

Do Leadership Commitment and Performance-Oriented Culture Matter for Federal Teleworker Satisfaction With Telework Programs?

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Abstract

A substantial number of federal employees have been teleworking due to its perceived benefits—time and location flexibility and better balance between family and work. Yet, managing teleworkers in public organizations can be challenging due to the added expenses associated with monitoring remote workers. Also, the unforeseen drawbacks of remote work may decrease teleworker satisfaction with telework programs. Drawing on insights from the political economy of hierarchy and institution theories, this study examines whether leadership commitment to telework and performance-oriented culture matter for federal teleworker satisfaction with telework programs. It examines two-year datasets of the 2008 and 2015 Federal Employee Viewpoint Surveys. The findings show that leadership commitment to telework, performance-oriented culture, and the enactment of the 2010 Telework Enhancement Act all play significant roles in enhancing federal teleworker satisfaction with telework programs.

Keywords

telework, leadership commitment, performance-oriented culture, teleworker satisfaction, flexible work arrangement

Introduction

Since the enactment of the 2010 Telework Enhancement Act (TEA), telework has been one of the most popular public management innovations that federal government

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agencies attempt to attract, retain, and/or motivate talented and skilled new-generation workers. The new-generation workforce is different from the baby-boomer workforce. First, they are more concerned about balance between work and life (Berman, Bowman, West, & Van Wart, 2016). Second, there are more nontraditional families—dual-income couples, single mothers, and single fathers who face the challenge of finding proper child care while they are working (Klingner, Nalbandian, & Llorens, 2010). Telework can help accommodate the preferences and needs of the new-generation workforce by providing them with time and location flexibility that can facilitate a better work–life balance (Bae & Goodman, 2014; Bae & Kim, 2016; Ko, Hur, & Smith-Walter, 2013; Taskin & Edwards, 2007). According to the U.S. Office of Personnel Management (OPM), telework is defined as “a work arrangement that allows an employee to perform work, during any part of regular, paid hours, at an approved alternative worksite (e.g., home, telework center)” (<https://www.telework.gov/about/>). The 2010 TEA requires all federal agencies to establish and offer telework to their workforce, and it has been successful both in increasing the number of federal teleworkers and in providing a variety of benefits to the federal workforce and agencies (Bae & Kim, 2016; Berman et al., 2016; Overmyer, 2011; Perez, Sánchez, Carnicer, & Jiménez, 2004; U.S. OPM, 2013; Wadsworth, Facer, & Arbon, 2010).

Despite the rapidly increasing number of teleworkers throughout all federal government agencies, however, little research has been done to explore federal teleworker satisfaction with telework programs. In the current literature, a number of recent studies have attempted to examine the effects of telework in federal government agencies (Bae & Kim, 2016; Caillier, 2013; Lee & Kim, 2017; Mahler, 2012; Overmyer, 2011). For example, Caillier (2013) examined the impact of telework on turnover intention, Bae and Kim (2016) studied the effect of telework on job satisfaction, and Lee and Kim (2017) researched the impact of telework eligibility, participation, and technical and managerial support on teleworkers’ and nonteleworkers’ job satisfaction, perceived fairness, and intention to stay. However, as yet no large-*N* study has been published that examines federal teleworker satisfaction with telework programs. Given that the enactment of the 2010 TEA required a great deal of sustained commitment and resources, and resulted in a substantial number of federal teleworkers, it is timely and important to study the satisfaction of teleworkers with regard to their telework programs and inform practicing supervisors, managers, and leaders of what factors affect teleworker satisfaction with telework programs. To address this gap in the literature, this article focuses on explanatory factors absent from previous telework studies to explore the determinants of federal teleworker satisfaction with telework programs and, accordingly, the following research question is pursued:

Research Question 1: Do leadership commitment and performance-oriented culture matter for federal teleworker satisfaction with telework programs?

This research question is examined by drawing insights from the political economy of hierarchy and institution theories and by using two-year datasets from the 2008 and 2015 Federal Employee Viewpoint Surveys (FEVSS) particularly for the U.S. Patent

and Trademark Office (USPTO). The rest of this article first outlines the key issues to be addressed, introduces the theoretical foundations of the study, and develops the research hypotheses. This is followed by a description of data and methods. After that, the article presents research findings. Finally, the article discusses the implications of the research findings for managing public human resources and suggests directions for future research.

Federal Teleworkers: Are They Satisfied With Telework?

How can federal employees become teleworkers? According to the 2010 TEA, federal employees must first be approved for telework eligibility by the head of their executive agency. Next, the agency managers determine whether the employees' jobs are appropriate for telework and also consider what technological support and performance criteria are needed for telework to achieve the expected outcomes. Once these predetermined criteria have been met, a federal employee can finally become a teleworker and can work from home or an alternate worksite (TEA, 2010). As such, it is crucial for the agency to set clear standards and policies regarding telework eligibility and teleworker performance to prevent possible negative consequences such as unfairness and inequity issues during approval processes (Lee & Kim, 2017; Mahler, 2012).

Recent telework studies have identified potential benefits and costs of telework for teleworkers. On one hand, telework helps teleworkers to achieve a better balance between work and home, to be more motivated and satisfied with their jobs, and to improve work performance through workplace and time flexibility (Bae & Goodman, 2014; Bae & Kim, 2016; Hunton & Norman, 2010; Ko et al., 2013; Kwon & Jeon, 2017; Maruyama, Hopkinson, & James, 2009; Taskin & Edwards, 2007; U.S. OPM, 2014). On the other hand, limitations on monitoring remote teleworkers by supervisors and lack of support from political leaders can result in the abuse of telework privileges and shirking by teleworkers that may lead to failure to achieve the promised effectiveness of telework programs (Kwon & Jeon, 2017; Newman & Mathews, 1999; Perry-Smith & Blum, 2000; Rein & Branigin, 2014). Although the abundant discretion and flexibility afforded by teleworking are supposed to improve performance and productivity among teleworkers, such nontraditional work arrangements with full flexibility can cause employees to have difficulty in separating work from personal lives and to experience feelings of social isolation due to lack of face-to-face interactions with supervisors and coworkers (Baruch, 2000; Caillier, 2013, 2014; Cooper & Kurland, 2002; Crandall & Gao, 2005; Gajendran & Harrison, 2007; Hamilton, 2002; D. Lee & Hong, 2011; Mann & Holdsworth, 2003; Tavares, 2015). In addition, performance management failure and role ambiguity can occur when teleworkers are uncertain about what performance goals they are supposed to achieve and how they are performing their jobs (Igbaria & Guimaraes, 1999; Overmyer, 2011; Tavares, 2015; Weinert, Maier, & Laumer, 2015). These challenges can undermine satisfaction among teleworkers with their telework programs (Golden, 2006; Moore, 2000), the expected quality of their work, and the effectiveness of telework programs. Due to the mixed findings of the effects of telework on teleworkers presented in existing telework

studies, this article aims to examine teleworkers' satisfaction with their telework programs, with a particular focus on understanding the impact of leadership and institutional supports on teleworker satisfaction with telework programs.

Theories and Hypotheses

Political Economy of Hierarchy and Institutions

The earlier management of human resources was understood by scientific management as shaping a follower's behavior to the most efficient way of doing work by using wage, discipline, and monitoring strategies solely designed by managers (Taylor, 1914). However, this mechanistic perspective based on a simple logic-of-price mechanism is limited in explaining individual behaviors that can be affected by various factors and costs in the contextual environment containing the rapid change of social and economic conditions (Coase, 1937). Human relations literature on management argues that such a parochial understanding, based on the mechanistic perspective, had little to say about the important roles of relations among individuals and workplace culture on individual behaviors (Barnard, 1938; Mayo, 2004). In other words, human motivation is not simply monetary at all times, but often influenced by leadership style, bureaucratic structure, and working environment (Argyris, 1957; Herzberg, 1968; McGregor, 1960). Indeed, how followers perceive their informal and/or formal relationships with leaders and how they perceive adjustments in the institutions cultivated in the workplace affect their job satisfaction and motivation.

Studies of political economy and institutions argue that types of hierarchy (e.g., leadership) and institutions (e.g., legal, social, and cultural norms) influence individual behaviors because they shape programs, policies, team collaboration, information-sharing, and even relationships and trust among individuals (Alchian & Demsetz, 1972; DiMaggio & Powell, 1983; Meyer & Rowan, 1977; Miller, 1992; North, 1990; North & Weingast, 1989; Ostrom, 1990). Specifically, current public management studies on the principal-agent model and institutional analysis find that leadership commitment and institutional supports cultivated in the workplace affect public employee perceptions and behaviors toward programs and policies in the organization (Dull, 2008; Melkers & Willoughby, 2005; Miller & Whitford, 2006). Thus, how leaders commit to and/or how cultivated institutions in the workplace support a program or policy in the organization can determine to what extent organizational members are satisfied with the program or policy. Using the political economy and institutions frameworks, this study seeks to address the influence of these primary contextual factors—that is, leadership commitment and supportive institutional arrangement—on federal teleworker satisfaction with their telework programs through the advanced and detailed discussion below.

Leadership commitment. Leadership is seen as the heart of effective human resource management and motivation in a contemporary public organization hierarchy. In a leader and follower relationship, followers consistently examine to what extent their

leaders are committed to a reform program through “responsible behavior” and then decide how much cooperation they are willing to provide to support the program (North & Weingast, 1989, p. 804). Leadership commitment to generating institutional supports for reform programs and organizational members can solve cooperation problems and social dilemmas in a contemporary organizational hierarchy (Miller, 1992). In particular, public-sector reform leaders, who are viewed within the context of frequently shifting political institutions, need to provide leadership commitment that can motivate employees willing to buy-in and execute reform programs and draw cooperation from them during program execution. Thus, leadership commitment is critical to employee satisfaction and motivation regarding public-sector reform programs, while the absence of such leadership commitment can cause public-sector reform programs to fail because of shirking and/or moral hazard from dissatisfied participants (Fernandez, Cho, & Perry, 2010; Fernandez & Pitts, 2011). As public employees understand the unique characteristics of public-sector leadership such as frequent turnover because of short-term tenure within election cycles, they may want to see to what extent their leaders are committed to a public-sector reform program to determine whether the reform program is merely a politically symbolic gesture meant to help leaders retain their positions or a realistic and substantive move toward change. If public employees perceive the reform program as realistic and substantive based on leadership commitment, they would be more likely to put forth the effort to support the program through cooperation rather than shirking and/or moral hazard.

In the U.S. federal government, frequent changes among political administrators, competition among principals, and changing political atmosphere often lead to skepticism among federal employees regarding public-sector reform programs (Dull, 2008). As such, federal employees who perceive a high level of leadership commitment to a reform program and its missions are more likely to be supportive of the reform program. The federal telework program is considered a new public reform program that allows federal employees to work from nontraditional workplaces (e.g., home, telework facilities) so that they can better balance work–life issues with time and location flexibility. This research posits that federal teleworker satisfaction with telework programs will be higher when they perceive that leadership commitment to telework programs and the telework program mission is high.

Hypothesis 1a (H1a): Federal teleworkers who perceive a high level of support from senior leaders toward work/life programs within their workplace are more likely to be satisfied with their telework programs.

Hypothesis 1b (H1b): Federal teleworkers who perceive a high level of support from supervisors toward balancing work/life issues within their workplace are more likely to be satisfied with their telework programs.

Performance-oriented culture. According to institutional theory, institutions shape human behaviors, and thus appropriate institutions such as formal systems, hierarchical oversight and/or social and cultural norms need to be in place to guide individuals to produce expected outcomes (DiMaggio & Powell, 1983; Meyer & Rowan, 1977;

North, 1990; Ostrom, 1990). Public managers and supervisors often focus on developing cultural norms as informal understandings to manage subordinate behaviors when formal systems and/or hierarchical oversight are limited (Miller, 1992). For instance, cultural norms in the workplace define the boundaries of acceptable actions, and they signal what work should or should not be done and how that work is to be carried out (Franklin & Pagan, 2006; Kaufman, 1960). Previous studies illustrate such important roles of cultural norms in public management innovation use and effectiveness (Broadnax & Conway, 2001; Franklin, 2000; Franklin & Pagan, 2006; Moynihan & Pandey, 2010; Yang & Hsieh, 2007). Cultural norms in the workplace serve as a means for individuals to understand the work environment so expected outcomes can be achieved. As such, it can be argued that desirable cultural norms need to be established to increase the support for and effectiveness of telework programs.

What kind of desirable cultural norms should be established to promote effective telework? This research posits that cultivating a performance-oriented culture is critical to enhancing the effectiveness of managing teleworkers and overcoming the challenges of telework by setting clear expectations about job performance. Previous research suggests that it is important to develop appropriate performance management, proper incentive and recognition systems, and constructive feedback and learning to mitigate an agent's moral hazard when monitoring is more expensive and time-consuming (Holmstrom, 1982; Miller & Whitford, 2006). Recent telework research also echoes the previous research by suggesting that developing effective measures of performance, managing for results, performance evaluation based on measurable outcomes, and essential training can help manage a telework environment more effectively (Overmyer, 2011). In the research, performance-oriented culture is defined as the appropriate institutional support cultivated in the workplace that provides desirable cultural norms for teleworkers by promoting a culture of high performance with the pursuit of performance management determining good performance, incentive and recognition systems rewarding good performance, constructive feedback informing job performance, and essential training providing basic information of telework. Thus, the following hypothesis is presented.

Hypothesis 2 (H2): Federal teleworkers who perceive a high level of performance-oriented culture within their workplace are more likely to be satisfied with their telework programs.

Control variables. In addition to the two primary factors discussed above, other factors may also be associated with federal teleworker satisfaction with telework programs. Federal teleworkers' demographic characteristics such as supervisory status, gender, minority status, age, education level, and tenure were included as control variables. Current literature on telework and flexible work arrangement included demographic variables in their models on teleworker participation, job satisfaction, and turnover intention (Bae & Kim, 2016; Caillier, 2013; Kim & Wiggins, 2011; D. Lee & Hong, 2011). The enactment of the 2010 TEA was also included as a control variable that may increase federal teleworker satisfaction with telework programs. Previous

telework research suggests that adopting a formal telework policy helps overcome unexpected problems and enhance the effectiveness of managing teleworkers (Kwon & Jeon, 2017; Overmyer, 2011). This research uses the FEVS data to conduct hypotheses testing for the main explanatory and control variables.

Data and Methods

Data Source and Sample

The 2008 and 2015 FEVS were analyzed to test the hypothesized relationships. Being administered by the U.S. OPM, the FEVS serves to promote understanding of how federal workers perceive human resource management practices in their workplace and has been analyzed in a wide range of public personnel administration research (Fernandez, Resh, Moldogaziev, & Oberfield, 2015). In the 2008 and 2015 FEVSs, the number of survey respondents was 212,223 and 421,748, respectively. For this research, responses of the USPTO workers in the 2008 and 2015 FEVSs were selected for analyses. Here are three reasons why the responses of the USPTO teleworkers and the 2 years of 2008 and 2015 were chosen for analyses. First, the USPTO is one of the federal agencies whose employees highly participate in the telework program. According to the USPTO telework annual report in 2014, approximately 78% of USPTO employees are teleworking. Second, the conflicting events of its award-winning telework programs and recent scandal about employee telework abuse make the USPTO an interesting setting for studying the determinants of federal teleworker satisfaction with telework programs (Rein & Branigin, 2014). Third, it is expected that the enactment of the 2010 TEA influences how leadership commitment and workplace culture in the USPTO support telework programs. In addition, after the USPTO employee telework abuse scandal in 2014, the Office of Inspector General (OIG) suggested that the USPTO should have stronger controls and better performance management for its teleworking programs (Cordell, 2015). Thus, 2008 and 2015 are remarkable years that enable us to examine how the OIG's suggestions affected leadership commitment and performance-oriented culture and how the 2010 TEA affected the USPTO teleworker satisfaction with their telework programs.

Two empirical models were developed for hypotheses testing. The first model was to examine how the explanatory variables except the 2010 TEA enactment variable influence USPTO teleworker satisfaction with telework programs in 2015. A total of 2,733 USPTO workers participated in the 2015 FEVS. Out of the 2,733 USPTO workers, 1,481 USPTO teleworkers were included for analysis in the first model because 1,252 of the USPTO workers have missing values for one or more of the variables of interest. The second model was to examine how the explanatory variables including the 2010 TEA enactment variable influence USPTO teleworker satisfaction with telework programs over time, with particular emphasis on 2008 and 2015. A total of 3,639 USPTO workers—906 from the 2008 FEVS and 2,733 from the 2015 FEVS—participated in the 2008 and 2015 FEVSs. A total of 1,771 USPTO teleworkers—215 from the 2008 FEVS and 1,556 from the 2015 FEVS—were included for analysis in the

second model, because 1,868 of the USPTO workers have missing values for one or more of the variables of interest.

Dependent Variable

The dependent variables for both models are USPTO teleworker satisfaction with telework programs. In the 2008 and 2015 FEVSs, the question, “How satisfied are you with the telework program in your agency?” was used to capture USPTO teleworker satisfaction with their telework program. The response to this question was on a 5-point Likert-type scale, with 1 being *very dissatisfied* and 5 being *very satisfied*. USPTO teleworker responses for the question in the 2015 FEVS were used for the first model, and USPTO teleworker responses for the question in both the 2008 and 2015 FEVSs used for the second model.

Independent Variables

The first model has nine independent variables. The independent variables and the survey questions used to measure each independent variable are summarized below.

Primary explanatory variables. Leadership commitment had two hypotheses, with the following questions used to measure them:

H1a: “Senior leaders demonstrate support for work/life programs.”

H1b: “My supervisor supports my need to balance work and other life issues.”

Both questions were measured by a 5-point Likert-type scale with 1 being *strongly disagree* and 5 being *strongly agree*.

Performance-oriented culture (H2) was measured by computing the mean of the following 10 items:

- “In my work unit, differences in performance are recognized in a meaningful way.”
- “My supervisor provides me with constructive suggestions to improve my job performance.”
- “In my work unit, steps are taken to deal with a poor performer who cannot or will not improve.”
- “My performance appraisal is a fair reflection of my performance.”
- “I am held accountable for achieving results.”
- “Promotions in my work unit are based on merit.”
- “Awards in my work unit depend on how well employees perform their jobs.”
- “Employees are recognized for providing high-quality products and services.”
- “Pay raises depend on how well employees perform their jobs.”
- “My training needs are assessed.”

The questions were measured by a 5-point Likert-type scale with 1 being *strongly disagree* and 5 being *strongly agree*. Cronbach's alpha for the scale was .92, showing a high internal consistency among the items.

Control variables. Supervisory status was measured with the question, "What is your supervisory status?" Response options were nonsupervisor/team leader and supervisor/manager/senior leader. The response of nonsupervisor/team leader was coded as non-supervisory employees (1), and the response of supervisor/manager/senior was coded as supervisory employees (2). Gender was measured with the question, "Are you (a) male, or (b) female?" Male was coded as 1 and female was coded as 2. The 2015 FEVS offers two response options to federal employees for assessing minority status—minority or nonminority. Minority was coded as 1 and nonminority was coded as 2. Age was measured and categorized as follows: below 40 (1), 40-49 (2), 50-59 (3), and 60 or older (4). Education level was measured with the question, "What is the highest degree or level of education you have completed?" "education prior to a bachelor's degree" was coded as 1, "bachelor's degree" was coded as 2, and "postbachelor's degree" was coded as 3. Finally, tenure was measured with the question, "How long have you been with the federal government?" The category of "5 or fewer years" were coded as 1, "6 to 14 years" was coded as 2, and "15 or more years" was coded as 3.

The second model has eight independent variables. Most of the independent variables in the first model were included in the second model except a perceived level of senior leaders' support toward work/life programs and education level because the 2008 FEVS does not contain survey questions for these two variables. Instead, the enactment of the 2010 TEA was added to the second model to see whether the act has increased USPTO teleworkers' satisfaction with their telework program between 2008 and 2015. For measuring the enactment of the 2010 TEA, the 2008 FEVS responses that were completed before the enactment of the 2010 TEA were coded as 0, and the 2015 FEVS responses that were completed after the enactment of the 2010 TEA were coded as 1.

Table 1 shows descriptive statistics and correlations between variables in each model.

Results

For the first and second models, we estimated ordered logit regressions for USPTO teleworker satisfaction with telework programs, which was measured with an ordinal scale (Long, 1997). To detect multicollinearity issues among independent variables, we conducted correlation matrix (Table 1) and the variance inflation factor (VIF) test for each model. We found that all correlation coefficients are well below the threshold value of .7 and the mean VIF scores (the first model = 1.36; the second model = 1.29) are below 2.5, indicating that multicollinearity is not a primary concern in these two models. Also, another important issue that an ordered logit model should satisfy is the assumption of parallel regression (Fernandez & Moldogaziev, 2011; Long, 1997; S. B. Yang & Guy, 2006). The test results showed that the violation of parallel assumption

Table 1. Descriptive Statistics and Correlations for the First and Second Models.
First Model.

Variable	M	SD	Minimum	Maximum	1	2	3	4	5	6	7	8	9
1. Telework satisfaction	4.46	0.798	1	5									
2. Senior leader support	3.93	1.046	1	5	.430*								
3. Supervisor support	4.33	0.895	1	5	.317*	.514*							
4. Performance-oriented culture	3.88	0.784	1	5	.351*	.582*	.556*						
5. Supervisory status			1	2	-.014	.094*	.012	.059*					
6. Age	2.06	0.994	1	4	.015	-.025	-.084*	-.085*	.155*				
7. Education	2.44	0.661	1	3	-.018	-.028	.015	.024	-.003	-.014			
8. Gender			1	2	.027	-.030	-.009	-.116*	-.031	.019	-.134*		
9. Minority status			1	2	.038	-.006	.060*	-.017	.026	-.026	.206*	-.056*	
10. Tenure	2.04	0.798	1	3	.014	-.043*	-.046*	-.147*	.223*	.448*	-.233*	.144*	-.047*

*p < .05.

Second Model.

Variable	2008				2015			
	M	SD	Minimum	Maximum	M	SD	Minimum	Maximum
1. Telework satisfaction	3.91	1.110	1	5	4.46	0.798	1	5
2. Supervisor support	4.07	1.020	1	5	4.33	0.895	1	5
3. Performance-oriented culture	3.63	0.748	1	5	3.88	0.784	1	5
4. Supervisory status			1	2			1	2
5. Age	2.00	0.902	1	4	2.06	0.994	1	4
6. Gender			1	2			1	2
7. Minority status			1	2			1	2
8. Tenure	2.12	0.869	1	3	2.04	0.798	1	3
9. TEA	0	0	0	0	1	1	1	1

Note. TEA = Telework Enhancement Act.

*p < .05.

Table 2. Ordered Logistic Regression Estimates for the First and Second Models.

Variable	First model 2015 FEVS		Second model 2008 and 2015 FEVSs	
	OR	SE	OR	SE
Leadership commitment				
Senior leader support toward work/life programs	1.87***	.13		
Supervisor support toward work/life balance	1.20*	.09	1.41***	.09
Performance-oriented culture	1.77***	.17	2.37 ***	.19
Supervisory status	0.59***	.09	0.72*	.09
Age	1.02	.07	1.05	.06
Education	1.02	.09		
Gender	1.35 *	.16	1.33*	.15
Minority status	1.33 *	.15	1.37**	.14
Tenure	1.31 **	.12	1.23**	.09
2010 TEA enactment			3.28***	.51
Log-likelihood	-1,207.8		-1,600.4	
χ^2	356.23***		398.40***	
Pseudo R^2	.13		.11	
N	1,481		1,771	

Note. FEVS = Federal Employee Viewpoint Survey; TEA = Telework Enhancement Act.

* $p < .05$. ** $p < .01$. *** $p < .001$.

was not a major concern in these ordered logit models (Brant Test of parallel regression assumption for the first model, chi-square = 36.81, $p > .05$; for the second model, chi-square = 28.57, $p > .05$).

In Table 2, the column titled "First Model (2015 FEVS)" presents the ordered logit regression results for the first model. The likelihood ratio (LR) chi-square test for the goodness of fit was statistically significant, indicating that the overall model is statistically significant (Long, 1997). Hypotheses 1a and 1b predicted a positive association between leadership commitment and federal teleworker satisfaction with telework programs. The results support H1a, suggesting that for a one unit increase in the perceived level of senior leader support toward work/life programs, the odds of a USPTO teleworker being in the very satisfied stage versus the combined other stages are 1.87 times greater, given the other variables are held constant in the model. The results also support H1b, suggesting that for a one unit increase in the perceived level of supervisor support toward work/life balance, the likelihood of a USPTO teleworker being in the very satisfied stage versus the combined other stages are 1.20 times greater, holding all other variables constant.

H2 predicted a positive association between performance-oriented culture and federal teleworker satisfaction with telework programs. The results supported H2. Specifically, for a one unit increase in the perceived strength of performance-oriented

culture, the odds of a USPTO teleworker being in the very satisfied stage versus the combined other stages are 1.77 times greater, all other variables being held constant in the model. The results suggest that performance-oriented culture with effective performance management, proper incentive and recognition systems, constructive feedback, and essential training is critical to federal teleworkers' satisfaction with telework programs.

Regarding demographic control variables, the results show a negative association between supervisory status and the likelihood of a federal teleworker being satisfied with their telework programs. In terms of gender, minority status, and tenure, the results show that female, nonminority, and longer tenure USPTO teleworkers are likely to be more satisfied with telework programs than their counterparts. Finally, age and education level did not show any statistically significant relationships with the likelihood of telework satisfaction.

In Table 2, the column titled "Second Model (2008 & 2015 FEVSs)," presents the ordered logit regression results for the second model. The LR chi-square test for the goodness of fit for the logit regression was statistically significant. The results show findings consistent with the findings in the first model. These hypotheses associated with leadership commitment and performance-oriented culture are supported, and all control variables except age show statistically significant relationships with the likelihood of telework satisfaction. One of the primary interests in the second model—that is, the enactment of the 2010 TEA—shows a statistically significant positive association with the likelihood of a federal teleworker being satisfied with his or her telework program.

Although the estimation of the odds ratios is one of the important ways to assess the strength of relationships between variables, predicted probabilities are helpful to more clearly demonstrate the effects of the explanatory variables on teleworker satisfaction with their telework programs (Kwon, Berry, & Jang, 2013). Thus, we also estimated the predicted probabilities from the second model and visually demonstrated the impacts of the three explanatory variables of leadership commitment, performance-oriented culture, and the 2010 TEA enactment on USPTO teleworker satisfaction with their telework program. The predicted probabilities show how the probability of telework satisfaction changes as the value in each of the three explanatory variables changes from a lower to higher value, holding all other variables constant at their means. Table 3 and Figure 1 present the predicted probabilities of the USPTO teleworker satisfaction depending on assigned values of leadership commitment, performance-oriented culture, and the enactment of the 2010 TEA. The predicted probabilities were statistically significant with USPTO teleworkers being very dissatisfied, satisfied, neither satisfied nor dissatisfied satisfied, or very satisfied. The probability of a USPTO teleworker being very satisfied with the agency's telework program goes from .29 to .62 when his or her opinion of supervisor support for work/life balance changes from strongly disagree to strongly agree, holding all other variables constant at their mean values. The probability of a USPTO teleworker being very satisfied goes from .10 to .78 when his or her opinion of performance-oriented culture changes from strongly disagree to strongly agree. Finally, the probability of a USPTO teleworker being very satisfied goes from .31 to .60 when the enactment of the 2010 TEA changes from before to after the Act.

Table 3. Predicted Probabilities of Teleworker Satisfaction Depending on the Perceived Levels of Leadership Commitment and Performance-Oriented Culture, and the Enactment of the 2010 TEA.

	Leadership commitment			Performance-oriented culture			The 2010 TEA enactment		
	X = 1	X = 5	Change (X = 5) – (X = 1)	X = 1	X = 5	Change (X = 5) – (X = 1)	X = 0	X = 1	Change (X = 1) – (X = 0)
Pr(y = very dissatisfied x)	0.0173	0.0044	-0.0129	0.0625	0.0021	-0.0604	0.0161	0.0048	-0.0113
Pr(y = dissatisfied x)	0.0599	0.0163	-0.0436	0.1782	0.0079	-0.1703	0.0561	0.0176	-0.0385
Pr(y = neither x)	0.1230	0.0388	-0.0842	0.2460	0.0193	-0.2267	0.1166	0.0417	-0.0749
Pr(y = satisfied x)	0.5061	0.3186	-0.1875	0.4144	0.1954	-0.2190	0.5022	0.3325	-0.1697
Pr(y = very satisfied x)	0.2937	0.6219	0.3282	0.0989	0.7753	0.6764	0.3090	0.6035	0.2945

Note. For leadership commitment and performance-oriented culture, X = 1 means “strongly disagree” while X = 5 means “strongly agree.” For the 2010 TEA enactment, X = 0 means before its enactment and X = 1 means after the enactment of the Act. TEA = Telework Enhancement Act.

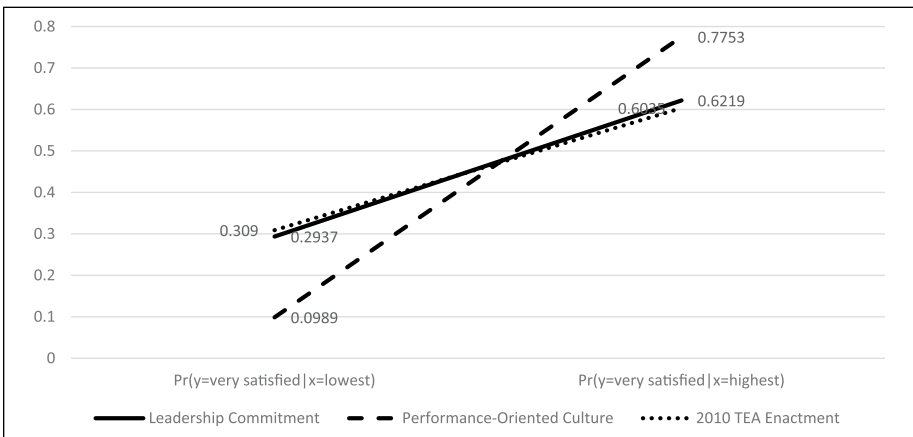


Figure 1. Predicted probabilities of teleworker satisfaction depending on the perceived levels of leadership commitment and performance-oriented culture, and the enactment of the 2010 TEA. Note. TEA = Telework Enhancement Act.

Conclusion and Discussion

Drawing on the insights from political economy and institution frameworks, this study explores how leadership commitment and performance-oriented culture influence federal teleworker satisfaction with their telework programs. The findings suggest that leadership commitment to the telework program is critical to enhancing the effectiveness of managing teleworkers. This finding confirms previous research findings that

leadership commitment is critical to employee satisfaction and motivation regarding public-sector reform (Dull, 2008; Miller, 1992). Thus, it is expected that senior leaders who support work/life programs and supervisors who support employee needs to balance work and life issues tend to be more committed to telework programs and program missions than others, and teleworkers who perceive a high level of leadership commitment to the telework program are more likely to be satisfied with that program.

Performance-oriented culture also plays a key role in federal teleworker satisfaction with telework programs. This finding echoes the findings of previous public personnel management research that suggest that it is important for organizations to have effective tools—such as effective performance management, proper incentive and reward systems, constructive feedback for employee performance, and essential training—when monitoring public employees is more expensive, complicated, and/or difficult (Miller & Whitford, 2006). As such, cultivating a performance-oriented culture in the workplace can help to increase teleworker satisfaction with telework programs.

With regard to the control variables, the findings show that the enactment of the 2010 TEA increased federal teleworker satisfaction with telework programs. The descriptive statistics of Table 1 present that the mean value of USPTO teleworker satisfaction with telework in 2015 (4.46) is greater than in 2008 (3.91). Also, the statistically significant relationship in Table 2 and the predicted probabilities in Table 3 and Figure 1 confirm that the enactment of the 2010 TEA significantly increased USPTO teleworker satisfaction with telework programs. The enactment of the 2010 TEA helped overcome unexpected problems and enhance the effectiveness of managing teleworkers (Lee & Kim, 2017; Overmyer, 2011).

One noteworthy finding in regard to the control variables is that supervisory status is negatively associated with federal teleworker satisfaction with telework programs. This negative association echoes a recent Government Accountability Office (GAO) report to congressional requesters that a considerable number of supervisors are still reluctant to fully embrace telework due to several reasons, including nonmandatory telework training for supervisors before approving their employees' telework agreements, decreased performance, outdated telework agreements, and lack of resource and technical support associated with telework arrangements (U.S. GAO, 2017). This result also supports previous research findings that telework can be considered by supervisors and managers as one of the hardest programs to manage due to a variety of management challenges such as difficulty in monitoring teleworkers (Caillier, 2013; Crandall & Gao, 2005; Mahler, 2012; Overmyer, 2011). These potential obstacles and challenges may decrease supervisor satisfaction with telework programs.

Findings from this research have several public management implications that explain why leadership commitment and performance-oriented culture matter in enhancing the effectiveness of telework and further public management innovation. First, despite the fact that leadership commitment and supportive workplace culture are important factors in public management innovation, executives, managers, and supervisors in public organizations tend to neglect to provide such crucial elements while implementing the innovation. For successful implementation of telework programs, leaders, managers, and supervisors should provide consistent and substantive

support for telework programs. For instance, they can develop appropriate legal and policy guidelines to facilitate tools that encourage cooperation, collaboration, and virtual interactions with and among teleworkers who may easily feel isolated due to a lack of interaction with coworkers. Such tools include virtual water coolers, face-to-face meetings on a regular basis, open and innovative channels of communication with supervisors and/or coworkers, and so on.

Second, public management innovation may fail to achieve its expected goals without support from cultural norms. In particular, isomorphic organizational change driven by a direct response to government mandate (e.g., “coercive isomorphism”) can be unsuccessful in maximizing its effectiveness without appropriate norms and standards that shape and educate the behavior of organization members (DiMaggio & Powell, 1983, p. 150). Beyond formal legal and policy guidelines, managers and supervisors need to establish desirable cultural norms in the workplace by cultivating a culture of high performance rather than just jumping on the bandwagon of providing the mandated government program for the workforce. Teleworkers become aware of such cultural norms in the workplace where supervisors and managers endeavor to evaluate their performance accurately and objectively by setting clear expectations about job performance and by linking performance management with the clear expectations. More importantly, cultural norms can play a substantive role in the workplace when executives, managers, and supervisors support the norms with the pursuit of appropriate incentive and recognition systems rewarding an exemplary teleworker performance, constructive feedback for teleworkers, and essential training for organization members regarding basic and important information on and requirements for telework. This study suggests that leadership commitment and supportive workplace culture, which are recurring themes in literature on public management innovation (e.g., Bourdeaux & Chikoto, 2008; Dull, 2008; Kwon et al., 2013; Miller & Whitford, 2006; Moynihan & Pandey, 2010), are critical to the success of telework.

Third, individual dissatisfaction may lead to the downfall of public management innovation. Although governments have devoted a great deal of resources, energy, and time into public management innovation, they have largely neglected the question of how satisfied their members are with the innovation. It is important to have individuals in the workplace, not only teleworkers but also executives, managers, supervisors, and nonteleworkers buy into telework by developing ways to overcome the various challenges associated with telework and increase satisfaction with telework. Previous research illustrates that training can facilitate a successful implementation of a new program or policy because it can provide the workforce with clear legal and policy guidelines regarding the program or policy as well as explaining the goals and purposes of the program or policy (Kroll & Moynihan, 2015). This study suggests that a proper training appears to be essential to encouraging such buy-in and it should be required to not only teleworkers but also their managers to help them achieve the program success.

Finally, the present research contributes to the broader literature on telework policy and public management innovation. This study is the first to draw on a sample of federal government teleworkers to examine their satisfaction with telework programs.

Based on the political economy and institution frameworks, this study identifies potential catalysts and obstacles to telework satisfaction and examines their impact on teleworker satisfaction with telework programs. These catalysts and obstacles go beyond those recently examined in relation to telework in the public sector.

Limitations and Future Research

The first limitation of this study is that the 2008 and 2015 FEVSs used in the second empirical model did not contain exactly the same survey items with each other. As indicated earlier, two explanatory variables of senior leader support for work/life programs and education level were not included in the second empirical model, because the 2008 FEVS did not include the questions to measure these variables.

Next, the 2008 and 2015 FEVSs were administered to different sets of federal employees and it was impossible to longitudinally assess the impact of the 2010 TEA enactment and other explanatory variables by tracking the same individuals over time. Thus, the study results should be interpreted with these limitations in mind. Future research can extend this study by generating longitudinal survey data from the same individuals over time regarding their teleworker satisfaction.

In addition, only USPTO teleworkers were selected as the sample for this study not only because the USPTO is a more interesting setting for examining the effectiveness of managing teleworkers than any other federal agencies as explained earlier but also because focusing on a single federal agency helps to reduce possible biases such as overstated statistical significance that can be caused by a large sample size. Despite the benefits of the relatively smaller sample size, the analysis of the USPTO sample limits the ability to generalize the findings of this study to other federal agencies. Further studies will need to explore other samples to see how these explanatory factors influence teleworker satisfaction in other federal agencies and also in local and state governments that have a rapid growth of telework.

Finally, as a large-*N* study, this study may have omitted explanatory variables that influence federal teleworker satisfaction with telework programs. This study was originally intended to examine the impact of leadership commitment and performance-oriented culture on federal teleworker satisfaction with telework programs, meaning that other factors may possibly affect the effectiveness of managing teleworkers. It is recommended that future studies extend our research and explore other possible determinants of teleworker satisfaction with the program.

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References

- Alchian, A., & Demsetz, H. (1972). Production, information costs, and economic organization. *American Economic Review*, *62*, 777-795.
- Argyris, C. (1957). *Personality and organization: The conflict between system and the individual*. New York, NY: Harper & Brothers.
- Bae, K. B., & Goodman, D. (2014). The influence of family-friendly policies on turnover and performance in South Korea. *Public Personnel Management*, *43*, 520-542.
- Bae, K. B., & Kim, D. (2016). The impact of decoupling of telework on job satisfaction in U.S. federal agencies: Does gender matter? *The American Review of Public Administration*, *46*, 356-371.
- Barnard, C. (1938). *The functions of the executive*. Cambridge, MA: Harvard University.
- Baruch, Y. (2000). Teleworking: Benefits and pitfalls as perceived by professionals and managers. *New Technology, Work and Employment*, *15*, 34-49.
- Berman, E. M., Bowman, J. S., West, J. P., & Van Wart, M. R. (2016). *Human resource management in public service: Paradoxes, processes, and problems*. Thousand Oaks, CA: SAGE.
- Bourdeaux, C., & Chikoto, G. (2008). Legislative influences on performance management reform. *Public Administration Review*, *68*, 253-265.
- Broadnax, W. D., & Conway, K. J. (2001). The social security administration and performance management. In D. Forsythe (Ed.), *Quicker, better, cheaper: Managing performance in American government* (pp. 143-175). Albany, NY: Rockefeller Institute Press.
- Caillier, J. G. (2013). Are teleworkers less likely to report leave intentions in the United States federal government than non-teleworkers are? *American Review of Public Administration*, *43*, 72-88.
- Caillier, J. G. (2014). Do role clarity and job satisfaction mediate the relationship between telework and work effort? *International Journal of Public Administration*, *37*, 193-201.
- Coase, R. H. (1937). The nature of the firm. *Economica*, *4*(16), 386-405.
- Cooper, C. D., & Kurland, N. B. (2002). Telecommuting, professional isolation, and employee development in public and private organizations. *Journal of Organizational Behavior*, *23*, 511-532.
- Cordell, C. (2015, August). Teleworking USPTO employee bilked agency for \$25K, IG finds. *Federal Times*. Retrieved from <https://www.federaltimes.com/federal-over-sight/2015/08/24/teleworking-uspto-employee-bilked-agency-for-25k-ig-finds/>
- Crandall, W., & Gao, L. (2005). An update on telecommuting: Review and prospects for emerging issues. *Advanced Management Journal*, *70*(3), 30-37.
- DiMaggio, P. J., & Powell, W. W. (1983). The iron cage revisited: Institutional isomorphism and collective rationality in organizational fields. *American Sociological Review*, *48*, 147-160.
- Dull, M. (2008). Results-model reform leadership: Questions of credible commitment. *Journal of Public Administration Research and Theory*, *19*, 255-284.
- Fernandez, S., Cho, Y. J., & Perry, J. L. (2010). Exploring the link between integrated leadership and public sector performance. *The Leadership Quarterly*, *21*, 308-323.
- Fernandez, S., & Moldogaziev, T. (2011). Empowering public sector employees to improve performance: Does it work? *The American Review of Public Administration*, *41*, 23-47.
- Fernandez, S., & Pitts, D. W. (2011). Understanding employee motivation to innovate: Evidence from front line employees in United States federal agencies. *Australian Journal of Public Administration*, *70*, 202-222.

- Fernandez, S., Resh, W. G., Moldogaziev, T., & Oberfield, Z. W. (2015). Assessing the past and promise of the Federal Employee Viewpoint Survey for public management research: A research synthesis. *Public Administration Review*, *75*, 382-394.
- Franklin, A. L. (2000). An examination of bureaucratic reactions to institutional controls. *Public Performance & Management Review*, *24*, 8-21.
- Franklin, A. L., & Pagan, J. F. (2006). Organization culture as an explanation for employee discipline practices. *Review of Public Personnel Administration*, *26*, 52-73.
- Gajendran, R. S., & Harrison, D. A. (2007). The good, the bad, and the unknown about telecommuting: Meta-analysis of psychological mediators and individual consequences. *Journal of Applied Psychology*, *92*, 1524-1541.
- Golden, T. D. (2006). Avoiding depletion in virtual work: Telework and the intervening impact of work exhaustion on commitment and turnover intentions. *Journal of Vocational Behavior*, *69*, 176-187.
- Hamilton, E. (2002). *Bringing work home: Advantages and challenges of telecommuting*. Chestnut Hill, MA: Center for Work & Family.
- Herzberg, F. (1968). One more time: How do you motivate employees? *Harvard Business Review*, *40*(1), 53-62.
- Holmstrom, B. (1982). Moral hazard in teams. *The Bell Journal of Economics*, *13*, 324-340.
- Hunton, J. E., & Norman, C. S. (2010). The impact of alternative telework arrangements on organizational commitment: Insights from a longitudinal field experiment. *Journal of Information Systems*, *24*(1), 67-90.
- Igbaria, M., & Guimaraes, T. (1999). Exploring differences in employee turnover intentions and its determinants among telecommuters and non-telecommuters. *Journal of Management Information Systems*, *16*, 147-164.
- Kaufman, H. (1960). *The forest ranger: A study in administrative behavior*. Baltimore, MD: Johns Hopkins University Press.
- Kim, J., & Wiggins, M. E. (2011). Family-friendly human resource policy: Is it still working in the public sector? *Public Administration Review*, *71*, 728-739.
- Klingner, D. E., Nalbandian, J., & Llorens, J. J. (2010). *Public personnel management: Contexts and strategies*. New York, NY: Routledge.
- Ko, J., Hur, S., & Smith-Walter, A. (2013). Family-friendly work practices and job satisfaction and organizational performance: Moderating effects of managerial support and performance-oriented management. *Public Personnel Management*, *42*, 545-565.
- Kroll, A., & Moynihan, D. P. (2015). Does training matter? Evidence from performance management reforms. *Public Administration Review*, *75*, 411-420.
- Kwon, M. J., Berry, F. S., & Jang, H. S. (2013). A theoretical framework on the determinants of strategic cities: Empirical results from Florida city governments. *The American Review of Public Administration*, *43*, 438-459.
- Kwon, M. J., & Jeon, S. H. (2017). Why permit telework? Determinants of California city governments' decisions to permit telework. *Public Personnel Management*, *46*, 239-262. doi:10.1177/0091026017717240
- Lee, D., & Kim, S. Y. (2017). A quasi-experimental examination of telework eligibility and participation in the U.S. federal government. *Review of Public Personnel Administration*. Advance online publication. doi:10.1177/0734371X16680269
- Lee, S. Y., & Hong, J. H. (2011). Does family-friendly policy matter? Testing its impact on turnover and performance. *Public Administration Review*, *71*, 870-879.
- Long, S. (1997). *Regression models for categorical and limited dependent variables*. London, England: SAGE.

- Mahler, J. (2012). The telework divide: Managerial and personnel challenges of telework. *Review of Public Personnel Administration*, 32, 407-418.
- Mann, S., & Holdsworth, L. (2003). The psychological impact of teleworking: Stress, emotions and health. *New Technology, Work and Employment*, 18, 196-211.
- Maruyama, T., Hopkinson, P. G., & James, P. W. (2009). A multivariate analysis of work-life balance outcomes from a large-scale telework programme. *New Technology, Work and Employment*, 24, 76-88.
- Mayo, E. (2004). *The human problems of an industrial civilization*. London, England: Routledge.
- McGregor, D. (1960). *The human side of enterprise*. New York, NY: McGraw Hill.
- Melkers, J. E., & Willoughby, K. G. (2005). Models of performance-measurement use in local governments: Understanding budgeting, communication, and lasting effects. *Public Administration Review*, 65, 180-190.
- Meyer, J. W., & Rowan, B. (1977). Institutionalized organizations: Formal structure as myth and ceremony. *American Journal of Sociology*, 83, 340-363.
- Miller, G. J. (1992). *Managerial dilemmas: The political economy of hierarchy*. Cambridge, UK: Cambridge University Press.
- Miller, G. J., & Whitford, A. B. (2006). The principal's moral hazard: Constraints on the use of incentives in hierarchy. *Journal of Public Administration Research and Theory*, 17, 213-233.
- Moore, J. E. (2000). One road to turnover: An examination of work exhaustion in technology professionals. *MIS Quarterly*, 24, 141-168.
- Moynihan, D. P., & Pandey, S. K. (2010). The big question for performance management: Why do managers use performance information? *Journal of Public Administration Research and Theory*, 20, 849-866.
- Newman, M., & Mathews, K. (1999). Federal family-friendly workplace policies barriers to effective implementation. *Review of Public Personnel Administration*, 19(3), 34-48.
- North, D. C. (1990). *Institutions, institutional change and economic performance*. New York, NY: Cambridge University Press.
- North, D. C., & Weingast, B. R. (1989). Constitutions and commitment: The evolution of institutional governing public choice in seventeenth-century England. *The Journal of Economic History*, 49, 803-832.
- Ostrom, E. (1990). *Governing the commons: The evolution of institutions for collective action*. New York, NY: Cambridge University Press.
- Overmyer, S. P. (2011). *Implementing telework: Lessons learned from four federal agencies*. Arlington, VA: IBM Center for the Business of Government.
- Perez, M. P., Sánchez, A. M., Carnicer, M. P. D. L., & Jiménez, M. J. V. (2004). The environmental impacts of teleworking: A model of urban analysis and a case study. *Management of Environmental Quality: An International Journal*, 15, 656-671.
- Perry-Smith, J. E., & Blum, T. C. (2000). Work-family human resource bundles and perceived organizational performance. *Academy of Management Journal*, 43, 1107-1117.
- Rein, L., & Branigin, W. (2014). House hearing probes alleged telework abuses at U.S. Patent and Trademark Office. *The Washington Post*. Retrieved from https://www.washingtonpost.com/politics/house-hearing-probes-alleged-employee-abuses-at-us-patent-and-trademark-office/2014/11/18/32fd4afe-6eaa-11e4-ad12-3734c461eab6_story.html
- Taskin, L., & Edwards, P. (2007). The possibilities and limits of telework in a bureaucratic environment: Lessons from the public sector. *New Technology, Work and Employment*, 22, 195-207.

- Tavares, A. I. (2015). Telework and health effects review, and a research framework proposal. *Munich Personal RePEc Archive*. Retrieved from https://mpra.ub.uni-muenchen.de/71648/1/MPRA_paper_71648.pdf
- Taylor, F. W. (1914). *The principles of scientific management*. London, England: Harper & Brothers.
- U.S. Government Accountability Office. (2017). *Federal telework: Additional controls could strengthen telework program compliance and data reporting*. Retrieved from <https://www.gao.gov/assets/690/682916.pdf>
- U.S. Office of Personnel Management. (2013). *Status of telework in the federal government: Report to the congress*. Retrieved from http://www.telework.gov/Reports_and_Studies/Annual_Reports/2013teleworkreport.pdf
- U.S. Office of Personnel Management. (2014). *2014 status of telework in the federal government: Report to congress*. Retrieved from <https://www.telework.gov/reports-studies/reports-to-congress/2014-report-to-congress.pdf>
- Wadsworth, L. L., Facer, R. L., & Arbon, C. A. (2010). Alternative work schedules in local government: Cui bono? *Review of Public Personnel Administration*, 30, 322-340.
- Weinert, C., Maier, C., & Laumer, S. (2015). Why are teleworkers stressed? An empirical analysis of the causes of telework-enabled stress. In T. Oliver & F. Teuteberg (Eds.), *Proceedings der 12. Internationalen Tagung Wirtschaftsinformatik* (pp. 1407-1421). Osnabrück, Germany: Universität Osnabrück.
- Yang, K., & Hsieh, J. Y. (2007). Managerial effectiveness of government performance measurement: Testing a middle range model. *Public Administration Review*, 67, 861-879.
- Yang, S. B., & Guy, M. E. (2006). Genxers versus boomers: Work motivators and management implications. *Public Performance & Management Review*, 29, 267-284.

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