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## Efficiency, Incentives, and Transformational Leadership: Understanding Collaboration Preferences in the Public Sector

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### ABSTRACT

In the public sector, participant attitudes are an important determinant of the success of inter-organizational collaboration initiatives. In this study, a model of employee willingness to collaborate is proposed in which the influence of transformational leadership is determined in part by the performance orientation of the organizational context in which it is enacted. The theoretical model is tested empirically using survey data collected from public employees in South Korea and regression-based Monte Carlo simulation. The analysis suggests that the effect of transformational leadership is amplified by an organization's emphasis on internal efficiency and its use of performance-based incentives, factors that themselves have independent positive and negative effects, respectively, on attitudes about collaboration. This study links transformational leadership to an increasingly necessary process in the public sector and highlights its context-dependent influence. Implications of the findings are discussed, including the notion that the efficacy of tactics adopted to support inter-organizational collaboration may be a function of their consistency with the realities of established organizational policies and processes.

### KEYWORDS

collaboration; efficiency; incentives; transformational leadership

Inter-organizational collaboration is both increasingly vital to the performance of public organizations and difficult to manage successfully (Kettl, 2006; Thomson & Perry, 2006). Collaboration is the process of working in a multi-organizational context to address challenges that cannot be overcome in isolation (Agranoff & McGuire, 2001), and an extensive literature looks at its antecedents, processes, and outcomes (Bingham & O'Leary, 2006; Campbell, 2016; Wood & Gray, 1991). Among the identified determinants of the initiation and performance of collaboration initiatives, a willingness to collaborate on the part of civil servants is either assumed or stated explicitly as a necessary condition (Esteve, Van Witteloostuijn, & Boyne, 2015; Martín-Rodríguez, Beaulieu, D'Amour, & Ferrada-Videla, 2005; Thomson & Perry, 2006). On the other hand, relatively few studies take a step back to focus on the antecedents of attitudes about collaboration, and

fewer still undertake empirical tests (Esteve et al., 2015; Krueathep, Riccucci, & Suwanmala, 2010; Mitchell, O'Leary, & Gerard, 2015). Civil servants have substantial *de facto* discretion during the implementation of public policy, and collaborative initiatives lack the articulated and formal accountability structures that characterize bureaucratic action (Sun & Anderson, 2012), creating additional space for participants to contribute to (or sabotage) processes. Establishing the determinants of attitudes about collaboration among civil servants thus has practical implications, the more so to the extent that these can be influenced by management. This study therefore seeks an answer to the following question: What factors underlie attitudes about collaboration in the public sector?

Leadership is a foundational construct in the public sector literature (Van Wart, 2013), and high-quality leadership has been linked specifically to the initiation and success of collaborative initiatives (Mitchell et al., 2015; O'Leary, Choi, & Gerard, 2012). Leadership styles in the public sector are diverse (Wart, 2003), and some, such as network governance leadership (Tummers & Knies, 2016) or, somewhat more obviously, collaborative leadership (Hallinger & Heck, 2010), are intuitively linked with collaboration. This study focuses on the more generic transformational leadership, a set of behaviors including role modeling, individualized consideration, and visionary speech that target follower sense of purpose (Bass, 1985; Paarlberg & Lavigna, 2010). Transformational leadership has been linked to a variety of outcomes including integrated thinking, innovation, change, and the instigation of collective responses to common challenges (Campbell, 2017a; Eisenbeiss, van Knippenberg, & Boerner, 2008; Sun & Anderson, 2012), and the construct is moreover associated with positive interpersonal dynamics (Campbell, Lee, & Im, 2016; Podsakoff, MacKenzie, Moorman, & Fetter, 1990). Taking these notions as building blocks, this study looks at the potential influence of transformational leaders on follower attitudes about collaboration.

At the same time, leadership is a fundamentally embedded practice, interpreted by followers through the lens of varying organizational phenomena (Osborn, Hunt, & Jauch, 2002). Consistent with this insight, the effects of transformational leadership are known to be contingent on the characteristics of the context in which it is enacted (Bass & Avolio, 1993; Campbell, 2017b; Jansen, Vera, & Crossan, 2009; Nemanich & Vera, 2009; Peterson, Walumbwa, Byron, & Myrowitz, 2008). This study postulates that organizational performance orientation plays this role in relation to attitudes about collaboration. Performance concerns are paramount among drivers of collaboration in the public sector (Fleishman, 2009; Mitchell et al., 2015; O'Leary, Gerard, & Bingham, 2006), and through collaboration organizations can acquire mission critical resources from an external source. As such, efficiency pressures are likely to be relevant to attitudes about collaboration, and may also provide a framework against which transformational leadership is

interpreted as a call for collaborative solutions to resource concerns. At the same time, individual performance accountability in collaborative initiatives is weaker than in conventional bureaucratic environments and collaboration can moreover produce tensions between self- and collective interests (Thomson & Perry, 2006). The extent to which compensation and rewards are linked to the execution of tasks articulated at the individual level may negatively correlate with how attractive collaboration will appear. Performance-based rewards, however, are also known to shape the impact of transformational leadership (Campbell et al., 2016). This study accordingly explores the role of performance-based rewards in shaping attitudes about collaboration and the impact of transformational leadership.

The contextual model of the influence of transformational leadership developed in this study is operationalized and tested empirically using a survey of South Korean central government workers. The impact of transformational leaders in different organizational contexts is estimated using the Stata extension *Clarify* (Tomz, Wittenberg, & King, 2001) and regression-based Monte Carlo simulations. The significance of the results, their limitations, and the unanswered questions that they imply make up the final section of this essay.

## **Collaboration, leadership, and context**

### ***Transformational leadership and collaboration***

As a value-based leadership strategy that improves the line of sight between individual work and the remote but important outcomes to which it contributes, transformational leadership has particular relevance to the public sector (Paarlberg & Lavigna, 2010). Accordingly, while the construct has been linked in the private sector literature to a range of performance-relevant outcomes such as citizenship behavior (Podsakoff et al., 1990), creativity (Gumusluoglu & Ilsev, 2009), and organizational identification (Epitropaki & Martin, 2005), it is increasingly used to explain more public sector-specific phenomena, such as public service motivation (Campbell, 2017a; Wright, Moynihan, & Pandey, 2012), red tape perceptions (Campbell, 2017b; Moynihan, Wright, & Pandey, 2012), and performance information use (Moynihan, Pandey, & Wright, 2011). Transformational leaders favor personalized consideration and goal-oriented speech over behaviorally contingent incentives and seek to satisfy their followers' need for belonging and meaning at work rather than their material interests (Bass, 1985). Again, this approach is known to foster mission internalization (Moynihan et al., 2011; Wright et al., 2012) and to bring into sharper relief the intrinsic incentives of public sector work (Paarlberg & Lavigna, 2010).

The collaborative context is complex and the skills needed to initiate and sustain inter-organizational collaboration are diverse (Thomson & Perry,

2006). However, there are characteristics of transformational leadership that are intuitively compatible with collaboration, which suggests that the construct may contribute to follower attitudes about it. First, while one does not relinquish organizational membership entirely during the collaborative process (Thomson & Perry, 2006), and, moreover, most collaborative initiatives involve the formalization of some processes and responsibilities (Bingham & O’Leary, 2006), nevertheless, by definition, collaboration entails working in a context where the hierarchy and standardized procedures constitutive of formal organization have less power to shape behavior (Sun & Anderson, 2012). Accordingly, collaboration is prone to produce ambiguities that threaten deadlock or dissolution (Huxham & Vangen, 2000). These structural characteristics of collaboration necessitate robust collective goals that can substitute for formal structure and provide a framework against which potential actions can be evaluated (Martín-Rodríguez et al., 2005; Thomson & Perry, 2006; Vangen & Huxham, 2012). In the public sector, transformational leadership is associated not only with follower goal clarity but also mission internalization (Wright et al., 2012), which in turn may furnish the goal-based evaluative framework necessary for autonomous action in the collective context as well as the motivation and commitment necessary to overcome setbacks. The provision, therefore, of clear, attractive goals may allow followers to transition to a collaborative environment with more confidence. Second, collaboration requires ongoing negotiation, understanding, and flexibility among participants, all of which may be interpreted as risks in the absence of positive interpersonal relationships. Transformational leaders, however, are known to generate strong interpersonal ties, altruistic behavior, a strengthened sense of collective efficacy, and cooperation in the service of common goals (Campbell, Lee, & Im, 2016; Jung & Sosik, 2002; Ritz et al., 2014; Walumbwa, Wang, Lawler, & Shi, 2004). Finally, transformational leaders foster acceptance of organizational change and encourage innovation and change-oriented behavior (Campbell, 2017a; Eisenbeiss et al., 2008; Jung, Chow, & Wu, 2003), thereby providing a normative context in which collaboration may be viewed as a privileged strategy for dealing with organizational challenges (Bass, 1985; Cha, Kim, Lee, & Bachrach, 2015).

*Hypothesis 1: Transformational leadership is positively related to employee willingness to engage in inter-organizational collaboration.*

While the known outcomes of transformational leadership outlined above are consistent with the requirements of the collaborative context, at the same time, not all organizations are conducive to transformation (Bass & Avolio, 1993), and the impact of transformational behaviors on employee outcomes is not independent from the organizational context in which it is experienced (Campbell, Im, & Lee, 2014; Dust et al., 2014; van der Voet, 2014).

Accordingly, contingencies that may shape the effect of transformational leadership on collaboration preferences need to be explored.

### ***Efficiency orientation intensity and performance-based incentive usage***

The need to secure resources from the external environment is a driver of inter-organizational collaborative partnerships in the public sector (Jang & Feiock, 2007; Mitchell et al., 2015; Thomson & Perry, 2006). Inter-organizational collaboration can lead to improved efficiencies under conditions of scarcity (Mitchell et al., 2015), and collaborative service arrangements can emerge as a response to austerity (Lowndes & Squires, 2012). Efficiency orientation intensity captures the extent to which an organization emphasizes cost cutting, eliminating redundant or non-essential functions, and the streamlining of productive capacity (Campbell, Im, & Jeong, 2014). These pressures can encourage public servants to seek new ways of securing resources, and the strong link between collaboration and resource needs suggests that an internal emphasis on efficiency may be relevant to preferences for inter-organizational collaboration. Organizational actors presumably prefer autonomy to dependence, however, resource needs can compel organizations to develop partnerships to meet goals (Fleishman, 2009; Mitchell et al., 2015). At the individual level, an emphasis on internal efficiency can produce conflict between job demands and resources, which innovative behaviors may alleviate (Campbell et al., 2014). Cost cutting, eliminating unnecessary functions, and the general need to “do more with less” (Hood, 1991, p. 5) can drive organizations to embrace alternative paths to goal attainment. Collaboration allows organizations to access external resources, and therefore the intensity of a given organization’s emphasis on efficiency may make collaborative initiatives more attractive to its employees.

*Hypothesis 2: Efficiency orientation intensity is positively related to employee willingness to engage in inter-organizational collaboration.*

A strong emphasis on internal efficiency may provide a facilitative context for transformational leaders to influence the attitudes and behaviors of followers. First, Bass (1985) suggests that transformational leadership behaviors are more accepted and effective in organizations that are open to risk and change. By providing a concrete need for performance-enhancing innovation, a strong emphasis on efficiency is consistent with this proposition. Second, transformational leadership is effective in situations with difficult and stressful conditions (Bass, 1985), and, generally, transformational leaders have a stronger impact in settings with higher performance challenges (Lim & Ployhart, 2004; Peterson et al., 2009). An emphasis on internal efficiency can produce performance challenges for individual employees (Campbell et al., 2014), and therefore the call of transformational leaders to

embrace collective solutions may be heightened under such conditions. Finally, an emphasis on efficiency is related to the reform of internal processes to achieve better results, and research suggests that transformational leadership is valuable in such change processes, having a greater impact where processes and structures are fluid, changing, dynamic, and open (Babić, Savović, & Domanović, 2014; Dust, Resick, & Mawritz, 2014; Gundersen, Hellesoy, & Raeder, 2012; Paulson, Callan, Ayoko, & Saunders, 2013; Shamir & Howell, 1999; van der Voet, 2014). In summary, transformational leaders are likely to induce acceptance of collaboration as a legitimate strategy in the face of organizational challenges and the pursuit of difficult goals, and organizations with a strong emphasis on internal efficiency may provide a fertile context for these ideas to be heard.

*Hypothesis 3: Efficiency orientation intensity positively moderates the relationship between transformational leadership and employee willingness to engage in inter-organizational collaboration.*

A second contextual factor that may underlie not only attitudes about inter-organizational collaboration, but also shape the influence of transformational leadership is a given organization's use of performance-based incentives. Tying compensation and other rewards to individual performance is a popular human resource management tool in the public sector (Kim & Hong, 2013; Park & Berry, 2014), with its usage motivated by the recognition that the interests of individual employees do not necessarily coincide with those of the organization (Eisenhardt, 1985; Ouchi, 1977). To close this gap, organizations may appeal to the self-interest of employees by providing individually valued rewards in return for organizationally valued behaviors. However, despite this straightforward theoretical argument, in practice, performance-based incentive systems are difficult to implement in the public sector and many scholars have criticized their use from a variety of perspectives (Perry, Engbers, & Jun, 2009).

While scholars have linked performance-based incentives with organizationally desirable attitudes and behaviors (Campbell, 2015; Stazyk, 2013; Yang & Kassekert, 2010), there is also evidence that their use may undermine the interpersonal dynamics generally understood to contribute to organizational performance (Campbell et al., 2016; Deckop, Mangel, & Cirka, 1999). Engagement in the collaborative process, either within the organization or in a multi-organizational setting, entails investing effort toward goals whose benefits do not accrue exclusively to any single participant. As such, individuals may be less likely to choose to enter collaborative initiatives when their rewards are tied, either exclusively or predominately, to their individual performance. More generally, performance-based incentives and the behaviors they are attached to function as an evaluative framework that can influence employee beliefs about appropriate actions (Campbell, 2015). Thus,



to the extent that rewards are tied to individual- as opposed to group-level performance, this framework may act as a subtle prohibition against entering collaborative initiatives. Finally, performance-based incentives are primarily used within hierarchically organized bureaucracies where the assignment of responsibility is, at least in theory, a tractable process. Collaborative initiatives, in contrast, lack the clear lines of accountability that characterize bureaucracy (Thomson & Perry, 2006). Consequently, an employee for whom rewards and sanctions are coupled with individual performance may perceive significant risks in collaboration, which in turn may dampen their enthusiasm about collaborative initiatives.

*Hypothesis 4: The level of coupling between individual performance and rewards is negatively related to employee willingness to engage in inter-organizational collaboration.*

Unlike efficiency orientation intensity, which is hypothesized to amplify the effects of transformational leadership on follower attitudes about collaboration, there is reason to believe that a strong reliance on performance-based incentives in public organizations will act as a *counterbalance* to the collectively-oriented influence of transformational leaders. In a recent paper, Campbell, Lee, and Im (2016) argue that transformational leaders and performance-based incentives produce competing evaluative frameworks for employees and demonstrate that the strength of transformational leadership on altruistic helping behavior is not independent of a given employee's views about the coupling of their individual behavior and their rewards. Transformational leadership is associated with a group-level goal identification that is at odds with the individualist and materialist assumptions of performance-based incentives, and for the present study this implies that the use of performance-based incentives will undermine the call to collaboration that transformational leaders make. Put differently, the effects of transformational leadership on employee attitudes about collaboration may be contingent upon the extent to which an individual's rewards are inseparable from their individual performance.

*Hypothesis 5: The level of coupling between individual performance and rewards negatively moderates the relationship between transformational leadership and employee willingness to engage in inter-organizational collaboration.*

## **Data and methodology**

### **Data**

The relationships outlined above rely on individual perception, and therefore survey data are used to test them empirically. This study uses data from a survey



conducted in the summer of 2014 with Korean public employees across 16 central government ministries (i.e., all ministries excluding the Ministry of Defense). Among other things, the survey was conducted to assess collaboration preferences, organizational efficiency orientation intensity, use of performance-based incentives, and transformational leadership. A professional survey company was hired to administer the questionnaire, which was done mostly through face-to-face interviews. A quota of 40 responses was set for each ministry, and the survey company randomly selected employees at the ministries until the quota was met. The resulting sample thus has a total of 640 responses.

The average length of tenure and age of respondents is respectively about 10.5 years and 38.5, and about 31.5% of the respondents are female. The Korean civil service consists of 9 grades, with 9 through 6 denoting entry-level positions and grades 5 and below high-ranking officials. In the sample, high-ranking officials make up about 34% of total respondents.

### ***Measurement of dependent, independent, and control variables***

*Willingness to engage in inter-organizational collaboration* is measured with three statements that capture a given employee's "positive behavioral intention" (Metselaar, 1997, p. 42) to engage in inter-organizational collaboration (Cronbach's  $\alpha = 0.72$ ). Like other variables, agreement to these statements is reported on a 5-point scale ranging from *strongly disagree* to *strongly agree*. The statements are:

It is natural to collaborate with other organizations for our ministry's work and the common good.

It is desirable to work together with various organizations.

For common goals, I will voluntarily support the work of other organizations.

*Transformational leadership* is measured by a 5-statement index ( $\alpha = 0.90$ ) popular in the public administration literature (e.g., Wright et al., 2012). The statements are:

My leader clearly articulates his/her vision of the future

My leader leads by setting a good example.

My leader challenges me to think about old problems in new ways.

My leader says things that make employees proud to be part of the organization.

My leader has a clear sense of where our organization should be in five years.

Public organizations are under constant pressure to reduce waste, streamline functions, and become more productive, and creating lean and efficient operations has been central to the New Public Management agenda (Hood, 1991). In this study, *efficiency orientation intensity* is measured with three statements (Cronbach's  $\alpha = 0.80$ ) that capture these core dimensions of the construct.

Our organization strives to reduce costs.

Our organization tries to eliminate unnecessary procedures and functions.  
Our organization is constantly working to improve productivity.

Tying pay and promotions more closely to individual performance has been central to the reform agenda of the Korean central government over the past decades (Kim & Hong, 2013). At the same time, implementation is an iterative process and the institutionalization of various reforms can vary from organization to organization (Lee & Moon, 2012). Yang and Kassekert (2010) point out that perceptual measures can be used to evaluate the state of implementation of results-based practices. Use of *performance-based incentives* is measured by three statements ( $\alpha = 0.76$ ) that evaluate the use of positive and negative incentives, as well as efforts to quantify the performance of individuals.

Our department tries to objectively measure the performance of individual employees.

In our department, pay and promotion depend on performance.

In our department, incompetence and poor performance are punished.

Additionally, several factors are controlled for at the individual level, including sex (a dummy variable with female respondents equal to 1), tenure, and a dummy variable for high-level civil service status (grade 5 and above). Additionally, while most positions in public organizations require a degree of interpersonal cooperation, some position's tasks are inherently more integrated, and some public servants regularly interact with outside organizations. Task interdependence can have a range of psychological effects on employees, including felt responsibility toward others (Pearce & Gregersen, 1991). A 4-statement index of inter-organizational job dependence is included in the model on the assumption that employees whose work is inherently connected with other organizations will likely perceive a stronger necessity for inter-organizational collaboration ( $\alpha = 0.84$ ):

Increasingly, collaboration with other organizations is an important part of my work.  
There are more and more tasks that can be accomplished only by collaborating with other organizations.

My job performance depends heavily on information provided by other organizations.

In my work, a lot of consultation with other organizations is necessary.

Finally, a vector of statements capturing respondent social desirability bias (Reynolds, 1982) is included to weaken potential common method variance, a problem to which we now turn.

### ***Method variance and social desirability bias***

In this study, the dependent and independent variables of interest are drawn from a single-informant cross-sectional survey dataset. The results are thus susceptible to correlated measurement error, also known as common method

variance (CMV) (Podsakoff, MacKenzie, Lee, & Podsakoff, 2003), a concern that has recently become more acute among public management scholars (Favero & Bullock, 2014; Jakobsen & Jensen, 2015; Meier & O'Toole, 2013). The survey instrument used in this study was designed and administered consistent with recommendations to reduce CMV (Podsakoff, MacKenzie, & Podsakoff, 2012) and the data passed common tests employed to evaluate CMV in the public administration literature. For example, scale items easily passed multiple implementations of the single-factor test, and confirmatory factor analyses conducted in Stata 14 suggests that a 4-factor solution exceeds the cutoff points for all conventional fit indices (CFI: 0.966; NNFI: 0.957; SRMR: 0.040; RMSEA: 0.053). Unfortunately, a conclusive demonstration that CMV does not unduly affect the data cannot be provided (Hu & Bentler, 1999; Sharma, Mukherjee, Kumar, & Dillon, 2005). Still, some comments can be given to moderate excessive skepticism about the analysis.

CMV can result both from biases at the individual or the organization level (Favero & Bullock, 2014). Although fixed effects may be used to control for unobserved variation due to organizational membership, individual-level measurement error, such as social desirability bias (SDB), remains a concern (Podsakoff et al., 2003). To address this, six binary statements drawn from Reynolds (1982) that tap social desirability were included in the survey and are used to evaluate the sensitivity of the outcome and independent variables to this bias (the internal consistency of the statements was low, and therefore the items are treated as independent). First, the dependent variable and each of the independent variables of interest were regressed on the set of SDB variables. Based on adjusted  $R^2$  values, the six SDB variables explain just over 1% of the variance of the dependent variable, less than 1% of transformational leadership, and less than 2% for both efficiency orientation intensity and performance-based incentives. Finally, ordinary least squares fixed effects models were estimated both containing and excluding the SDB variables. While a significant likelihood ratio comparison ( $p < 0.05$ ) suggests that some variance in the dependent variable is explained by the social desirability variables (though less than 1%, according to the adjusted  $R^2$  difference), the sign and significance of independent and control variables were not affected across the two models. While no measurement is entirely free from bias, these tests as well as the consistency of the results with theory imply that the threat of CMV should not be grounds for the automatic dismissal of the study.

## **Empirical analysis**

### ***Linear regression***

Descriptive statistics and zero order correlations (available in the [Appendix](#)) were calculated for the dependent, independent, and control variables of this

study. Mean values of the main variables of interest range from 3.02 (performance-based incentives) to 3.75 (willingness to collaborate). As hypothesized, both transformational leadership and efficiency orientation intensity are positively correlated with the dependent variable. Use of performance-based incentives, however, is not correlated with collaboration preferences at a statistically significant level.

Table 1 shows the results of a series of ordinary least squares regressions predicting employee willingness to engage in inter-organizational collaboration. Models 1 and 2, respectively, show coefficients for the predictors with ministry-level effects uncontrolled and included. Both models are homoscedastic. The inclusion of the fixed effects raises the average variance inflation factor modestly from 1.20 to 1.69, and adds an additional 2% to the adjusted  $R^2$  of the model ( $p < 0.01$ ). As can be seen in the table, coefficients and significance levels experience only minor changes due to the inclusion of the fixed effects, suggesting that unobserved ministry-level heterogeneity accounts for little variance in the dependent variable. Demographic controls are not related to the dependent variable at statistically significant levels, while inter-organizational task interdependence, as expected, is positively related. The transformational leadership, efficiency orientation intensity, and performance-based incentives variables were mean-centered prior to model inclusion and generation of the interaction terms in order to improve the interpretability of the coefficients (Dalal & Zickar, 2012).

**Table 1.** Willingness to engage in inter-organizational collaboration.

Variable	Model 1	Model 2	Model 3	Model 4
High-rank service grade	0.067 (0.043)	0.025 (0.045)	0.012 (0.045)	0.009 (0.044)
Sex (Female = 1)	-0.026 (0.044)	-0.019 (0.046)	-0.032 (0.045)	-0.042 (0.044)
Tenure	0.052 (0.003)	0.080 (0.003)	0.076 (0.003)	0.069 (0.003)
Task interdependence	0.283*** (0.031)	0.268*** (0.033)	0.280*** (0.033)	0.273*** (0.032)
Transformational leadership (TL)	0.123** (0.032)	0.132** (0.033)	0.152*** (0.032)	0.229*** (0.033)
Efficiency orientation intensity	0.174*** (0.036)	0.173*** (0.037)	0.172*** (0.036)	0.170*** (0.035)
Performance-based incentives	-0.146*** (0.035)	-0.115* (0.037)	-0.115* (0.037)	-0.146** (0.036)
TL x Efficiency orientation intensity			0.151*** (0.032)	
TL x Performance-based incentives				0.270*** (0.033)
$R^2$	0.173	0.212	0.232	0.271
Adj. $R^2$	0.155	0.175	0.195	0.235
Fixed effects	No	Yes	Yes	Yes
$n$	626	626	626	626

Notes: \* $p < 0.05$ , \*\* $p < 0.01$ , \*\*\* $p < 0.001$ . Standard errors in parentheses. All models contain a vector of social desirability variables. Key variables are mean-centered in all models.

Consistent with hypotheses 1 and 2, transformational leadership and efficiency orientation intensity show positive, statistically significant coefficients across models 1 and 2. Performance-based incentive usage, consistent with hypothesis 4, is negatively related to the dependent variable. Models 3 and 4 include interaction terms and test hypotheses 3 and 5, respectively. The positive, statistically significant coefficient associated with the interaction between transformational leadership and efficiency orientation intensity ( $\Delta R^2 = 0.02$ ,  $p < 0.001$ ) is consistent with hypothesis 3, suggesting an amplifying effect. However, the coefficient for the interaction between leadership and performance-based incentives is statistically significant and negative ( $\Delta R^2 = 0.06$ ,  $p < 0.001$ ). This is inconsistent with hypothesis 5 and suggests that, rather than buffer the effect of transformational leadership on follower willingness to collaborate, the use of performance-based incentives, like efficiency orientation intensity, amplifies its effect.<sup>1</sup>

### Monte carlo simulations

Inferences based on quantitative analyses in the social sciences often suffer from an overreliance on  $p$ -values, and consequently provide little insight into the substantive effects of variables of interest (King, Tomz, & Wittenberg, 2000). To address this problem, some researchers have adopted a simulation-based approach to estimate parameters of interest for a given research question and thereby provide a better sense of effect size (Campbell & Im, 2016; Stazyk & Goerdel, 2011). This study uses the Stata program *Clarify* (Tomz et al., 2001) to this end. *Clarify* uses Monte Carlo simulations to provide estimates of effect size and levels of uncertainty for variables of interest based on empirical possibilities in the data. This approach allows researchers and practitioners to make a judgment about the substantive impact of a given variable that does not rely on an arbitrarily set threshold of statistical significance (King et al., 2000).

Table 2 is based on model 2 (Table 1) and shows the expected values and 95% confidence intervals for each of the three independent variables based on 1,000 random draws from the sample. Before running the simulations, the dependent variable was rescaled to range from 1 to 100, which makes the

**Table 2.** Predicted values for independent variables.

	<i>Transformational leadership</i>			<i>Efficiency orientation intensity</i>			<i>Performance-based incentives</i>		
	<i>Estimate</i>	<i>95% confidence interval</i>		<i>Estimate</i>	<i>95% confidence interval</i>		<i>Estimate</i>	<i>95% confidence interval</i>	
Low	67.5	66.0	68.8	66.9	65.5	68.4	70.7	69.2	72.1
High	70.9	69.4	72.3	71.4	70.0	72.8	67.6	66.1	69.1
First difference	3.4	1.2	5.5	4.5	2.4	6.6	-3.0	-5.3	-0.7

Note: Estimates produced over 1,000 Monte Carlo simulations using the Stata program *Clarify*.

expected values somewhat more intuitive and secondly allows us to interpret first differences as percentage changes. Estimates are produced for low and high levels of each of the three variables of interest (defined as 1 standard deviation below and above their mean, respectively), with all other variables held at their mean.

Table 2 suggests that a change in transformational leadership from low to high increases the expected value of the dependent variable from about 67.5 to 70.9, or about 3.4%. The effects of efficiency orientation intensity are similar, with a change in the independent variable from low to high levels raising the expected value of the dependent variable by about 4.5%, from 66.9 to 71.4. Finally, consistent with the negative coefficient for performance-based incentives in model 2 above, the variable is shown in the table to reduce the expected value of the dependent variable by about 3.0% from 70.7 to 67.6. As none of the confidence intervals of the first differences include 0, these estimates can be understood as statistically significant a  $p < 0.05$ . Nevertheless, the magnitude of the direct effects appears to be relatively modest.

Table 3 shows how efficiency orientation and performance-based incentives moderate the effect of transformational leadership on willingness to engage in participation. In the left-hand columns, the effect of moving from low to high levels of transformational leadership at low levels of the moderating variables is shown. First differences in these conditions are low and both 95% confidence intervals contain zero, indicating that, at low levels of both efficiency orientation intensity and performance-based incentives, transformational leadership has no statistically significant effect on collaboration preferences. At high levels of each moderator, however, the effects are somewhat more dramatic. At high levels of efficiency orientation intensity, an increase of transformational leadership from low to high is associated with a 6.6% increase in the dependent variable. For performance-based incentives, the effect is even greater, with the change in transformational leadership associated with nearly an 11% increase in the dependent variable from 60.8 to 71.7. While the analysis suggests that performance-based incentives alone have a

**Table 3.** Moderated effect of transformational leadership.

<i>Transformational leadership</i>	<i>Low efficiency orientation</i>			<i>High efficiency orientation</i>		
	<i>Estimate</i>	<i>95% confidence interval</i>		<i>Estimate</i>	<i>95% confidence interval</i>	
Low	65.8	64.3	67.5	67.6	65.4	69.7
High	67.1	65.1	69.2	74.1	72.5	75.8
First difference	1.2	-1.0	3.6	6.6	3.9	9.3
	<i>Low performance-based incentives</i>			<i>High performance-based incentives</i>		
	<i>Estimate</i>	<i>95% confidence interval</i>		<i>Estimate</i>	<i>95% confidence interval</i>	
Low	69.7	68.1	71.3	60.8	58.2	63.3
High	70.5	68.6	72.5	71.7	70.0	73.4
First difference	0.8	-1.2	3.1	10.9	7.9	14.0

Note: Estimates produced over 1,000 Monte Carlo simulations using the Stata program *Clarify*.

negative influence on the dependent variable, nevertheless it is precisely in contexts that rely most strongly on performance-based incentives that transformational leadership has its most potent effect on employee willingness to collaborate.

## Discussion and conclusion

In the public sector, the views of civil servants are important during the implementation of policy (Tummers, 2011), especially so regarding how successfully a given organization can interact with and learn from its environment (Coursey, Yang, & Pandey, 2012; Moynihan, 2003). However, although the literature on collaboration in the public sector is extensive, quantitative studies examining how civil servants perceive inter-organizational collaboration are few. Because of this, this study can make several contributions to the literature. However, before turning to these, a key limitation of the analysis should be noted. In addition to the problem of CMV discussed above, an important shortcoming of cross-sectional data is its lack of temporal separation between measurements, making it impossible to present convincing causal relationships between variables. While it is not clear how preferences for collaboration could influence perceptions of leadership or other organizational characteristics, future research could adopt an experimental or longitudinal research approach to more convincingly deal with the issue of causality. This limitation should be kept in mind throughout the following discussion of this study's results.

Transformational leadership has been characterized as a motivational approach inherently compatible with the public sector management context (Campbell, 2017a; Paarlberg & Lavigna, 2010; Wright et al., 2012). This study extends the public-sector specific discourse surrounding transformational leadership by connecting the construct to attitudes about inter-organizational collaboration, an increasingly legitimate and necessary form of service delivery and governance. As traditional bureaucratic structures and forms of control face a steady stream of criticism as inflexible, inefficient, and backward, public managers need to find ways to accomplish goals using tools compatible with this new ethos of openness and participation. Further, while some have (legitimately) criticized the theoretical and empirical literature built up around transformational leadership (Van Knippenberg & Sitkin, 2013), consistent linkage of the construct with outcomes valued in the public sector suggests that it should be further developed rather than discarded as an object of scholarly interest. In particular, the visionary aspect of transformational leadership has been singled out as a core component around which the construct can be further articulated (Jensen et al., 2016), and indeed, the ability of managers to maintain high levels of performance when bureaucratic controls are weakened may be related to their ability to draw upon this skill. While the



present study links transformational leadership with yet another public sector relevant outcome, future work may broaden this approach by seeking to understand better how different types of leadership behavior can serve as functional substitutes for traditional forms of organizational control in the public sector.

Second, the analysis suggests that both efficiency orientation and performance-based incentives are related to preferences for collaboration, but in different ways. A strong emphasis on efficiency in public organizations, entailing the streamlining of organizational functions and the elimination of unnecessary processes, can encourage employees to search for innovative ways to enhance performance, results which are consistent with the core ideas of the reinventing government and new public management literature (Hood, 1991; Osborne & Gaebler, 1993). These results are encouraging, given the prevalence of austerity initiatives in the public sector. At the same time, while this study demonstrates that efficiency orientation intensity is related to collaboration preferences, previous work suggests that it may also have adverse outcomes. For instance, Campbell, Im, and Jeong (2014) argue that a strong emphasis on internal efficiency can affect the balance between employee job demands and resources, leading to negative outcomes such as increased turnover intention. These authors stress that organizations that have adopted austerity oriented measures need to take care also to provide mechanisms, such as a strong climate for innovation, which can allow employees to proactively mitigate the potential burnout that can result from working harder but not smarter. As such, managers need to take a balanced view of how emphasizing efficiency may impact employee attitudes and well-being, and future research on the subject should likewise strive to incorporate these alternative paths into empirical models.

In contrast to efficiency orientation intensity, this study found a negative relationship between the use of performance-based incentives and preferences for collaboration. On the one hand, pressure to increase performance, operationalized as positive and negative incentives at the individual level, can act as a catalyst for environmental scanning and a preference for the adoption of performance enhancing innovation (Campbell, 2015). In this sense, there is an argument to be made that performance-based incentives may positively influence collaboration preferences. However, such incentives generally target only individual performance, whereas the performance enhancing potential of collaboration is realized at the organizational level. Performance-based incentives disincentivize any behavior with a weak link to individual-level performance (Campbell, Im, & Lee, 2014; Deckop et al., 1999), and a strong emphasis on measurable, individual-level performance may facilitate the prioritization only of measurable, individual-level tasks, and undermine motivation to pursue the more diffuse performance benefits that collaboration can bring. More generally, a strong emphasis on performance can distort

mission-critical goals (Bohte & Meier, 2000), of which collaboration is understood to be in the service. Given both the importance of collaboration in the public sector as well as the entrenchment of results-based management and human resource management, more work should be done to better understand the mechanisms behind the negative relationship uncovered in this study.

Given the centrality of both efficiency concerns and performance-based incentives for contemporary public sector organizations, their direct effects are interesting and have implications for public managers. However, how these characteristics shape the influence of behaviors that are more fully under the control of public managers should not be ignored. In the empirical literature, transformational leadership has a close connection with the search for and adoption of performance enhancing innovations (Gumusluoglu & Ilsev, 2009; Jung et al., 2003; Noruzy, Dalfard, Azhdari, Nazari-Shirkouhi, & Rezazadeh, 2013). The present study extends this research to collaboration preferences. However, the results suggest that followers of transformational leaders may not turn to collaborative solutions to challenges in organizations that are resource rich or, somewhat surprisingly, fail to tie rewards to individual performance. In the first case, in organizations that are resource rich, or at least have sufficient resource slack that they may comfortably work independently, collaboration may be less necessary (Jang & Feiock, 2007), and transformational leadership less likely to lead to collaborative initiatives. Alternatively, it may be the case that transformational leaders themselves emphasize collaboration less in resource constrained environments, instead focusing on goals that can be achieved using the available organizational resource slack. Transformational leaders strive to articulate an attractive vision of the future; however, the content of this vision is not essentially tied to collaboration, and indeed in some circumstances may emphasize its opposite. While addressing this question satisfactorily is beyond the scope of this study, testing how context influences the behavior of (transformational) leaders in the public sector may both shed better light on the results of the present study as well as open up new paths for further research.

More puzzling is the finding that the usage of performance-based incentives amplifies the effect of transformational leadership on employee willingness to collaborate, especially given that its direct effect is negative. This negative effect rules out several explanations of this effect, including that the usage of performance-based incentives drives employees to seek new forums in which to distinguish themselves from their peers. One interpretation of this effect is that performance-based incentive usage increases the competitiveness of the organization, making the context more conducive to the message of transformational leaders, despite undermining the willingness to collaborate of individual employees. Alternatively, the tying of performance to incentives may encourage transformational leaders themselves to

emphasize collaboration in their speech, perhaps as an antidote to the interpersonally corrosive effects of performance-based incentives. Again, future research can help better understand this finding, potentially by focusing on how context shapes not only the effects of transformational leadership, but also the content of transformational speech.

A final potential direction for future research is noted here. This study contributes to the literature that looks at the collaboration preferences of public servants (Esteve et al., 2015; Mitchell et al., 2015) by providing a quantitative evaluation of organizational characteristics that shape these preferences. However, the peculiar characteristics of public sector organizations and processes have themselves been implicated as a barrier to both internal collaboration and well as the authentic participation of non-government entities in the policy and administrative process (Campbell & Im, 2016; Yang & Pandey, 2011). At the same time, public organizations are inescapably open systems in which the internal structures and goals are influenced by the operating environment (Chun & Rainey, 2005; Stazyk, Pandey, & Wright, 2011). This study has focused on how transformational leadership interacts with the internal performance characteristics of public organizations. However, questions remain about how these performance characteristics themselves mediate the wider environment of public sector organizations. Given the strong environmental focus of collaboration studies in the public administration literature, an ambitious program of research may focus on the integration of these external and internal antecedents into a comprehensive model of collaboration-relevant attitudes.

## Notes on Contributors

*Jesse W. Campbell* is an Assistant Professor in the Department of Public Administration at Incheon National University in South Korea. His research focuses on correlates of effectiveness in the public sector. An additional stream of research examines issues with unique relevance to the East Asian/Korean administrative context.

## Note

1. Given that the 3-item scale for the dependent variable has not been formally validated in previous literature, one of the anonymous reviewers of this study raised a concern about a potential subtle difference between the third question in the scale and the other two. To address this concern, all models were run again using a 2-item scale ( $\alpha = 0.70$ ) for the dependent variable. While the value of individual coefficients *did* change in small ways, their signs and statistical significance were largely consistent with the original models, suggesting a certain level of robustness.

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## Appendix

### Summary Statistics and Zero-Order Correlations

#	Variable	M	SD	Min– Max	1	2	3	4	5	6	7
1	Willingness to collaborate	3.75	0.53	2–5							
2	Transformational leadership	3.51	0.68	1–5	0.17***						
3	Efficiency orientation intensity	3.50	0.63	1–5	0.24***	0.40***					
4	Performance-based incentives	3.02	0.65	1–5	0.03	0.39***	0.41***				
5	High-rank service grade	0.34	0.47	0–1	0.12**	0.00	0.02	0.02			
6	Tenure	10.53	7.45	0–36	0.10**	0.07	0.25***	0.10*	0.18***		
7	Sex (Female = 1)	0.32	0.46	0–1	–0.05	–0.10*	–0.19***	–0.26***	–0.13***	–0.14***	
8	Task interdependence	3.38	0.64	1–5	0.29***	0.09*	0.15***	0.15***	0.14***	–0.08*	–0.05

Note: \* $p < 0.05$ , \*\* $p < 0.01$ , \*\*\* $p < 0.001$ .