Civil servants’ perceptions of agency heads’ leadership styles: the role of gender in public sector organizations

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ABSTRACT
This article examines public employees’ perceptions of agency heads’ leadership styles by focusing on the role of gender in organizational management. Employing a survey experiment with over 800 national civil servants in Korea, we find that female employees have more positive perceptions of transformational leadership than male employees; however, female and male employees’ perceptions of transactional leadership are not significantly different. Moreover, employee gender, when investigated along with gender representation in organizations, produces more nuanced results. Our findings suggest a clear gender gap in perceptions of leadership styles among public employees, which is further unpacked with variations in gender representation.

KEYWORDS Public leadership; gender and representation; civil servant perception; survey experiment; South Korea

Much of public administration research has emphasized that leadership plays an essential role in enhancing performance in public sector organizations (Andrews and Boyne 2010; Meier and O’Toole 2002; van Wart 2003). However, scholars are still far from consensus on which leadership styles are more important in which contexts (Fernandez 2005; Rainey 2009; Trottier, van Wart, and Wang 2008; van Wart 2013). Evidence from observational studies shows that transformational leadership may improve the regular operations of public sector organizations (Mary 2005; Paarlberg and Lavigna 2010; Park and Rainey 2008; Rowold and Rohmann 2009; Trottier, van Wart, and Wang 2008). Yet, other observational studies suggest that transformational leadership may not be as effective as transactional leadership in a public agency setting, due to the hierarchical nature of the organizations (Wright and Pandey 2010).

Experimental or quasi-experimental studies also show mixed findings about the impact of leadership styles on organizational performance management (Bellé 2014; Dvir et al. 2002; Grant 2012).

In this study, we examine perceptions of leadership styles by focusing on the role of gender in public sector organizations. In the leadership literature, there is expansive research on how gender affects employees’ perceptions of leadership styles (e.g. Bass, Avolio, and Atwater 1996; Carli and Eagly 2011; Collins, Burrus, and Meyer 2014; Collinson 2005; Eagly and Carli 2007; Eagly and Heilman 2016). Public administrative
research also increasingly highlights gender effects and dynamics in public settings. Public employees tend to build more positive relationships with their managers who are of the same gender (Hassan and Hatmaker 2015) and experience lower satisfaction and greater turnover under supervisors who are of different genders (Grissom, Nicholson-Crotty, and Keiser 2012). Despite the robust research agenda, few studies investigate how gendered conditions at the organizational level affect the perceptions of leadership styles.

In assessing the factors that shape perceptions of leadership styles in public sector organizations, we focus on the gender of the employee and gender representation in the organization. Building on prior discussion of central aspects of two distinct leadership models – transactional and transformational (Bass 1985; Burns 1978; Jensen et al. 2019; Trottier, van Wart, and Wang 2008), we address the following research questions: How does subordinate gender affect the perceived importance of different leadership styles? How does the extent to which the organizational context is gendered reshape employees’ perceptions? We provide follower-centred (Bligh 2011; Riggio, Challeff, and Lipman-Blumen 2008; Shamir et al. 2007) and constructionist approaches (Vogel and Masal 2015). The former challenges traditional assumptions by recognizing followers as a critical part of the leadership process, and the latter views the organizational context as the conditions that encourage the emergence of particular forms of leadership.

We seek to answer these questions with a unique survey design of list experiments with over 800 central government employees in South Korea (henceforth Korea), gathered as part of a nationally representative survey. We also use existing variations in gender representation in public agencies, to provide a non-experimental test of whether the degree to which the organization is gendered affects perceptions of significant leadership behaviour. Recently adopted statistical methods permitting multivariate analysis of list experiment data enable us to unravel how such perceptions change with subordinate gender and gender representation in the organization, while controlling for other individual and organizational characteristics. We find that in organizational management, female civil servants have more positive perceptions of transformational leadership than male civil servants, but perceptions of transactional leadership are not significantly different across civil servant gender. We also find that employee gender produces more nuanced results, interacting with the organizational context. Male civil servants’ perceptions of transformational leadership have a negative relationship with women’s representation in the organization. Female civil servants’ perceptions of transactional leadership are positive in highly male-dominated organizations, but such perceptions are attenuated with an increase in women’s representation in the organization. Our findings show a clear gender gap in perceptions of leadership styles, and these differences are further unpacked with variations in gender representation in public sector organizations.

This study focuses particularly on employee gender and gender representation in public settings, to address important policy implications, as well as to contribute to our understanding of public sector leadership and organizations. Research on gender and public management suggests that the representation of employees’ gender affects not only the degree to which public organizations assist clients of different genders (Keiser et al. 2002; Meier and Nicholson-Crotty 2006; Wilkins and Keiser 2006) but also the types of policies and state bureaucracies adopted for minorities (Atchison and Down 2009; Lee and Park 2018; True and Mintrom 2001). Although public sector
organizations may be more formalized, and their authority structure can be more hierarchical (Wright and Pandey 2010), our analysis shows that the perceived importance of leadership styles depends on individual and organizational characteristics in the public sector.

In the next sections, we review existing research on transactional and transformational leadership models, and the role of gender in employees’ perceptions of leadership and the organizational context. From this discussion, we derive a set of testable hypotheses about the effect of civil servant gender, and its interaction with gender representation in the organization. Then, we describe our survey methods and experimental design, followed by presenting our findings in detail. We discuss some important implications of our findings for public management practice and conclude by offering some suggestions regarding how future research, built on the foundation of our key findings, could proceed in various directions.

**Transactional and transformational leadership in public sector organizations**

Before developing our hypotheses, we will revisit the leadership literature, where different leadership styles are conceived in different ways, in order to distinguish our notion of transactional and transformational leadership. Then, we will discuss how this notion is applied specifically to the question of subordinate perceptions, and how these perceptions vary depending on public employees’ individual and organizational characteristics.

According to the theories and models of leadership, transactional and transformational leadership form the active elements of the ‘full range’ leadership model (Bass 1985). The two leadership styles are distinct (Burns 1978; Lowe, Galen Kroeck, and Sivasubramaniam 1996); however, they are relational concepts that can be studied in tandem (Bass 1985; Bass et al. 2003; Bass and Riggio 2006). Public administration research has conceptualized leadership behaviour in public sector organizations by building on leadership theories and models, while emphasizing the aspect of ‘publicness,’ that is, the so-called ‘public leadership.’

Empirical tests of leadership provide definitional concepts of leadership styles linked to specific organizational capabilities (Bycio, Hackett, and Allen 1995; Sosik, Avolio, and Kahai 1997; Waldman et al. 2001). At its core, transformational leadership involves motivating followers by linking an inspiring vision to core values of organizations (Shamir et al. 1998). It is a form of leadership particularly suited to promoting organizational change (Yukl 2008). For this reason, it has been alternatively referred to as visionary leadership (Dvir et al. 2002). Therefore, existing observational and experimental studies commonly identify a leader’s ability to arouse inspirational motivation through articulating an appealing vision as a key element of transformational leadership (e.g. Trottier, van Wart, and Wang 2008, 321; Bellé 2014; Dvir et al. 2002; Moynihan, Pandey, and Wright 2012).

Transactional leadership’s central aspect is managerial and instrumental (Bass 1985). In contrast to the concept of transformational leadership that is suited to fostering organizational change, transactional leadership centres on fulfilling current follower needs. In this sense, as existing studies suggest, the two main elements of transactional behaviour are monitoring follower performance, and rewarding or punishing them to adhere to procedures (Bass 1985; Burns 1978; Trottier, van Wart, and
Together, while transformational leaders communicate a vision of the organization’s future and direct employees’ behaviour towards such a vision, transactional leaders monitor employee performance and use rewards and punishment to stick to organizational procedures.¹

Civil servant gender and perception of leadership styles

Having distinguished the two leadership styles, we can now ask the question: What’s the role of gender in civil servants’ perceptions of agency heads’ leadership styles? We address this question by focusing on gender differences of public employees, and the extent to which the organizational context is gendered.

Previous studies on leadership tend to take leader-centric approaches, typically treating followers as outcomes and overlooking an important part, that is, follower perception (Hunter, Bedell-Avers, and Mumford 2007). However, recent research has redirected attention towards the role of followership in the leadership process, due to the ‘importance of followers’ processes of attribution and sense-making in organizations’ (Bligh 2011, 427).² Among this recent research, one approach to follower perception is to explore how follower attribution influences perceptions of leadership (Felfe and Schyns 2006; Schyns and Bligh 2007; Schyns and Sanders 2007). By examining the extent to which the assessment of leadership is a result of follower characteristics, these studies provide evidence that follower personalities affect the perception of transformational leadership. The evidence is centred on three separate bodies of research. First, leaders who are ‘prototypical,’ or representative of their followers’ personalities, are perceived as more effective than others (e.g. Hogg 2001; van Knippenberg et al. 2004). Second, followers and leaders with similar personalities are more likely to interact with each other (e.g. Meindl 1993; Schneider 1998). Third, followers who share characteristics with transformational leaders also perceive more transformational leadership in their own leaders (e.g. Watson, Hubbard, and Wiese 2000).

In this regard, follower gender is expected to be closely related to the perception of leadership style. According to the gender and leadership literature, men and women have different leadership styles, and followers of both genders share characteristics of these leaders by identifying with them (Aimo-Metcalfe 1995; Bass, Avolio, and Atwater 1996; Carli and Eagly 2011; Collinson 2005; Eagly and Carli 2007). In many leadership studies with different research methods, female managers are found to be more democratic and transformational but less autocratic and directive than male supervisors, across a variety of transformational leadership styles (Bass, Avolio, and Atwater 1996; Eagly, Johannesen-Smidt, and van Engen 2003; van Engen and Willemsen 2004). Both female and male managers, on average, rely on the transactional leadership style, which indicates that gender differences would be less pronounced than in transformational leadership (Carli and Eagly 2011).

Research on follower gender and leadership in public administration also acknowledges gender effects and dynamics but often highlights the gender effects of the leader or supervisor-subordinate relations, rather than the follower alone (Grissom, Nicholson-Crotty, and Keiser 2012; Hassan and Hatmaker 2015). Building on the theories of relational demography and representative bureaucracy, these studies suggest that similar demographic characteristics between managers and employees have a positive impact on subordinate perceptions of leadership styles (e.g. Goldberg,
Riordan, and Schaffer 2010; Goldberg, Riordan, and Zhang 2008). To the extent that employees reflect the characteristics of their leaders, we should expect that the perceptions of female and male employees will differ more in relation to a leadership style that is associated with either male or female managers. As existing studies suggest, female supervisors are found to be more transformational than male counterparts, but the features of transactional leadership are somewhat shared by female and male supervisors. Therefore, we predict that female employees have more positive perceptions of transformational leadership than male employees. However, gender differences in followers’ perceptions towards transactional leadership will be less pronounced. This discussion leads to our first two hypotheses:

**H1a:** In organizational management, female employees have more positive perceptions of transformational leadership than male employees.

**H1b:** In organizational management, female and male employees’ perceptions of transactional leadership are not significantly different.

**Gender representation and perception of leadership styles**

In this section, we examine the role of gender representation in the organization, and its interplay with employee gender in perceptions of leadership styles. Research focusing on gender representation is particularly important in a public setting, because the representation of public employees’ gender affects the degree to which public organizations assist clients of different genders (Keiser et al. 2002; Meier and Nicholson-Crotty 2006; Wilkins and Keiser 2006). More generally, as recent public administration research suggests, the internal context of an organization can influence the relationship between public management and performance (George, Van de Walle, and Hammerschmid 2019; Jacobsen and Andersen 2017; Kim and Park 2017; Lee 2018, 2020; Luu 2019; O’Toole and Meier 2015). First, it provides the main constraint on how managers use given resources in efforts to achieve organizational goals. Second, it also affects what managerial actions are necessary and likely to be important in goal accomplishment (O’Toole and Meier 2015, 249). Therefore, the importance of leadership styles in organizational management should vary across internal organizational settings, and followers’ perceptions of leadership styles are also likely to change in such contexts.

Research on gender and leadership increasingly recognizes that the workplace significantly affects the gendered nature of the ‘dialectic’ between men and women, which is an inevitable feature of leadership dynamics (Collinson 2005). Leadership establishes a key part of an organization’s social structure (‘regular and predictable patterns of behavior’) and culture (‘shared beliefs, values, symbols, and goals’) (Eagly and Carli 2007, 137). Therefore, an organizational member’s idea of the ideal leader can change based on the group’s gender distribution (Lemoine, Aggarwal, and Steed 2016). For instance, studies on gender and leadership styles show that the performance of female leaders is less effective in male-dominated contexts (Carli and Eagly 2011; Eagly and Carli 2007; Lyness and Thompson 2000). Other research suggests that changes in the proportion of women in organizations affect employees’ preference for male leaders (Stoker, Van der Velde, and Lammers 2012). These studies imply that
gender representation in the workplace can cause significant impact on management and performance, by reshaping subordinate perceptions of leadership styles.

This view of leadership as a dynamic process has been constructed by the social identity theory of leadership and the related self-categorization theory. According to these theories, organizational membership can affect what employees perceive as the ‘characteristics of the in-group’ and how they develop ‘a larger group identity embodied by the prototype that is composed of the larger set of attributes, norms, and behaviors that are representative of the group as a whole’ (Lemoine, Aggarwal, and Steed 2016, 472; Hogg 2001; Hogg and Terry 2000).

In developing our hypotheses, we build our explanations on the social identity theory and related theories. We expand the discussion of employees’ development of a group identity, with a focus on the role of gender, because biases in gender representation within organizations may increase the salience of gender within organizational settings (Randel, 2002). This enhanced salience due to gender composition may subsequently impact the ‘group prototype’ to become more masculine or feminine. A group with substantially more women or more men may have different ideas of what their leaders should be like (Lemoine, Aggarwal, and Steed 2016, 473). Putting salience of gender in organizational settings together with the importance of employee gender, it is reasonable to claim that the prototypes of groups which are primarily composed of males are more masculine, and groups chiefly composed of females are more feminine (Lemoine, Aggarwal, and Steed 2016). Extending our first set of hypotheses (H1a and H1b), we argue that, for leadership styles characterized by clear gender differences in subordinates’ perceptions, employee gender and organizational gender representation will interact to predict subordinates’ perceptions towards such leadership styles.

First, our prediction of subordinates’ perceptions of transformational leadership was that there would be clear gender differences. We further expect that gender representation in the workplace will reinforce this perceptual difference. Female employees, who have more positive perceptions of transformational leadership than male employees, may enhance the degree of their positive perceptions with an increase in women’s representation in their workplace. Male employees, who have less positive perceptions of transformational leadership than their female counterparts, may strengthen the degree of their negative perceptions towards such leadership styles, as women become more prevalent in their organizations. On the other hand, in male-dominated settings where more masculine prototypes are developed as a group prototype, both female and male employees will share less positive perceptions of transformational leadership.

Moreover, we believe that the trend of increasing representation of women in bureaucracies and in the broader society may also play a role in shaping employees’ perceptions of leadership styles (see Park and Liang 2019). In the case of Korea, for example, the presence of female civil servants has grown over time at all job levels. This suggests that female employees see more women access managerial positions, and that this will help to motivate them to seek upward mobility in their own career. In this sense, it is likely that more women will admire leaders who show an inspiring vision if they share an identity. Since improved representation of women in bureaucracies should have a more positive impact on female than male employees’ perceptions, it is not surprising that there is a larger gender gap in civil servants’ perceptions of transformational leadership, particularly in organizations with higher representation of women.
On the other hand, we predicted that gender differences in subordinate perceptions of transactional leadership would be difficult to distinguish. Given employee gender is likely to act as ‘a salient indicator of prototypicality’ (Lemoine, Aggarwal, and Steed 2016, 473), we further expect that gender representation in the workplace will cause little impact on subordinate perceptions of transactional leadership across male and female employees. In male-dominated contexts, employees of both genders may see leadership with directive and agentic characteristics as being more pertinent (Carli and Eagly 2011; Eagly, Karau, and Makhijani 1995). In more feminine settings, where feminine and more democratic leadership styles are proven more beneficial (Eagly, Karau, and Makhijani 1995), characteristics of transactional leadership may still be perceived as necessary and shared by managers regardless of their gender. Therefore,

**H2a**: In organizations with a majority of female employees, the difference between female and male employees’ perceptions of transformational leadership will be greater than in organizations with a majority of male employees.

**H2b**: In organizations with a majority of female employees, female employees will have more positive perceptions of transformational leadership than male employees.

**H3**: In organizational management, female and male employees’ perceptions of transactional leadership do not significantly differ as women’s representation in organizations changes.

**Research design: a list survey experiment**

To examine whether public employees have different perceptions of transformational and transactional leadership according to their individual and organizational characteristics, we conducted a survey experiment of national civil service officials in Korea. We test our hypotheses using a list experiment to determine whether, in the regular operations of public sector organizations, public employees consider these leadership styles as important.

There are three important reasons for our choice of this survey design. A list experiment is a format of indirect questioning that asks respondents to disclose how many items on a list are relevant to them. This survey design is particularly useful and has been widely used when respondents are government officials, who may feel reluctant to reveal their true opinions of their superiors or political principals and thus have incentives to provide answers that conform to prevalent social norms by providing answers heavily biased in favour of their agency heads (Lee and Park forthcoming; Meng, Pan, and Yang 2017). Moreover, respondents are surveyed at their place of work, and direct questions to assess their leaders might also cause higher nonresponse rates, which in turn may lower the validity of our results. A list experiment is therefore designed in a way to address the potential methodological problems and help to obtain truthful answers to survey questions that can be challenging (Blair and Imai 2012; Corstange 2009; Imai 2011). Finally, our survey firm negotiated access to career civil servants, and a format of indirect questioning was more preferred to public employees as it provided a higher rate of acceptance among the public agents.

The standard design for list experiments randomizes respondents into control and treatment groups where a list of control items is presented to the former group and
a list of the same control items plus one treatment, or sensitive, item of interest is presented to the latter group. That is, the random assignment process gives respondents an equal chance of being in the control or the treatment group. Once assigned to either group, respondents are then asked to count the number of items on their list that apply to them. Through this design, respondents may safely reveal their truthful answers, including the sensitive item, as long as they are not choosing either none or all of the items on their list. Based on the two assumptions – 1) a sensitive item does not affect respondents’ answers to control items (the no design effect assumption) and 2) respondents give truthful answers for a sensitive item (the no liars assumption), researchers may also estimate the proportion of respondents who are more likely to select the treatment item by estimating the difference in the mean response between the treatment and control groups (Blair and Imai 2012, 51–52).

In our study, we asked the following question to the control group:

**Several elements are listed below. How many of these elements do you think are important in the regular operations of your organizations? Please do not tell me which ones you agree with; only say how many elements you think are important.**

(1) The level of autonomy given to your agency head in managing internal organization
(2) The level of discretion given to your agency head in managing human resources
(3) The level of flexibility given to your agency head in allocating financial resources

[Items are shown in a randomized order]:

Although a leadership style is important in itself, the functioning of leadership behaviour depends on context. In this sense, public leadership is specifically linked to organizational settings and capacities in the public sector. Leadership quality is related to organizational performance as well as leader attributes (Ulrich, Zenger, and Smallwood 1999). We, therefore, adopt the integrative approach to leadership (Ingraham, Sowa, and Moynihan 2004; Moynihan and Ingraham 2004) in choosing our control items, which argues that public leadership is exerted through ‘actions that build and improve organizational abilities and management systems’ (Moynihan and Ingraham 2004, 428). Any public leaders must employ these conditions to produce significant organizational capabilities and accomplish certain levels of performance (Ingraham, Sowa, and Moynihan 2004).

Among the control items, autonomy in managing the internal organization relates to the organization’s internal management abilities. The second control condition, discretion in managing human resources, relates to the organization’s human capital. Finally, flexibility in allocating financial resources relates to the organization’s financial management skills. Public leaders are typically faced with externally generated and directed management changes that likely constrain their leadership authority to some degree (Ingraham, Sowa, and Moynihan 2004). However, public leaders must build on these conditions in certain ways. If they are given more authority in handling each of these conditions and can combine these into broader organizational strength, the perception of their leadership capacities is likely to be more positive.

Based on previous findings and survey pretesting, we expect that the selected control items are positively correlated. The capacity to generate integrating linkages across these conditions often depends on levels of performance achieved by
governments. While high performance governments tend to be able to create integrative capacity, low performance ones generally lack such capacity (Gill and Meier 2001; Moynihan and Ingraham 2003). One of the most distinct differences, however, is the presence and quality of leadership (Ingraham 2001), which we now examine in organizational context through the two most prominent leadership behaviours – transformational and transactional leadership.

**Treatment conditions**

In order to estimate and compare public employees’ perceptions of different leadership styles, we split the sample of national civil servants into two treatment groups. The first treatment group tests the perception of transformational leadership styles in the management of public sector organizations. The second treatment group tests the perception of transactional leadership abilities in organizational management.

In the previous section, we conceptualized these leadership styles by building on the discussion of different leadership models. With the first treatment condition, we examine the perception of leaders’ transformational behaviour. The central element of transformational behaviour in organizational context is leaders’ ability to communicate and direct towards a vision of the organization’s future. In our study, we asked the first treatment group the same question as the control group, with the exception that a treatment item relating to leaders’ transformational behaviour is added to the list:

> Several elements are listed below. How many of these elements do you think are important in the regular operations of your organizations? Please do not tell me which ones you agree with; only say how many elements you think are important.

1. The level of autonomy given to your agency head in managing internal organization
2. The level of discretion given to your agency head in managing human resources
3. The level of flexibility given to your agency head in allocating financial resources
4. The ability of your agency head to direct towards a vision of the organization’s future

[Items are shown in a randomized order]

With the second treatment condition, we examine the perception of leaders’ transactional behaviour. The main element of transactional behaviour in organizational context is leaders’ ability to monitor employees’ performance and use rewards or punishment to adhere to procedures. For the second treatment group, the question is also identical to that of the control group, with the exception that a treatment item relating to a leader’s transactional behaviour is added to the list:

> Several elements are listed below. How many of these elements do you think are important in the regular operations of your organizations? Please do not tell me which ones you agree with; only say how many elements you think are important.

1. The level of autonomy given to your agency head in managing internal organization
The level of discretion given to your agency head in managing human resources
(3) The level of flexibility given to your agency head in allocating financial resources
(4) The ability of your agency head to monitor performance and use incentives to follow procedures

[Items are shown in a randomized order]

Sampling and balance

Our list experiment was conducted as part of the Public Performance and Management Survey, which occurred from 2015 to 2016. This is an annual survey of national civil servants in Korea. Survey respondents are all public employees who were recruited by the Korean central government to implement policy programmes made by presidents and lawmakers. Entry-level recruitment of national civil servants is made through competitive examinations at grades 5, 7, and 9 (high-low), respectively.

The sampling method for the Public Performance and Management Survey initially considered including all central government agencies of Korea. Due to the inaccessibility of certain agencies and limits on the feasibility of such broad survey implementation, our samples include public employees from 26 government agencies. However, the selected agencies vary in terms of their employees’ individual characteristics and their gender representation, and the sample agencies are overall representative of Korean state agencies in terms of demographics. The surveys were distributed to public employees ranked at grade 4 to 9 based on a stratified sampling method using gender, civil service rank, and recruitment type. The surveys were distributed via online methods to all respondents at their place of work. Respondents were randomly selected into three groups and completed the surveys in private.

In total, 1,350 survey experiments were handed out, with 450 surveys for each of the three conditions. Of the 1,350 surveys distributed, 816 survey experiments were completed (60.4 per cent). Of the completed surveys, 199 (24.4 per cent) came from grade 7–9 (low), 513 (62.9 per cent) from grade 5 or 6, and 104 (12.7 per cent) from grade 4 (high). As shown in Tables 1 and 2, the completed surveys show that 267 (32.7 per cent) came from the control group, 267 (32.7 per cent) from the first treatment group, and 282 (34.6 per cent) from the second treatment group, making the response rate for the control condition similar to the response rate for the treatment conditions.

Table 1 shows the characteristics of the respondents by group: an employee gender of 1 = female, and 0 = male; an education level of 1 = completion of secondary education (or lower), 2 = completion of community college, 3 = completion of college (4-year programme), 4 = completion of graduate school (master), and 5 = completion of graduate school (Ph.D.); a civil service rank of 1 = grade 9 (lowest), 2 = grade 8, 3 = grade 7, 4 = grade 6, 5 = grade 5, and 6 = grade 4 (highest); a civil service job category of 1 = administrative, and 0 = technical; and a recruitment type of 1 = centralized civil service examination, and 0 = open recruitment. Table 1 also presents the respondents’ organizational characteristics by group: a proportion of female employees in organizations (org. characteristic) and whether an agency is led by a female head. The F-test results indicate that no characteristics differ across control and treatment groups at conventional levels of statistical significance.
In this section, we first present the observed data and mean results by group from the list experiment to compare the perception between transformational and transactional leadership styles. Then, to assess whether perception is conditional on gender differences, as well as the interaction between gender and women’s representation in public sector organizations, we demonstrate the results using maximum likelihood estimators with a series of model specifications.

### Overall perceptions of leadership styles

In Table 2, we present a summary of the observed data for the control group as well as the two treatment groups. The left panel of Figure 1 demonstrates the mean response for each group: 2.37 items for the control group, 2.75 items for the transformational behaviour treatment group, and 2.82 items for the transactional behaviour treatment group. Examining all respondents based on simple $t$ tests, we see a positive and statistically significant difference in the mean responses between the two treatment groups and the control group, respectively. This suggests that civil servants have positive perceptions of both transformational and transactional leadership styles in organizational management.
Based on these mean responses, we further show the estimated proportion of respondents who answer our treatments affirmatively in the list experiment in the right panel of Figure 1. According to the simple estimation based on the difference in the mean response between the treatment and control groups (see Online Appendix Table A2 for computation), the list experiment indicates that 38.2 per cent (with the 95 per cent confidence interval of [24.3, 52.1]) of respondents think that agency heads’ transformational competencies are important in managing organizational performance, while 45.2 per cent (with the 95 per cent confidence interval of [31.3, 59.1]) of respondents think that agency heads’ transactional abilities are important in maintaining organizational performance. This demonstrates that, on average, public employees’ perceptions towards transformational and transactional behaviour are similar. More than 38 per cent of public employees consider the integration of either leadership style with organizational conditions as important in the routine operations of their organizations. This similarity in the degree of perceptions towards transformational and transactional behaviour may not come as a surprise, given that both leadership styles play a role in organizational management. In the next section, we progress to analysis of civil servants’ perceptions of leadership by highlighting their gender and gender representation in the workplace in order to examine how these individual and organizational aspects are associated with either leadership style.

**Difference in leadership perceptions by gender**

To assess whether the civil servants’ perception of leadership styles is conditional on their gender, we use a maximum likelihood estimator adopted by Blair and Imai (2012). Being able to run a multivariate regression analysis is critical, because scholars are often interested in knowing how the likelihood of answering the sensitive question affirmatively changes with respondents’ characteristics as well as estimating the population proportion of such respondents (Imai 2011). Statistical efficiency is a particularly important concern for the list experiment design as indirect questioning means a loss of information (Blair and Imai 2012). Maximum likelihood estimators for efficient multivariate statistical analysis are particularly useful, because the proportion of respondents answering affirmatively to the sensitive item can be estimated under
certain assumptions (i.e. no design effect and no liars assumptions) by merely computing the difference in the mean response between the treatment and control groups that are randomly selected (see Blair and Imai 2012).

In Table 3, we demonstrate the estimated coefficients and their standard errors from the fitted binomial logistic regression model where the dependent variables are: whether or not transformational leadership is considered important to respondents in organizational management (Model 1) and whether or not transactional leadership is considered important to respondents in organizational management (Model 2). In Model 3, the dependent variable is not straightforward due to a two-step procedure necessary for computation (Imai 2011). Intuitively, the two treatment groups and one control group are analysed simultaneously, and the treatment effects are estimated through the difference in the mean response between the treatment and control groups based on the coefficients generated from the fitted binomial logistic regression model (i.e. maximum likelihood estimators).

The two independent variables of our study are civil servants’ gender measured as a binary variable and women’s representation in their organizations measured as a proportion (org. characteristic). We also control for the characteristics of the respondents such as age, level of education, civil service rank, job category, recruitment type, and private sector experience, as well as the respondents’ organizational characteristics such as whether an agency head is female.

Figure 2 demonstrates the results of the difference in estimated proportions of female and male respondents answering our treatments affirmatively. The figure shows, for each treatment, the estimated proportion of female civil servants answering affirmatively minus the estimated proportion of male civil servants responding affirmatively. Positive estimates indicate female public employees have more positive perceptions towards the treatment, and negative estimates indicate male public employees have more positive perceptions towards the treatment. Examining the two treatments, we see a positive difference in estimated proportions for the transformational leadership treatments, which suggests female civil servants have more positive perceptions towards transformational leadership than male employees. This finding strongly supports

| Table 3. Maximum likelihood estimator for the effect of gender on leadership perception. |
|---------------------------------|------------------|------------------|------------------|
|                                 | Model 1          | Model 2          | Model 3          |
|                                 | Treatment I:     | Treatment II:    | Control Group    |
|                                 | Transformational | Transactional    |                  |
|                                 | Est.  S.E.       | Est.  S.E.       | Est.  S.E.       |
| Female employee                 | 10.753  8.068    | 0.852  0.636     | −0.422  0.144    |
| Org. Characteristic             | −24.397  8.684   | −0.163  2.133    | 0.565  0.562     |
| (% of female employees in agencies) |                  |                  |                  |
| Female agency head              | −0.920  1.474    | −1.200  0.932    | 0.443  0.245     |
| Age                             | −0.110  0.074    | −0.027  0.035    | 0.015  0.009     |
| Education                       | 2.949  2.071     | 0.105  0.456     | 0.025  0.115     |
| Rank                            | 0.027  0.321     | 0.888  0.279     | −0.143  0.055    |
| Job Category                    | −0.137  0.848    | −1.401  0.693    | −0.006  0.153    |
| Recruitment Type                | 0.084  1.219     | 0.432  0.844     | 0.008  0.182     |
| Private Sector Experience       | −0.150  0.256    | 0.174  0.157     | 0.030  0.037     |
| Intercept                       | 1.719  3.900     | −2.809  2.506    | 1.094  0.596     |

Estimated coefficients are based on a maximum likelihood estimator where the dependent variables are whether or not transformational leadership is considered important to respondents in organizational management (Model 1) and whether or not transactional leadership is considered important to respondents in organizational management (Model 2).
Hypothesis 1a. However, we see a difference in estimated proportions for the transactional leadership treatments not statistically significant, suggesting female and male employees’ perceptions towards transactional leadership are not distinguished. This finding is in line with our expectation related to Hypothesis 1b. In the next section, we look into the organizational effect through an interplay with employee gender.

**Moderating role of organizational context: gender representation in the public sector**

In this section, we further assess whether gender representation in the respondents’ organizations shapes their perception of leadership styles through an interplay with the respondents’ gender. In Table 4, we show the estimated coefficients and their standard errors from the fitted binomial logistic regression model where all the variables are the same included in Table 3, except an interaction variable between employee gender and women’s representation in public sector organizations. Table 4 demonstrates whether perception is conditional on the interaction between employee gender and women’s representation in public sector organizations, controlling for the individual and organizational characteristics of the respondents. Again, the two treatment groups and one control group are analysed simultaneously, and the treatment effects are estimated through the difference in the mean response between the treatment and control groups based on the maximum likelihood estimators.

Since we examine the effect of the interplay between the respondents’ gender and women’s representation in their organizations, we compare the mean response of female and male respondents across varying proportions of female employees in our 26 sample agencies. Women’s representation in Korea’s civil service has increased over
time and has now reached a half of the civil service population (50.2 per cent) as of 2017. Yet, in the upper ranks (grade 5 or higher), the proportion of female employees is only about 20 per cent. Women’s representation also varies significantly across agencies. As shown in Online Appendix Table A1, among 26 agencies participating in our survey, it ranges between 18.6 per cent and 56.9 per cent. However, there are only four agencies where women are in the majority. Given these facts, we divide our sample agencies into three groups according to gender representation in the organizations: 1) the lowest 33rd percentile (women’s representation between 18.6 per cent and 31.3 per cent), 2) a mid-range (women’s representation between 31.7 per cent and 43.1 per cent), and 3) the highest 33rd percentile (women’s representation between 43.2 per cent and 56.9 per cent). Figure 3 demonstrates the results of the difference in estimated proportions of female and male respondents answering our treatments affirmatively across different organizational contexts. The figure shows, for each treatment and organizational context, the estimated proportion of female respondents answering affirmatively minus the estimated proportion of male respondents answering affirmatively. Positive estimates indicate female respondents have more positive perceptions towards the treatment, and negative estimates indicate male respondents have more positive perceptions towards the treatment.

Examining the treatments across organizational contexts, in Figure 3.1, we see a positive and statistically significant difference in estimated proportions for the transformational leadership treatments only in organizations where women’s representation is sufficiently high. In other words, female employees have more positive perceptions of transformational leadership behaviour than male employees in organizations where the proportion of female employees is at least 32 per cent or higher. However, the difference is not statistically significant in male-dominated organizations where women’s representation is below 31 per cent. The results are largely in line with our predictions concerning Hypotheses 2a and 2b.

Table 4. Maximum likelihood estimator for the effect of the interaction between employee gender and women’s representation in organizations on leadership perception.

|                | Model 1                      | Model 2                      | Model 3                      |
|----------------|-----------------------------|-----------------------------|-----------------------------|
|                | Treatment I: Transformational | Treatment II: Transactional | Control Group               |
|                | Est.          | S.E.          | Est.          | S.E.          | Est.          | S.E.          |
| Female employee| −7.852       | 3.522        | 1.823        | 1.741        | −0.322       | 0.502        |
| Org. Characteristic (% of female employees in agencies) | −26.538 | 9.606 | 0.605 | 2.460 | 0.441 | 0.700 |
| Female employee x Org. Characteristic | 29.304 | 10.584 | −3.972 | 4.423 | 0.451 | 1.283 |
| Female agency head | −1.162 | 1.214 | −1.145 | 0.912 | 0.513 | 0.253 |
| Age | −0.040 | 0.063 | −0.019 | 0.035 | 0.012 | 0.010 |
| Education | 2.628 | 1.344 | 0.121 | 0.441 | 0.018 | 0.110 |
| Rank | −0.027 | 0.299 | 0.860 | 0.274 | −0.145 | 0.061 |
| Job Category | 0.246 | 0.874 | −1.581 | 0.698 | 0.030 | 0.159 |
| Recruitment Type | −1.476 | 1.224 | 0.299 | 0.851 | 0.149 | 0.198 |
| Private Sector Experience | −0.241 | 0.209 | 0.181 | 0.152 | 0.044 | 0.041 |
| Intercept | 2.013 | 3.584 | −3.071 | 2.526 | 1.106 | 0.622 |

Estimated coefficients are based on a maximum likelihood estimator where the dependent variables are whether or not transformational leadership is considered important to respondents in organizational management (Model 1) and whether or not transactional leadership is considered important to respondents in organizational management (Model 2).
In the case of the transactional leadership treatments, as shown in Figure 3.2, the difference is not statistically significant across various organizational settings. As stated in Hypothesis 3, female and male employees tend to have similar perceptions of transactional leadership behaviour, and this does not change with women’s representation in organizations. Overall, the interaction between the respondents’ gender and gender representation in their workplace produces more nuanced and distinct outcomes in analysing public employees’ perceptions of prominent leadership behaviours in organizational management and performance.

In addition, some of the estimated coefficients for our control variables in Table 4 are worth mentioning. The results suggest that more educated employees have more positive perceptions of transformational leadership behaviour than less educated ones, whereas higher ranking civil servants have more positive perceptions of transactional leadership behaviour than lower ranking ones. We also find that, under female agency heads, female employees tend to have more positive perceptions of both leadership styles than male employees, but the gender gap in perceptions (0.202 for transformational and 0.061 for transactional) was not statistically significant.

Discussion

In this article, we seek to broaden our understanding of public leadership styles by focusing on the role of gender in public sector organizations. We do so by examining how subordinate gender affects the perceived importance of transformational and transactional leadership styles and how the extent to which the organizational context
is gendered reshapes employees’ perceptions. For these analyses, we developed an original experiment design using a survey technique based on indirect questioning and employed statistical methods to estimate coefficients of interest from this survey experiment. We find that there is a clear gender gap in followers’ perceptions of particular leadership styles, and these gender differences are moderated by the representation of female employees in organizations. Confirming our predictions, female employees have more positive perceptions of transformational leadership behaviours than male employees, but female and male employees’ perceptions of transactional leadership behaviours are not significantly different. When interacting with organizational characteristics, the gender gap in followers’ perceptions of leadership styles becomes more distinct. An increase in women’s representation in public sector organizations leads to more positive perceptions of transformational leadership behaviours among female than male employees. However, changes in bureaucratic gender representation do not affect perceptions of transactional leadership behaviours, which were similar among female and male employees.

These findings have important implications for public management practice. Extending evidence of more positive relationships between leaders and employees in same-gender dyads, we show that gendered conditions at the organizational level may also affect leader-employee relationships. Our findings suggest that transformational leadership should be considered more powerful in organizations with more female employees. Although male-dominated organizations see no significant gender gap in perceptions of leadership styles, the masculine nature of their work environment might be more conducive to transactional leadership. More broadly, given the patterns of increasing women’s representation in both public and private sectors in Korean society, it is important, for management and performance purposes, to have superiors who share an identity with female employees who now have stronger career ambition. Our findings corroborate that female employees indeed perceive leaders’ capacity to show an inspiring vision as more important than do male employees, and that such perception is reinforced in the workplace, where they are surrounded by colleagues of the same gender who may have a similar spirit.

Although we endeavour to make our experimental design robust, there are some alternative explanations for our findings on a gender gap in followers’ perceptions of leadership styles. First, they may be due to the types of relationships followers formulate with their agency heads. Existing research on public management suggests that when public employees are in same-gender dyads and experience longer tenure with their superiors, they tend to build positive relationships with the superiors (Hassan and Hatmaker 2015). If there is a systematic association between the pattern of building leader-member relationships and a follower’s gender and tenure, the types of relationships formed with their agency heads may affect the employees’ perceptions of leadership. Second, it is also possible that employees consider certain leadership styles to be more important, not only because they think positively of their leaders having such styles, but also because the leaders actually lack the styles which, however, are perceived to be necessary for their organization. Additional analyses assessing incumbent agency heads’ leadership will help to clarify a more precise causal mechanism in this context.
Conclusion

Our finding that followers’ perceptions may depend on characteristics of the organization to which they belong offers a strong foundation for future research agenda. First, scholars can expand the scope of research on gender differences in followers’ perceptions regarding leadership styles by examining other features of the organization that are related to gender representation in public sector organizations. In male-dominated organizations, an authority structure may be more hierarchical and with weak upward communication. In contrast, an authority structure may be more lateral and the upward communication can be stronger in female-dominated organizations. Public sector organizations are found to exhibit low levels of reported transformational leadership behaviours when they are more formalized and their authority structure is more hierarchical (Wright and Pandey 2010). Yet, there should be wide variation in the degrees of organizational formalization and the hierarchical structure of authority across agencies within a country as well as across countries.

The strict civil service culture in Korea, for example, is implicitly embraced within traditional Asian values or Confucianism (Lee and Schuler 2019). However, the trend of increasing representation of women in the public sector might weaken this culture. It would be interesting to examine whether, and if so how, organizational culture has changed in agencies with higher representation of female employees versus more male-dominated agencies. More broadly, civil service culture may differ in the Western world where egalitarianism tends to be highly valued. If the cultural characteristics of countries play a role in shaping civil servants’ perceptions, we might see a smaller gender gap in followers’ perceptions of leadership behaviours in the Western organizations. Last but not least, as the results of some of our control variables show, a specific style of public leadership can be linked with other characteristics of followers and organizational contexts, such as civil service rank, job category, and the representation of diverse minority groups, and further research is necessary to look into their effects.

Notes

1. We recognize a multidimensional aspect in conceptualizing leadership styles (Jensen et al. 2019) but maintain that the described features used here to conceptualize the two leadership styles are their core elements that are clearly distinct and can be applied to estimate changes in subordinate perceptions of these leadership styles empirically.
2. As the precursor of a truly follower-centred approach to leadership, the romance of leadership perspective (Meindl 1995) helps to produce empirical evidence that reveals ‘important insights into how followers conceptualize leader behaviors and their potential impacts’ (Bligh 2011, 428; Bligh et al. 2007). Uhl-Bien and Pillai (2007) suggest that followers can actively form their roles as partners or participants. In public administration research, there have been gradual shifts towards the influence of socially constructed views of followership in the leadership process. The quality of the relationships between public employees and their supervisors is one central factor discussed in the literature (Hassan and Hatmaker 2015; Vigoda-Gadot and Beeri 2012).
3. http://www.mpm.go.kr/mpm/lawStat/infoStatistics/hrStatistics/hrStatistics03/(accessed 20 November 2019).
4. As women’s representation is improved, such a gender gap exists even in top executive officers’ perceptions of employees. Anecdotal evidence suggests that, while a female vice minister views more balanced gender representation as ‘the availability of more qualified female employees’, a male vice minister admits that with a growing number of female employees, it is ‘not easy and
sometimes cumbersome to direct female subordinates.’ Interviews with Lee Bok-sil and Kwon Yong-hyun, Vice Ministers of Gender Equality and Family, South Korea, April 2016.

5. Although these characteristics do not precisely represent transactional leadership, they are more closely related with transactional than transformational leadership styles.

6. See also recent work discussing methodological issues and possible solutions with list experiments, such as measurement error (Blair, Chou, and Imai 2019).

7. In the Online Appendix, we provide detailed guidance regarding the logic of list experiments.

8. The conceptualization of these leadership styles can be composed of more than one element, but focusing on the key element of each leadership behaviour, which clearly distinguishes one type from the other, will help respondents to easily connect the element to their leaders’ attributes.

9. The Public Performance and Management Survey includes 29 sets of questions concerning organizational performance and management, public sector leadership, organizational culture and commitment, as well as 10 questions about respondents’ demographic and civil service characteristics.

10. The human research subjects aspect of our experimental protocol was approved by our university’s Institutional Review Board.

11. Agencies excluded are those not accessible, such as intelligence agencies, defence and security ministries, or those that were too small to draw enough samples to be meaningfully representative of Korean agencies. See Online Appendix Table A1 for a list of participating agencies.

12. Respondents who agreed to participate in the surveys received an email with a link that led them to the questionnaire.

13. Since higher ranking civil servants are expected to have more direct interaction with agency heads and thus more precise perceptions of agency heads’ leadership styles than lower ranking employees, they are slightly oversampled in our survey.

14. In the control group, over 50 per cent of the respondents answer affirmatively to all three control items. Given these results, ceiling effects can be a particular concern to our analysis. We test for this possibility by conducting a statistical test proposed by Blair and Imai (2012). At α = .05 as the significance level of the test, we find the minimum p value to be bigger than .10. Since these p values are above the α threshold, we cannot reject the null hypothesis of no ceiling effect.

15. For computation, a nonlinear regression model is first fitted to the control group, and then the other nonlinear regression model is fitted to the treatment group using the adjusted response variable (Blair and Imai 2012, 53).

16. Information about the proportion of female employees across civil service ranks within each organization is, unfortunately, not available due to data limitation, as the Korean government has not made such information publicly available yet.

17. This model is compatible with cross-level interactions as evidenced by past experimental research (see Blair and Imai 2012, 58–60). See also https://cran.r-project.org/web/packages/list/list.pdf (accessed 20 November 2019).

18. http://www.mpm.go.kr/mpm/lawStat/infoStatistics/hrStatistics/hrStatistics03/(accessed 20 November 2019).

19. https://www.yna.co.kr/view/ AKR20180628083300001 (accessed 20 November 2019).

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