely relevant to policy environments in the South Korean context surrounding the pandemic crisis and government responses: 1) total deduction of annual leave

compensation, 2) working extra hours to maintain an emergency working system, 3) positive evaluation of government responses from domestic citizens, and 4) recognition of performance from the Western world.

To test the effects of these treatment conditions, we adopt a unique survey design of a vignette experiment that was conducted during the COVID-19 pandemic. Analyzing original data on more than 4,000 civil servants in South Korea, gathered as part of a representative survey, we find that some of our treatment conditions have both statistically and substantively significant effects on civil servants' PSM. Policy environment information leading to total deduction of annual leave compensation for civil servants has a negative impact on levels of civil servants' PSM, whereas policy environment information where government responses to COVID-19 are highly recognized by developed countries from the Western world, significantly increase civil servants' PSM levels. This finding confirms past research on the impact of policy environments on individuals' work motivation: while policy changes restricting working conditions discourage public service providers' PSM (Jensen et al. 2020), employees' hard work being properly recognized via clients' praise or gratitude makes them engage in more prosocial behavior (Davis et al. 2021).

The contribution of this research is threefold. First, this research, leveraging a survey experiment, clearly showed which policy environment information during a pandemic may motivate or demotivate civil servants. Such findings offer important policy implications and lessons for civil servants in preparing for future pandemics. Second, this research, by developing a theoretical mechanism for how the two types of policy environment information induce motivation, contributes to research on policy environments and, more broadly, on the dynamic between policy environment and PSM. Third, while PSM represents one of the most popular and sought-after research topics in public administration, most experimental research has treated PSM as an effect rather than an outcome (e.g., Lee and Park 2023). Indeed, only four studies, discussed further below, have leveraged experiments to examine the determinants of PSM. As a result, factors shaping PSM remain understudied. In this regard, this research clearly makes a contribution by examining how policy environments, as a determinant of PSM, affect public servants' PSM.

Literature review and theoretical framework

This section begins with a review of prior studies examining PSM as an outcome of interest, particularly focusing on experimental approaches. Then, we discuss past research on policy environments and PSM, followed by the building of theoretical arguments, borrowing insights from self-determination theory.

PSM cultivation

Although Public Service Motivation (PSM) is one of the most extensively researched subjects in public administration (Ritz, Brewer, and Neumann 2016), the understanding of how to cultivate PSM remains substantively limited, due to a

lack of experimental research. A recent review study on experimental approaches to PSM identified only four such articles (Chung, Rhee, and Liu, 2024). With only a limited number of studies utilizing experiments to cultivate PSM, research on this topic remains rare despite the popularity of PSM as a subject. In this section, we review these four experiments, specifically focusing on the experimental manipulation of cultivating PSM, thereby attempting to provide deeper insights into how PSM can actually be cultivated or influenced.

First, Jensen *et al.* (2019) conducted pioneering field experimental research combined with surveys to examine whether goal-oriented leadership styles – transactional and transformational leadership – can foster PSM. With samples of 364 managers (from a field experiment) and 3,470 employees (from surveys) from both private and public sectors, the research explored how a one-year leadership training program for managers enhanced their leadership to boost the PSM of their employees. The experiment included a control group of managers without leadership training and three treatment groups: (1) managers trained in transformational leadership, (2) managers trained in transactional leadership, and (3) managers trained in both programs. Surveys were conducted before and after the leadership training program to gauge its effect on employees. Contrary to their expectations, all three treatment effects were statistically significant and negative, suggesting that leadership can demotivate employees.

Kroll and Porumbescu (2019) challenged the conventional literature on motivation crowding by examining whether lowering extrinsic rewards can raise employees' levels of PSM and intrinsic motivation, using cognitive dissonance theory. They adopted a vignette-survey experiment design with 129 public administration students, preparing two treatment vignettes with high and low extrinsic reward expectations based on newspaper articles and published reports. Students randomly received one of the two vignettes and answered related questions. After submitting their responses, students received a survey including questions on various motivations, including PSM. The findings suggested that extrinsic rewards increased participants' intrinsic motivation but not their PSM.

Meyer-Sahling *et al.* (2021) examined how different types of recruitment and contracts – merit-based competitive recruitment versus discretionary appointments and permanent tenure versus temporary contracts – affect civil servants' levels of PSM. Using a conjoint survey experiment, they had respondents choose between pairs of hypothetical profiles with multiple characteristics randomly assigned. With over 7,000 civil servants from five countries (Chile, Malawi, Uganda, Ghana, and Kosovo), the research found that meritocratic recruitment was associated with higher PSM in four countries (Ghana, Kosovo, Malawi, and Uganda), while permanent tenure was associated with higher PSM in two countries (Ghana and Kosovo). The study concluded that the importance of tenure protection depends on the context.

Finally, Florczak *et al.* (2023) explored the nature versus nurture debate in PSM research, using the Danish twins pair dataset to compare how common environment, unique environment, and genetics affect PSM. The study concluded that individuals' experiences are critical for formulating PSM, with approximately 90% of PSM variation explained by experiences rather than genetics. It also found

that unique environments matter substantially more than common environments, indicating that socialization of PSM is possible.

In sum, this recent experimental research on the antecedents of PSM offers meaningful evidence that socialization of PSM is possible (Florczak et al. 2023) and understanding which management practices and policies can cultivate PSM among civil servants is especially critical (Meyer-Sahling et al. 2021). Yet, despite the significant contribution of these studies to the PSM literature, we note that, in fact, only one study utilized civil servant samples as their main subjects. This indicates a limited amount of causal evidence regarding what motivates or demotivates civil servants. It is therefore in this context where our research aims to contribute by leveraging a survey experiment with actual civil servants to examine how policy environments affect civil servants' PSM. Not only is there no experimental research on the effects of policy environments, there are only a few empirical studies focusing on the impact of policy environments themselves.

The role of policy environments in shaping civil servants' PSM

The notion of policy environments has been widely used across various disciplines in diverse contexts (Andersen et al. 2007; Dalitso and Peter 2000; Gruskin et al. 2013; Henkel 2005). Broadly, policy environments can be considered as environments including all aspects of policy making, such as regulations, legislation, and government strategies.² In a narrower sense, they can be defined as “the factors affecting program performance that are beyond the complete control of national program managers (Strachan, Hardee, and Grey 2000, 1).” These factors include political support as well as operational policy related to decisions in organizational structure, legal and regulatory environments, and available resources (Strachan, Hardee, and Grey 2000, 2). Perhaps the definition most relevant to the studies of public policy and administration is offered by Anderfuhren-Biget et al. (2014): policy contexts civil servants are embedded in, which are policy sectors and stages of policy cycle (808).

Policy environments are indeed expected to play an important role in shaping PSM, because of factors influencing PSM beyond individual-level attributes. For instance, it is well known that personality, education, gender, and religion are important individual-level predictors of PSM (Van Witteloostuijn, Esteve, and Boyne 2017; Kim 2021; Pandey and Stazyk 2008; Perry 1997; Riccucci 2018). Yet, past research also shows that individuals' PSM is affected by environmental factors, such as organizational institutions (Moynihan and Pandey 2007), culture (Kim 2017), and values (Steijn 2008). While the latter studies suggest that a variety of environments can have heterogenous effects on civil servants' PSM, there have been only two studies that examine how policy environments, namely policy sectors and stages of policy cycle, directly affect civil servants' level of PSM (Anderfuhren-Biget et al. 2014; Castaining 2006).

The two notable findings from these studies are as follows. First, civil servants working in certain policy sectors tend to show higher levels of PSM than those

²See <https://worldanimal.net/our-programs/strategic-advocacy-course-new/module-3/advocacy-research-and-analysis/the-policy-environment> (accessed September 18, 2023).

working in others. For instance, civil servants from welfare agencies were associated with higher levels of compassion than those working in other agencies (Anderfuhren-Biget *et al.* 2014). Second, civil servants working in certain stages of the policy cycle tend to exhibit higher levels of PSM than those working in other stages. For instance, civil servants who were in charge during the phase of policy formulation were associated not only with higher levels of attraction to politics (Anderfuhren-Biget *et al.* 2014) but also with higher levels of commitment to the public interest (Castaing 2006) than those in charge at other phases of the policy cycle.³ These findings suggest that a variety of policy environments in relation to diverse policy sectors and different stages of the policy cycle can have heterogeneous effects on PSM. Yet, it is also possible that components of policy environments have positive or negative consequences over civil servants' PSM within the same policy stages, agencies, and tasks. It is, therefore, our aim to examine how policy environments concerning evaluations – the situations of how certain policies or policy implementations are assessed – affect PSM in the public sector.

Regarding evaluations, previous studies have examined two types of policy environments without explicitly using this term. The first type focuses on the effects of restrictions on work conditions and severe budget cuts (Kiefer *et al.* 2015; Jensen, Kjeldsen, and Vestergaard 2020). Jensen, Kjeldsen, and Vestergaard (2020) show that regulatory changes – restrictions on work conditions and budget cuts – can reduce general medical practitioners' PSM. The second type focuses on the effects of appreciation, gratitude, and positive feedback from beneficiaries. While not directly pertaining to PSM, Davis, Stazyk, and Dickman (2021) find that when employees feel appreciated for their labor and effort, they are more likely to engage in prosocial behaviors (see also McCullough, Emmons, and Tsang 2002). Such findings suggest that it is also likely that when civil servants feel appreciated for their labor and effort, they are likely to be motivated. In brief, policy environments that potentially involve conflict or tension with other managerial positions or branches can decrease public employees' PSM, whereas environments characterized by appreciation and positive feedback are likely to enhance civil servants' PSM.

Two types of policy environment, self-determination theory, and PSM

While previous studies offer a clear framework for how the two types of policy environments heterogeneously affect civil servants' PSM, to our knowledge, no research has differentiated between the impacts of these two types on civil servants' PSM. Therefore, this research will test whether various types of policy environment information related to COVID-19 motivate or demotivate civil servants in the context of South Korea. To explain the mechanism of how elements of policy environments motivate or demotivate civil servants, we draw behavioral insights from self-determination theory (Deci and Ryan 2008). Self-determination theory posits three conditions under which individuals' motivation can increase or decrease in workplaces: 1) a sense of belonging and attachment, 2) the perception of

³This may be largely due to the nature of the tasks granted to civil servants at the phase of policy formulation, such as coordinating the policymaking process with elected politicians and citizens.

autonomy loss, and 3) a feeling of competence or possessing necessary skills to achieve goals.

According to the first condition, if individuals perceive conflict or tension with organizational members, such as those in managerial positions or from other branches, their work motivation may be reduced (Jensen et al. 2020). This implies that potential conflict or tension generated by certain policy environments may demotivate civil servants in the public sector. Regarding the second condition, motivation crowding theory (Frey and Jegen 2001) suggests that individuals may lose their work motivation when they perceive that their autonomy is threatened by external intervention and control, particularly concerning monetary incentives or work-related punishments. Hence, policy environments where external control intrudes on civil service autonomy may decrease civil servants' PSM. The third condition of self-determination theory suggests that individuals' work motivation can grow when they feel capable or possess the necessary skills for goal accomplishment. This means that when civil servants are in policy environments where their performance is positively assessed, this is likely to boost their PSM. In the next section, we introduce four policy environments in the Korean context and present our hypotheses based on self-determination theory.

Context and hypotheses

South Korea provides an excellent case study for examining the impact of policy environment information on civil servants' PSM, given the government's active role in successfully controlling the COVID-19 pandemic through aggressive tracing and testing programs. Citizens are proud of the government's handling of the pandemic, termed "K-Quarantine," on the analogy of the globally popular phenomenon K-pop. Unlike many Western countries, such as the United States and the United Kingdom, where the number of confirmed COVID-19 cases per 100,000 people has surged, South Korea has managed to keep the number relatively low. It has also outperformed some developed Asian countries, such as Japan.

In this section, we introduce various examples of policy environment information concerning South Korea's pandemic situations that we hypothesize will significantly motivate or demotivate civil servants' PSM: 1) total deduction of annual leave compensation, 2) a significant increase in working hours, 3) positive assessments of government responses from domestic audiences, and 4) positive assessments of government responses from the Western world, particularly developed countries.

First, during the pandemic crisis, the allowances of public officials in South Korea in general, not just high-ranking officials, were reduced all at once, because the government had to prepare the necessary financial resources after deciding to pay emergency disaster relief funds to all citizens. In particular, annual leave compensation, a monetary compensation paid to public officials when they cannot use their annual leave entitlement, was fully deducted from all public officials in South Korea.⁴

⁴<https://www.joongang.co.kr/article/23766581#home> (accessed September 18, 2023).

Second, it is reasonable to anticipate that working conditions within organizations, such as average working hours, are also likely to affect employees' motivation to work in the public sector. Unexpected crisis situations that force the government to respond immediately impose greater administrative duties and heavier burdens on its employees, who in turn are forced to work more than usual. For example, employees at Chungju City, one of the city governments in South Korea, worked for 180 extra hours per month on average – way more than 52 hours per week in normal circumstances – in March 2020, when COVID-19 spread swiftly all over the country.⁵ During the pandemic crisis, government officials are not only not allowed to use their annual leave entitlement, as mentioned above, but they also often need to work weekends, holidays, and evening hours in order to respond to the crisis promptly. Several cases of government employees' death due to overwork, stress, and depression were reported during this period.⁶

Third, growing research on bureaucratic reputation suggests that audiences from inside and outside the government observe the performance of bureaucratic agencies and form beliefs about the capacity of the agencies (Carpenter 2014; Christensen and Lægreid 2020). One of the important audiences in democracies is the domestic citizens who form major public opinion about government policies and responses (Lee and Van Ryzin 2020). South Korean citizens have assessed the government's responses to the pandemic situation positively: since the spread of COVID-19 throughout the country from early 2020, a majority of citizens have consistently rated the government's handling of the pandemic situation, including social distancing and mandatory mask wearing, as “doing well.”⁷

Lastly, in a similar vein but extending the logic of the impact of positive media attention, a high degree of recognition of the government's policy responses from the Western world may uplift civil servants' morale and motivation. According to the Pew Research Center, whose data from citizen surveys have been used for academic research (see e.g., Lee and Van Ryzin 2020), Americans gave high marks to South Korea by answering “excellent” (25%) and “good” (41%) to the question “each (country) has done a/an ___ job of dealing with the coronavirus outbreak.”⁸ The survey responses by American citizens put South Korea at the top of the list of developed democracies, including Germany (placed second) and the United Kingdom as well as their own country. This kind of report is highly likely to shape South Korean government officials' perceptions, given that the national government of South Korea seems to be quite attentive to its reputation and ratings in the Western world, as you can see from the fact that this report by the Pew Research Center was covered immediately by the major newspapers of South Korea.⁹

Based on self-determination theory, we expect the internal policy environment information – the first and second types of policy environment information – to induce a negative effect on civil servants' PSM. In both cases, civil servants may

⁵<https://www.joongang.co.kr/article/23752465#home> (accessed September 18, 2023).

⁶<https://www.joongang.co.kr/article/25007476#home>; <https://www.segye.com/newsView/20210527518630> (accessed September 18, 2023).

⁷<https://www.hankookilbo.com/News/Read/A2021091010560004856>.

⁸<https://www.pewresearch.org/global/2020/05/21/americans-give-higher-ratings-to-south-korea-and-germany-than-u-s-for-dealing-with-coronavirus/> (accessed September 18, 2023).

⁹<https://www.donga.com/news/Inter/article/all/20200522/101169586/1> (accessed September 18, 2023).

perceive the situation as threatening their autonomy, likely demotivating them. Predicting the relative effects of different types of policy environment information is challenging, due to the limited justification provided by existing studies. Existing theories, including self-determination theory, can predict the directional effects of heterogeneous policy environment information, but they are limited in explaining which effect is more severe. Empirical studies that compare these effects are also scarce, with recent systematic reviews on PSM suggesting a need for more comparative analysis (Chung, Rhee, and Liu, 2024).

In this context, examining the relative effects of the first and second types of policy environment information can make significant theoretical and empirical contributions. We predict that the first type of policy environment information will have a greater impact, for several practical reasons. First, not all civil servants may perceive extended work hours as a serious threat to their autonomy, due to the learning effect on civil servants' perceptions (see, e.g., Bicchieri 2016). Among OECD countries, South Korea ranks as one of the highest in weekly work hours, which means that increased work hours during COVID-19 may not have been perceived as a major shock for most civil servants. Moreover, as reported by numerous major newspapers in South Korea, even before our survey was conducted in 2021, government officials had already been working extended hours during the pandemic period. On the other hand, the second type of policy environment information – a reduction in compensation – is grounded in one of the most fundamental work motivators, that is, economic incentives (Esteve and Schuster 2019; Lee, Chung, and Rhee 2024). In addition, it might be more shocking to civil servants, as such reductions are rare. Thus, the second type of policy environment information is more unpredictable to civil servants, compared to the first type, making it more likely to elicit a stronger reaction.

Second, some observational research finds that an increased work intensity in the South Korean government during COVID-19 actually had a positive effect on civil servants' PSM (Lee and Na 2024). This study suggests that the pandemic illuminated the importance of their work, leading more civil servants to perceive their overtime as meaningful (see Fried and Ferris 1987). In this context, many civil servants might have viewed their overtime work as justifiable and even necessary. Therefore, civil servants are likely to perceive overtime work as less of a threat to their autonomy compared to deductions in annual leave compensation.

Regarding the third and fourth types of policy environment information, we anticipate that both will serve as motivators for civil servants. Positive evaluations of civil servants' performance are likely to enhance their feelings of competence and capability. Furthermore, such evaluations attract gratitude and appreciation from citizens, enhancing their sense of relatedness. Together, these positive evaluations are likely to increase their Public Service Motivation (PSM). Between the two types of policy environment information, we expect the fourth to have a greater positive impact than the third. This expectation is based on the premise that positive evaluations from advanced democracies are perceived by civil servants as a more significant accomplishment compared to recognition from domestic audiences. International recognition is not only a rarer occurrence, but it can also boost national pride – a critical component of domestic politics (Macintyre 2015; Sagan 1996) – and induce a greater sense of appreciation from citizens. In addition, civil

servants had been exposed to the results of public opinion surveys covered by mainstream media that showed consistently positive evaluation of the government's policy responses from Korean citizens in the wake of the Coronavirus outbreak. Therefore, for these reasons, we expect international recognition to instill a higher sense of competence and relatedness in civil servants than domestic recognition. In the next section, we elaborate on our empirical strategy to test these hypotheses.

Research design: A survey experiment

We develop an original survey that includes an experiment designed to test how policy environment information surrounding the government shapes civil servants' PSM, particularly during the pandemic crisis. The experiment involved four treatment groups and a control group that did not receive any information concerning specific policy environmental conditions. In our main treatment, we randomly varied positive information (recognition of government responses from inside and outside the country) and negative information (policy decisions against public employees' welfare) related to policy environments.

Here, we reproduce our experimental design, asking civil servants to answer questions about various types of policy environment information: (1) total deduction of annual leave compensation for civil servants, (2) maintaining the emergency working system by working weekends, holidays, and evening hours, (3) highly positive evaluation of government responses from domestic citizens, and (4) high recognition of government responses by foreign citizens from the Western world. In the South Korean context, as discussed above, since each treatment condition describes what actually happened to civil servants at the time the survey was conducted, respondents will perceive our treatment conditions as realistic and take them seriously.¹⁰

- **Control Condition:** As of July 2021, the number of deaths due to COVID-19 per 1 million people is relatively low in Korea, indicating a timely response by the Korean government. As a public official, how do you evaluate the response to COVID-19?
- **Treatment Condition I (total deduction of annual leave compensation):** As of July 2021, the number of deaths due to COVID-19 per 1 million people is relatively low in Korea, indicating a timely response by the Korean government. **In particular, as a part of a response strategy, annual leave compensation for civil servants was fully deducted in order to prepare emergency disaster relief funds.** As a public official, how do you evaluate the response to COVID-19?
- **Treatment Condition II (working extra hours to maintain an emergency working system):** As of July 2021, the number of deaths due to COVID-19 per 1 million people is relatively low in Korea, indicating a timely response by the Korean government. **In particular, frontline civil servants maintained an emergency working system by working weekends, holidays, and evening**

¹⁰The human research subjects aspect of our experimental protocol has been approved by our university's Institutional Review Board.

Table 1. Survey items in the PSM construct

Item	Survey item
<i>Commitment to public values</i>	It is important that people can depend on the consistent provision of public services The welfare of other people is very important
<i>Attraction to public service</i>	It is important for me to aid my community and contribute to the society I admire those who initiate or are involved in activities to help the community
<i>Compassion and self-sacrifice</i>	I am prepared to make sacrifices for the good of society I empathize with others who face difficulties

hours, in order to respond promptly. As a public official, how do you evaluate the response to COVID-19?

- **Treatment Condition III (positive evaluation from domestic citizens):** As of July 2021, the number of deaths due to COVID-19 per 1 million people is relatively low in Korea, indicating a timely response by the Korean government. **According to Gallup Korea, 85% of South Koreans rated government responses as “doing well.”** As a public official, how do you evaluate the response to COVID-19?
- **Treatment Condition IV (recognition from the Western world):** As of July 2021, the number of deaths due to COVID-19 per 1 million people is relatively low in Korea, indicating a timely response by the Korean government. **According to the Pew Research Center in the United States, South Korea has been selected as the number one country by Americans to respond well to Coronavirus.** As a public official, how do you evaluate the response to COVID-19?

The experiment was followed by one question designed to measure individuals' assessment of government responses to the COVID-19 pandemic on a five-point scale from “strongly negative (1)” to “strongly positive (5)” and a set of six questions selected to measure the multidimensional characteristics of individuals' PSM, such as commitment to public values, attraction to public service, compassion, and sacrifice, building on the relevant literature (Awan, Bel and Esteve 2020; Kim et al. 2013; Meyer-Sahling et al. 2019; Perry 1996).¹¹ For all the six questions (see Table 1), respondents' answers were on a five-point scale, ranging from “strongly disagree (1)” to “strongly agree (5).” Respondents were also allowed to choose “Don't Know” or to decline to answer. To measure our dependent variable on civil servants' PSM, we averaged respondents' answers to the six PSM questions.

In measuring the differences in responses between the treatment and control groups within each dimension, the estimation based on the differences between the two groups may generate positive or negative outcomes of the treatment effects, or those statistically insignificant. A positive and statistically significant coefficient with a treatment relative to the one without it is considered to be evidence of the

¹¹Although existing studies have used both multidimensional and one-dimensional measures of PSM, recent empirical research found no significant difference in their effect (Awan, Bel, and Esteve 2020).

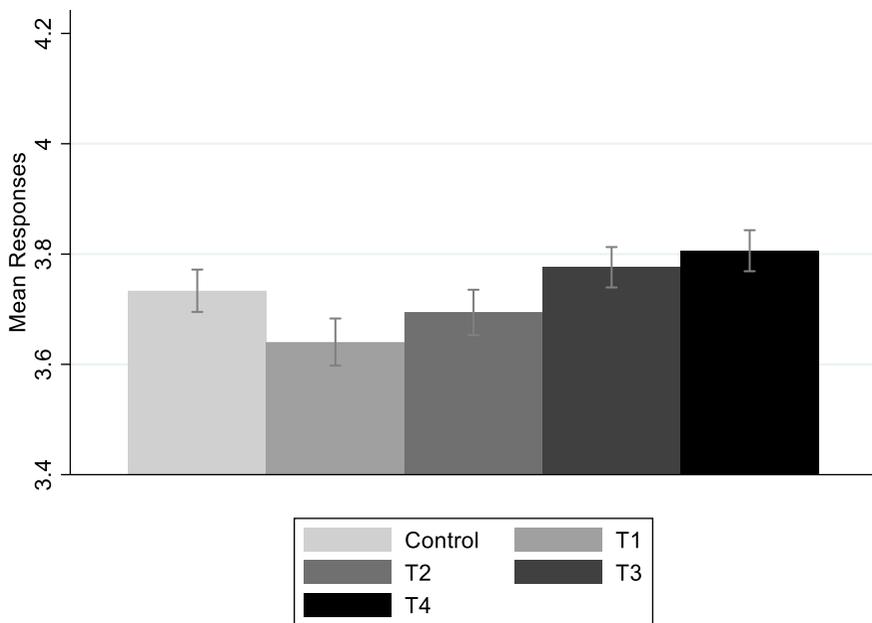


Figure 1. Mean responses by group: civil servants' PSM. *Notes:* T1 is a group of the total deduction of annual leave compensation treatment. T2 is a group of the working extended hours treatment. T3 is a group of the positive evaluation from domestic citizens treatment. T4 is a group of the recognition from the Western world treatment. 95% confidence intervals are shown.

positive effect of that particular policy environment, but a negative and statistically significant coefficient with a treatment relative to the one without it is regarded as evidence of the negative effect of the policy environment. Substantively, the larger the difference between the treatment and control groups, the larger the treatment effect on individuals' assessment of government responses and their PSM.

Figure 1 shows mean responses to the questions concerning PSM. Figure 1 indicates that civil servants' responses vary significantly between treatment and control groups as well as within the groups. This seems to be a positive sign as it suggests that our questions have strong discriminatory power.

First, Figure 1 suggests that civil servants have the most negative perceptions when they are surrounded by policy environment information leading to the total deduction of annual leave compensation for civil servants. Under these circumstances, civil servants show fairly reduced levels of PSM vis-à-vis the control group without such a condition (difference in means: $-.093$, $p < .01$).

Second, in Figure 1, civil servants have the most positive perceptions when they are encircled by policy environment information where government responses are highly recognized by the Western world. Under these circumstances, civil servants show fairly increased levels of PSM vis-à-vis the control group without such a condition (difference in means: $.073$, $p < .01$).

In addition, the two treatment conditions – policy environment information where 1) civil servants maintain the emergency working system by working weekends, holidays, and evening hours and 2) they face highly positive evaluation of

government responses domestically from the public – result in predicted but not statistically significant outcomes.¹² Below, in the empirical section, we further attempt to validate the results of our survey experiments through a more sophisticated regression analysis.

Survey sampling and balance

Our survey experiment was conducted as part of the 2020–21 Public Performance and Management Survey, which took place for three months between the middle of December 2020 and the middle of March 2021. The original survey includes 1,404 participants from 42 central government agencies and 2,863 participants from 245 local government agencies in South Korea. Our samples were drawn from all government agencies available for academic survey research, representative of the country's central and local civil service population in terms of demographics, size, and civil service characteristics. South Korea's civil service is a merit-based system where entry-level recruitment is done mostly through competitive examinations at grades 5, 7, and 9 (high-low, respectively).

Survey respondents were recruited by Hankook Research, one of the largest survey research firms in South Korea.¹³ The survey questionnaires were allocated to civil servants at their places of work, using a stratified sampling method based on the following stratifications: gender, civil service rank, and recruitment type. When examining the effects of policy environment information within and outside the government, it is important to ensure that respondents are randomly assigned to treatment and control groups, because civil servants' actual perceptions of such environments are not likely to be randomly distributed across employees with different motivation levels. That is, more motivated civil servants might be more likely to hear of or seek out information concerning policy outcomes and reputation as reported by mainstream media outlets than would less motivated civil servants (e.g., Meyer-Sahling, Mikkelsen, and Schuster 2019). The survey design and administration were implemented using Qualtrics, and Hankook Research ensured that all respondents were randomly allocated to treatment or control groups and that they completed the surveys in private. Our experimental design thus lessens these potential issues.

Of the 4,248 completed questionnaires, 853 (20.1%) are from the control group and 3,395 (79.9%) are from the four treatment groups, where each has a range of 845 to 851 respondents per group, making the response rates for the control and treatment groups similar. Regarding our covariates, for demographic characteristics, we have data on *level of education* (1 if no higher education or completing a two-year program in community college, 2 if a B.A. as the highest degree, 3 if a graduate degree), *age group* (1 if 19–35 years, 2 if 36–44 years, 3 if over 45 years), and

¹²In Appendix Table A4, we also provide the difference in mean responses regarding PSM within and between treatment groups.

¹³<https://www.hrc.co.kr/eng/> (accessed September 18, 2023). For other survey research on public policy and administration using samples recruited by Hankook Research, see Lee and Park (2020, 2021a, 2021b, 2024), Lee, Schuler, and Park (2023), Lee, Ryu, and Park (2023), Lee, Walter, and Park (2023), Park and Lee (2022), and Park, Lee, and Son (2021).

Table 2. Balance test: characteristics of respondents by group

	Control	T1	T2	T3	T4	F test
Gender (female, %)	0.42 (0.49)	0.41 (0.49)	0.44 (0.50)	0.44 (0.50)	0.46 (0.50)	1.24 (0.29)
Age group	1.98 (0.82)	1.98 (0.83)	1.98 (0.84)	2.00 (0.82)	2.01 (0.84)	0.19 (0.95)
Education	2.04 (0.48)	2.04 (0.48)	2.02 (0.49)	2.03 (0.49)	2.01 (0.50)	0.66 (0.62)
Job category	0.66 (0.47)	0.63 (0.48)	0.65 (0.48)	0.66 (0.47)	0.69 (0.46)	1.84 (0.12)
Civil service rank	1.17 (0.38)	1.17 (0.38)	1.18 (0.39)	1.19 (0.39)	1.20 (0.40)	1.06 (0.38)
Recruitment path	0.79 (0.41)	0.81 (0.39)	0.82 (0.38)	0.80 (0.40)	0.82 (0.39)	0.87 (0.48)
Private sector experience	0.31 (0.46)	0.31 (0.46)	0.30 (0.46)	0.34 (0.47)	0.29 (0.45)	1.69 (0.15)
N	853	845	851	850	849	

Notes: Standard deviations are in parentheses for each group. *p*-values are in parentheses for *F*-test results.

gender (1 if female, 0 if male). For employment characteristics, we have information on *job category* (0 if technical or others, 1 if administrative), *civil service rank* (1 if grade 6 to 9 (lowest), 2 if grade 5 or higher), *recruitment path* (0 if open recruitment, 1 if centralized civil service examination), and *private sector experience* (0 if no experience, 1 if more than a year of experience).

The descriptive statistics from the data indicate that, of the completed surveys, 1,496 (35.2%) are aged 35 years or younger while 1,461 (34.4%) are aged 45 years or older, 1,845 (43.4%) are female, 582 (13.7%) hold graduate degrees, 782 (18.4%) are from grade 5 or higher, and 1,314 (30.9%) have more than a year of experience in the private sector before entering the civil service. Table 2 presents the characteristics of the respondents by group as well as the *F*-test results. The results indicate that no characteristics are different across the control and treatment groups at conventional levels of statistical significance. We also present the correlation matrix for all our variables in Table A1 in the appendix.

Statistical modeling and empirical results

Methods

To investigate whether civil servants' PSM and their assessment of government responses in times of pandemic crisis is conditional on diverse policy environment information, we employ multivariate regression models and analyze the original data from the design of survey experiments. We conduct our analysis with our measure of PSM as the dependent variable. Since the variable is based on average scores in a continuous scale, we employ ordinary least squares (OLS) models. All our statistical models include agency fixed effects to control for unobserved heterogeneity across organizations.

Table 3. OLS regression analysis: diverse policy environments and civil servants' PSM

	DV: PSM
	(1)
T1: Deduction of Compensation	-0.091*** (0.030)
T2: Working Extended Hours	-0.033 (0.028)
T3: Domestic Positive Evaluation	0.036 (0.028)
T4: International Recognition	0.059** (0.027)
Gender (female)	-0.065*** (0.021)
Age group	0.127*** (0.014)
Education	0.022 (0.020)
Job category	0.041* (0.022)
Civil service rank	0.180*** (0.025)
Recruitment path	-0.068** (0.026)
Private sector experience	0.054*** (0.021)
Intercept	3.298*** (0.064)
R-squared	0.161
Organization Fixed Effect	Yes
N (Organization)	287
N (Individual)	4,248

Notes: T1 is a group of the total deduction of annual leave compensation treatment. T2 is a group of the working extended hours treatment. T3 is a group of the positive evaluation from domestic citizens treatment. T4 is a group of the recognition from the Western world treatment. Agency fixed effects are included in all models. A baseline category is a control group. Robust standard errors in parentheses. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Policy environments and civil servants' PSM

Will the policy environment information encircling civil servants indeed shape their PSM? In Table 3, we examine the results of our main analysis regarding civil servants' motivation. We find that treatment effects are statistically significant for the first and the fourth treatment conditions, indicating that the patterns are consistent with those Figure 1.

In Model 1, the coefficient on the first treatment is not only negative and statistically significant but also has a substantively notable impact: civil servants' PSM levels become lower by 9.4 units under policy environment information leading to total deduction of annual leave compensation for civil servants, compared to under policy environment information without such financial disincentives. This finding is overall in line with Jensen et al. (2020), who find that changes in regulatory policies restricting public service providers' working conditions may discourage their PSM. On the other hand, findings from existing studies that show a negative relationship between public service employees' prosocial motivation and

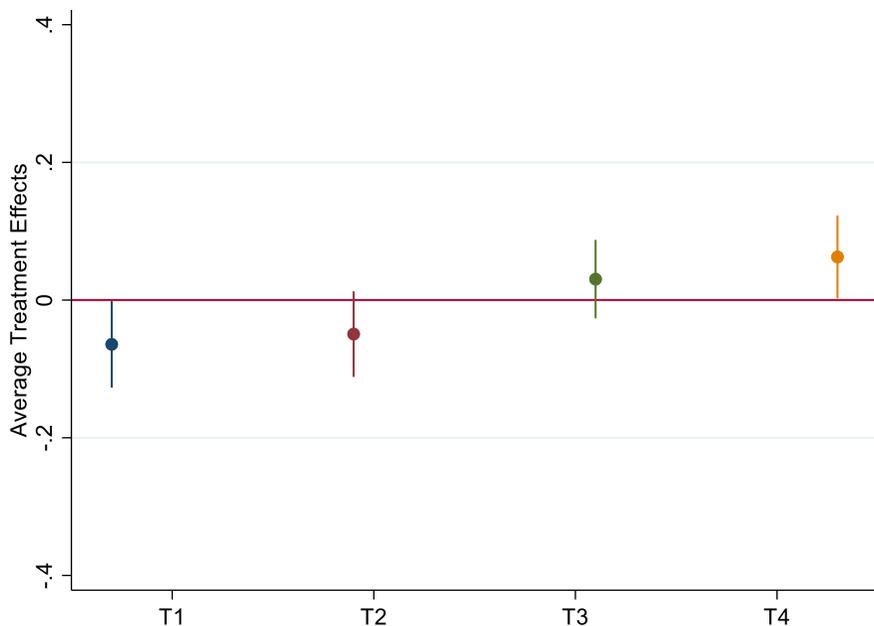


Figure 2. Average treatment effects on civil servants' PSM. *Notes:* Estimation is based on Model 1 of Table 3. T1 is a group of the total deduction of annual leave compensation treatment. T2 is a group of the working extended hours treatment. T3 is a group of the positive evaluation from domestic citizens treatment. T4 is a group of the recognition from the Western world treatment. 95% confidence intervals are shown.

their desire for monetary rewards (Banuri and Keefer 2016; Mussagulova et al. 2019) do not seem to apply to the Korean context.

Moreover, the coefficient on the fourth treatment is positive and statistically significant, and its substantive effect is not meager. Civil servants' PSM levels increase by 6.2 units when government responses are highly recognized by foreign citizens from the Western world, compared to conditions with no such recognition. This finding can be interpreted as the effect of feeling appreciated (McCullough et al. 2002). When employees' hard work is properly recognized by external audiences' praise or gratitude, they are more willing to engage in prosocial behavior (Davis et al. 2021). In Figure 2, we graphically present the treatment effects on civil servants' PSM.

In addition, given the multidimensional nature of PSM, it is possible that different dimensions of PSM are influenced by distinct determinants. To explore this possibility, we re-run our main analysis with the three dimensions of PSM, introduced in Table 1, as different dependent variables. The results are reported in the three models of Table A2 in the appendix. Indeed, we find that the three dimensions of PSM, namely, commitment to public values, attraction to public service, and compassion and self-sacrifice, are affected by the four treatment conditions in different patterns.

First, the degree of commitment to public values is significantly decreased when civil servant respondents are exposed to the conditions of the total deduction of

annual leave compensation (4.9 units) and working extended hours (6.2 units). Second, in contrast to commitment to public values, the level of attraction to public service changes in a positive direction when respondents are exposed to the treatment conditions, such as positive evaluation of government responses domestically (5.9 units) and a high degree of recognition from the Western world (4.9 units). Lastly, it is interesting that compassion and self-sacrifice do not seem to be significantly affected by our treatment conditions, although the coefficients of the four treatment variables show predicted signs.

Finally, we conduct causal mediation analysis to see whether our treatment effects are mediated by the respondents' assessment of government responses to COVID-19. As described in our experimental design, after being presented with their respective treatment or control conditions, respondents were asked to evaluate government responses to COVID-19 on a five-point scale. The results of our causal mediation analysis are reported in Appendix Table A3. Indeed, we find that the two treatment conditions that were significant in Table 3 (T1, T4) are mediated by such assessment. In the case of T1, when the total deduction of annual leave compensation treatment is mediated by the assessment of government responses, the indirect and total effects of the treatment turned out to be negative and significant. On the other hand, regarding T4, when the recognition from the Western world treatment is mediated by the assessment of government responses, the indirect and total effects of the treatment were found to be positive and significant.

Given that our treatment conditions are based on real-world events, there is a possibility that some of the respondents had already experienced the specified circumstances either directly or indirectly. Assuming that knowledge levels of civil servants and their education levels are proportional, the *F*-test results in Table 2 indicate that education levels are not significantly different across control and treatment groups ($p = .62$). Therefore, it is not likely that the effects of our treatment conditions are exaggerated. Moreover, given that our survey experiment was conducted during the early stage of a pandemic crisis, it is possible that factual information concerning the pandemic was not entirely familiar to or fully processed by civil servants. Still, there is a chance that our treatment effects are somewhat underestimated, because factual information that some of the respondents might be familiar with may not provide the same level of stimulus that unfamiliar, hypothetical conditions provide in cultivating PSM.

Discussion

While our findings on the two treatment effects have important implications for civil servants' policy implementation, it is somewhat puzzling why the other two treatment effects in Table 3 do not result in significant outcomes, particularly given our interpretation of the two former treatment effects. We suspect that, although they may not exhaust all reasons, there are at least two possibilities why the two treatment conditions might not impact civil servants' motivation as strongly as expected.

First, it could be due to learning effects on civil servants' perceptions (see e.g., Bicchieri 2016). Compared to the two other treatment conditions that were more of rare events that surprised the employees in the public sector and came as a shock, civil servants were more familiar with the two insignificant treatment conditions that were relatively more predictable, so that civil servants' responses did not change much vis-à-vis the control condition. In fact, as covered by numerous major newspapers in South Korea, even before our survey was conducted between December 2020 and March 2021, government officials in South Korea had already worked extended hours for almost a year. Similarly, they had been exposed to the results of public opinion surveys covered by mainstream media showing consistently positive evaluation of the government's policy responses from Korean citizens in the wake of the Coronavirus outbreak.

Second, particularly in relation to the effect of positive media attention to the bureaucracy, such attention caused by domestic issues is found to generate reduced responsiveness from the bureaucracy, possibly due to enhanced workload burdens (Erlich *et al.* 2021). This finding indicates that bureaucrats are used to strategically responding to types of media attention. Moreover, although there is no research showing how positive media attention caused by international issues results in bureaucrats' responses, media attention arising from domestic matters versus international stories is likely to lead to a distinct bureaucrats' reaction, as the two clearly carry different weight.

Conclusion

PSM is one of the most researched subjects in the field of public administration. However, despite the centrality and popularity of the subject in the field, experimental evidence examining its determinants has been rare. In this research, we leveraged a survey experiment to examine how various types of policy environment information – both favorable and unfavorable to those who implement policies – affect civil servants' PSM. Our analysis of more than 4,000 civil servants reveals that cutting civil servant's annual leave compensation reduced PSM, whereas international recognition for effective COVID-19 policy responses increased PSM. The other two types of policy environment information – civil servants being forced to work extended hours to maintain the emergency system and positive evaluation of government responses from domestic citizens – turned out to be not statistically significant.

While our analysis attempts to contribute to the literature on PSM and policy environments, our findings have both limitations and practical implications. First, our findings suggest that working overtime may not necessarily lower civil servants' level of PSM, although further research is necessary to understand in which specific circumstances working overtime is more acceptable to the public employees. While it was urgent, so that immediate responses from the government required during the pandemic crisis seemed to be used as justification for working overtime, it is also possible that such a working style had become a norm when our experiment was conducted. Moreover, since South Korea has been ranked top among the OECD member countries in terms of government officials' working hours, such a working

style could have already been embedded even before the beginning of the COVID-19 crisis.

Second, our findings regarding internal policy environment information suggest that reducing civil servants' financial rewards and monetary compensation is not the best option, particularly in relation to their motivation and morale. Given our experiment was conducted in the middle of the pandemic crisis, making a sacrifice for the sake of more effective government responses or for preparation of emergency disaster relief funds that will be provided to the public does not appear to matter to the civil servants. All in all, the message to policymakers is clear and simple: if they want to avoid the situation of a significant decrease in civil servants' PSM, cutting financial rewards is not an option.

Third, our findings concerning external policy environment information suggest that international recognition of civil servants' effort energizes them, whereas such endorsement domestically does not do so much. On top of learning effects and bureaucrats' response strategy, further research can help tease out why international recognition has a greater impact on civil servants' PSM than positive domestic public opinion does, which is also important to understand for political leaders such as the president and ministers who lead the executive government.

Overall, our experimental evidence about policy environment information offers significant contributions for policymakers as well as academics. Since our research design itself is generalizable to other contexts in understanding the impact of diverse but meaningful policy environments in a given context, it would be interesting to conduct similar experiments in other regions beyond Asia, such as in Western countries, to find out the importance of policy environments for civil servants' work motivation.

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Data availability statement. Replication materials are available in the Journal of Public Policy Dataverse at <https://doi.org/10.7910/DVN/3YQPYZ>

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