Empowering Public Employees to Innovate

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In the 1980s and 1990s, strong pressures to improve quality and reduce costs led many firms to eschew highly bureaucratized structures and adopt a variety of empowerment practices aimed at sharing authority, information, and resources with frontline employees (Bowen and Lawler, 1992; 1995; Lawler, Mohrman, and Ledford, 1995; Conger and Kanungo, 1988; Thomas and Velthouse, 1990; Spreitzer, 1995, 1996; Potterfield, 1999). In the private sector, empowerment has been found to improve performance (Spreitzer, 1995; Lawler, Mohrman, and Ledford, 1992, 1995; Neilsen and Pedersen, 2003; Kirkman and Rosen, 1999), employee job satisfaction (Lawler, Mohrman, and Ledford, 1992, 1995; Kirkman and Rosen, 1999), organizational commitment (Lawler, Mohrman, and Ledford, 1992, 1995; Guthrie, 2001; Kirkman and Rosen, 1999), and job involvement (Coye and Belohlav, 1995)[1]. Employee empowerment also gained currency among government reformers, figuring prominently in the New Public Management reforms undertaken in the United States, United Kingdom, Australia, Canada, France, Sweden and Norway (Kettl, 2000; Peters, 1996; Wise, 2002; Pollitt, 1990; Kearney and Hays, 1998; Matheson, 2007). As Peters (1996) explained, a belief among reformers in these countries has been that "more empowered workers should be willing to work harder, share more ideas with management, and treat their clients more humanely since they are themselves being treated better" (p. 51). Results from public management studies suggest empowerment practices positively influence employee job satisfaction (Wright and Kim, 2004; Kim, 2002; Lee, Cayer, and Lan, 2006; Park and Rainey, 2007), perceived performance (Lee, Cayer and Lan, 2006; Fernandez and Moldogaziev, 2009 forthcoming), and organizational commitment (Park and Rainey, 2007).

A key pathway by which employee empowerment impacts performance is through innovative behavior on the part of frontline employees (Bowen and Lawler, 1992, 1995; Thomas and Velthouse, 1990; Kanter, 1983; Gore, 1993). Empowered employees improve their

individual and work unit's performance by recovering quickly from errors in service delivery, learning from those recoveries, and generating innovative proposals for redesigning processes and products. Failure to encourage such innovative behavior undermines the effectiveness of employee empowerment in organizations. This study thus examines the link between various empowerment practices and frontline employees' motivation to innovate. It is based on Bowen and Lawler's (1992, 1995) conceptualization of empowerment as a management approach involving four practices aimed at sharing information, rewards, resources, and authority with frontline employees. These empowerment practices are measured using data collected by the US Office of Personnel Management (OPM). Statistical models are developed to explore how each of the empowerment practices influences employees' motivation to seek out new and better ways of doing things. The results show that empowerment practices aimed at providing access to job related knowledge and skills and granting discretion increase employee motivation to innovate. Offering employees rewards based on performance, however, discourages innovativeness.

The next section offers a review of the literature on employee empowerment and its consequences. The discussion then turns to the data and methods employed in the analysis. The results of the statistical analysis are then presented. The study concludes with a discussion of its limitations and its findings' implications for theory and practice.

Defining Employee Empowerment

Scholars have made significant strides in developing the construct of employee empowerment. They have failed to reach consensus, however, on what employee empowerment actually means (Potterfield, 1999; Herrenkohl, Judson, and Heffner, 1999; Conger and Kanungo, 1988; Thomas and Velthouse, 1990). Two distinct theoretical perspectives have emerged in the literature, a *managerial* and a *psychological* one. From a managerial perspective, employee empowerment is a relational construct that describes how those with power in organizations (i.e.,

managers) share power and authority with those lacking it (i.e., employees) (Conger and Kanungo, 1988). The intellectual origins of this construct have been traced back to McGregor's (1960) *Theory Y* of leadership, Likert's (1967) classification of managerial styles, and other seminal contributions to the Human Relations movement in organization theory (Herrenkohl, Judson, and Heffner, 1999; Potterfield, 1999). Up until 1990, the overriding tendency among scholars adopting the managerial perspective was to equate empowerment exclusively with delegating or sharing decision making authority with frontline employees through various participative management techniques such as management by objectives, quality circles, and employee involvement in goal setting and strategic decision making (see Kanter, 1979, 1983; Salancek and Pfeffer, 1974; Kotter, 1979; Mowday, 1987; Pettigrew, 1972). Dissatisfaction with this crude and narrow characterization of employee empowerment led to two important developments: a refined view of empowerment as a complex management approach involving more than just sharing authority with subordinates, and the re-conceptualization of empowerment as a psychological construct.

Bowen and Lawler (1992, 1995), who analyzed the growing use of empowerment practices in private service firms during the 1990s, observed that sharing authority with frontline employees is necessary but insufficient for realizing the benefits of empowerment. As they noted, "many empowerment programs fail when they focus on 'power' without also redistributing information, knowledge and rewards" (1992, p. 32). They defined empowerment as an "approach to service delivery" entailing various management practices aimed at sharing four organizational "ingredients" with frontline employees: "(1) information about the organization's performance, (2) rewards based on the organization's performance, (3) knowledge that enables employees to understand and contribute to organizational performance, and (4) power to make decisions that influence organizational direction and performance" (1992, p. 32).

Importantly, Bowen and Lawler argued that these four elements interact with each other, having a multiplicative rather than additive effect on performance. As they explain, "this [multiplicative] formula reminds managers to avoid the common effort of giving employees more discretion (power) but not the necessary support to exercise that discretion wisely" (1995, p. 74).

Dissatisfied with the treatment of employee empowerment as a relational construct, another group of scholars have worked to develop the psychological construct of empowerment. From this new psychological perspective, empowerment is an internal cognitive state characterized by enhanced feelings of self-efficacy (Conger and Kanungo, 1988) or increased intrinsic task motivation (Thomas and Velthouse, 1990). Conger and Kanungo borrowed the logic of Lawler's expectancy theory of motivation (1973), arguing that one's motivation to increase effort is in part a function of two expectancies: the expectancy that one's effort will result in the desired level of performance (expectancy I) and the expectancy that performance will produce a desired outcome or reward (expectancy II). Bandura (1977, 1986) referred to the first expectancy as the self-efficacy expectation. For Conger and Kanungo (1988), as employees become more empowered, their self-efficacy expectations will be enhanced, in turn increasing the amount of effort and time they dedicate to performing a task (p. 476). They identified a wide range of contextual factors influencing one's sense of self-efficacy, including organizational factors, supervisory styles, reward systems, and job design characteristics[2].

Thomas and Velthouse (1990) expanded upon Conger and Kanungo's conceptualization by defining empowerment as "increased intrinsic task motivation" that comes from making a task meaningful, identifying with it, and finding expressive value in it. Four personal assessments of a task are argued to have positive additive effects on intrinsic task motivation: impact, competence, meaningfulness, and choice. Impact refers to the extent to which behavior

is seen to make a difference as to whether or not a task will be accomplished. Competence refers to self-efficacy or "the degree to which a person can perform task activities skillfully when he or she tries" (p.672). Meaningfulness is conceived in terms of how much value an employee places on accomplishing the task. Finally, choice is defined as locus of causality, referring to "the issue of whether a person's behavior is perceived as self-determined" (p. 673). To the extent that an employee makes positive assessments of these four aspects of the task, he or she will feel a heightened level of intrinsic task motivation and therefore be empowered. Empowered employees are expected to work harder in the absence of close supervision; be flexible in accomplishing the task; and persist in the face of obstacles. Thomas and Velthouse treat management interventions as antecedents of the four task assessments that make up their empowerment construct.

Spreitzer's (1995, 1996) seminal contribution to the literature has been to weave together existing strands of empowerment theory into a comprehensive model of the empowerment process and to test the model empirically (see also Spreitzer, Janasz, and Quinn, 1999). Like Conger and Kanungo (1988) and Thomas and Velthouse (1990), she views empowerment mainly as a motivational construct evident in four cognitions: meaning, competence, self-determination (Thomas and Velthouse's "choice"), and impact. These four elements of psychological empowerment are argued to work additively to influence employee effectiveness and innovativeness. Four antecedents that are remarkably similar to Bowen and Lawler's empowerment practices—locus of control, self-esteem, access to information, and rewards—influence the four cognitions evincing empowerment. In proposing these antecedents, Spreitzer is redefining the relational construct of empowerment as a set of preconditions or triggers that bring about psychological empowerment. A test of her nomological model showed that the

antecedents, or empowerment practices, are positively linked to the four cognitions, which are in turn positively associated with perceived effectiveness and innovativeness.

Scholars clearly have divergent notions of what constitutes employee empowerment. One way out of the morass is to resist the temptation of viewing the relational and motivational constructs as contenders and instead to treat them as complementary pieces of a conceptual puzzle. These two constructs represent qualitatively different phenomena, the relational construct representing managerial behavior and the motivational one employee cognition. Empowerment might best be understood as a process involving a set of management practices (sharing authority, resources, information, and rewards) that affect employee cognitions (self-efficacy, intrinsic motivation), which in turn influence work outcomes (quality of service, productivity, customer satisfaction). The management perspective on empowerment has a long history and offers a set of tangible practices or "levers" managers can pull to improve performance. The important contributions made by the psychological perspective to our understanding of empowerment must also be acknowledged, however. Empowerment practices might very well have to effect an increase in intrinsic task motivation for improvements in performance to materialize. As empowered employees have a higher expectancy in their ability to perform a task successfully, they exert greater effort and persist when faced with adversity. A sense of autonomy at work, along with the feeling of having control over the outcome, also increases effort.

In addition to exerting greater effort or "working harder," empowered employees also seem to perform better by working "smarter", that is, by seeking out new and better ways of doing things. Thomas and Velthouse (1990) alluded to this when they explained that intrinsically motivated individuals "may demonstrate flexibility in controlling their own task accomplishment, [and] initiation of new tasks as problems or opportunities arise" (p. 673).

Kanter (1983) found that among the most entrepreneurial and high performing organizations, employee empowerment and innovativeness were strongly linked factors. The National Performance Review identified employee empowerment as one of the keys to making government more efficient and effective. Frontline employees were argued to be the source of many innovative solutions to problems facing public organizations, being closest to the problems and most knowledgeable about how to solve them. Improvements in performance would come from "turning the entire management system upside down" by empowering frontline employees to exercise their judgment, giving them training and resources needed to get the job done, and holding the accountable for the results (Gore, 1993). Bowen and Lawler pointed to two forms of innovative behavior that result in performance gains. The first involves behavior that occurs at the point of contact between frontline employees and customers. Empowered frontline employees take rapid and spontaneous steps to "recover" from poor service delivery and to adapt services to meet the idiosyncratic needs of customers. The second type of innovative behavior involves moving beyond reactive recovery to proactively redesigning processes and systems and creating new products and services.

Empowerment Practices and Innovativeness

While elected officials and political appointees are the source of many innovations in the public sector (e.g., Breaux, et al., 2002; Wallin, 1997; Chakerian and Mavima, 2000; Kellough and Nigro, 2002; Altshuler, 1997), so are frontline employees who generate novel ideas through experimentation, accidental occurrences, and other forms of experience (e.g., see Kemmensky, 1996; Altshuler and Zegans, 1997; Borins, 2000a, 2000b; Thompson and Sanders, 1997; Light, 1998). Many of the innovations arising out of the National Performance Review (NPR) originated from the experiences of practitioners (Kemmensky, 1996). Reinvention labs were set up in many federal agencies to give employees dispensation to modify, streamline, and reinvent

work processes and organizational structures in their agencies. Altshuler and Zegans (1997), in their review of the award-winning innovations in the Program on Innovations in American Government, found that public servants who initiated the innovation were more likely to be street-level bureaucrats in direct contact with clients rather than senior managers. Borins (2000a), using similar data on innovation by public organizations in the United States, found that the most frequent initiators of innovations were career civil servants at the middle manager and front-line employee levels, not elected officials or agency heads; a similar pattern was found among innovations by Canadian public organizations (Borins, 2000b)[3].

If frontline employees are an important source of innovative ideas, how can empowerment be used to encourage them to innovate? It is important to keep in mind that employee empowerment is a multifaceted approach involving a variety of management practices aimed at sharing power, information, resources, and rewards with employees. It is essential, therefore, to understand how specific empowerment practices encourage innovativeness. The relationship between the practice of sharing power with employees and innovation is a well established one in the innovation literature. Granting discretion to employees is particularly important for initiation of innovation, as it provides autonomy to act in new and creative ways that depart from standard operating procedures (Pierce and Delbecq, 1977). As Kanter (1983) explained, many macro-level changes in organizations emerge from micro-level innovations or "departures from tradition." By loosening controls, organizations create possibilities for entrepreneurs to purposively experiment with changes in routines and processes or to arrive at these changes by chance (Kanter, 1983). Over time, these deviations accumulate to create a reservoir of successful experiences from which top management can borrow and then disseminate throughout the organization. In a similar vein, Levin and Senger (1994) argued that innovativeness is increased when frontline employees have the freedom to tinker with existing

elements and practices to reconfigure them in new ways. Effectively pushing authority downward also entails giving employees the permission to fail by tolerating unsuccessful innovations (Light, 1998). Thus, the first hypothesis:

Hypothesis 1: The practice of granting employees discretion to change work processes will be positively correlated with motivation to innovate.

Efforts to enhance employees' access to job-related knowledge and skills through training and job-embedded learning have been linked to receptivity to new ideas and creativity. Training and development can serve paths for the diffusion of innovations, as employees learn about and introduce ideas applied successfully in other organizations. They also expose employees to a broader palette of ideas that they can then bring to bear on a problem requiring a novel solution (Hurley and Hult, 1998; Damanpour, 1991; Thompson, 1965; Katz and Tushman, 1981). Because training and development improves an employee's ability to diagnose and solve technical problems, they increase the odds that innovative proposals, once accepted, will be implemented successfully (McGinnis and Ackelsberg, 1983; Dewar and Dutton, 1986). Highly trained and skilled employees are able to modify and fine-tune an idea to achieve a better fit between it and the unique organizational context in which it is being translated into action. This leads to the second hypothesis:

Hypothesis 2: The practice of providing frontline employees access to job-related knowledge and skills with be positively correlated with motivation to innovate.

Communicating goals and priorities to employees and offering feedback on performance are practices that also have been found to promote innovative behavior. Specific and challenging goals serve to raise employee motivation and performance (Locke and Latham, 1990). Top-down communication that conveys the leadership's priorities and goals can, therefore, encourage achievement-oriented employees to seek or develop new strategies and tactics for attaining those

goals. Negative feedback indicative of failure induces search for innovative solutions to reduce the deficit in performance (Cyert and March, 1963; Manns and March, 1978; Fernandez and Wise, 2009, forthcoming). Interestingly, positive feedback might also encourage innovativeness. When an employee feels responsibility for a task that is perceived as being meaningful, positive feedback increases feelings of competence and self-efficacy, thereby increasing effort (Bandura, 1977; Hackman and Oldham, 1976). Thus, the third hypothesis:

Hypothesis 3: The practice of providing employees with information about goals and performance will be positively correlated with motivation to innovate.

Finally, the practice of offering rewards based on performance has proven to be marginally effective in many public organizations (Perry, Engbers, and Jun, 2009; Kellough and Lu, 1993; Perry, 1986; Ingraham, 1993). Budget constraints and inadequate funding of pay-for-performance schemes in the public sector have reduced employee expectancy of receiving financial rewards for achieving targeted levels of performance (Kellough and Nigro, 2002; Kellough and Lu, 1993; Perry, Petrakis, and Miller, 1989). They also have resulted in inadequate financial rewards that undermine the valence attached to them (Heinrich, 2007). The fact that financial incentives appear to be considerably weaker than intrinsic ones among public employees (Perry, Mesch, and Paarlberg, 2006) further reduces the valence of performance-related pay. These factors suggest that empowerment practices offering rewards based on performance will be ineffective when it comes to encouraging innovative behavior in public organizations. There is even reason to believe that tying pay to performance might discourage innovativeness. Many organizational changes cause significant disruptions that diminish short-term performance until new processes are learned and institutionalized (Fernandez, 2005; Amburgey, Kelly and Barnett, 1993). This might incentivize employees to stick with routine but

proven ways of doing things rather than try out innovations that only hold the promise of optimizing performance and might very well fail. The fourth hypothesis is arrived at:

Hypothesis 4: The practice of offering rewards based on performance will either not be correlated or will be negatively correlated with motivation to innovate.

Data and Methods

The following model was developed to test the effects of empowerment practices on employee motivation to innovate:

motivation to innovate = f(practice 1, practice 2, practice 3, practice 4, rewards for innovation, job satisfaction, perceived performance, resources, knowledge sharing, trust in leader, location, minority, age)

where Bowen and Lawler's (1992; 1995) four empowerment practices are provide information about goals and performance (*practice 1*); offer rewards based on performance (*practice 2*); provide access to job related knowledge and skills (*practice 3*); and grant discretion in relation to work processes (*practice 4*). The dependent variable represents employee motivation to innovate. This section provides a description of variables, statistical techniques, and data used in the empirical analysis.

Dependent variable

The outcome variable of interest, *motivation to innovate*, is measured using responses to the following survey indicator: "I feel encouraged to come up with new and better ways of doing things". The response categories ranged from 1 = "strongly disagree" to 5 = "strongly agree." Approximately 5% of respondents answered "strongly disagree"; 13% answered "disagree"; 19% answered "neither"; 40% answered "agree"; and 22% answered "strongly agree." This is a direct measure of the degree to which an employee feels motivated to innovate at work. The variable's

distribution indicates sufficient variance and representation of each of the five response categories allow valid estimations and tests of the hypotheses offered above.

Independent variables

The independent variables—*practice 1*, *practice 2*, *practice 3*, and *practice 4*—represent Bowen and Lawler's (1992, 1995) four empowerment practices. Survey indicators were used to construct a summated rating scale for each of the practices. As can be seen in Appendix 1, the survey items selected for each of the scales exhibit face validity and appear to be measuring the type of management behavior described by Bowen and Lawler. Next, Cronbach's alpha tests were performed on each the four scales. The results show moderate to high levels of internal consistency, with scale reliability statistics ranging from 0.74 for *practice 3* to 0.88 for *practice 2*. The descriptive statistics for these variables and the control variables are shown in Table 1.

--Insert Table 1 about here--

A major issue that comes forward is whether these measures of empowerment stand the tests of discriminant and convergent validity. The four empowerment practices were subjected to a higher-order confirmatory factor analysis (CFA) to answer this question (see Appendix 3). A variety of goodness-of-fit indices from the CFA support a four-factor structure involving the four empowerment practices, while rejecting a single-factor model[4]. These results indicate that the measure of Bowen and Lawler's empowerment construct exhibits convergent as well as discriminant validity.

Control variables

The model includes controls for factors that influence innovativeness. The perception that innovative behavior is rewarded should be a strong motivator of such behavior. The model includes, therefore, the variable *rewards for innovation*, which is measured using an indicator of the extent to which the respondent feels creativity and innovation are rewarded. The actual

survey items used to measure this and other control variables are shown in Appendix 2. More satisfied employees are generally more committed to the organization and thus more likely to engage in search behavior aimed at improving organizational processes and structures (Pierce and Delbecq, 1976; Hage and Aiken, 1967; Thompson, 1965). Thus, the variable *job satisfaction*, a global measure of employee job satisfaction, is included in the model. Poor or substandard performance often kindles creative and innovative thinking among organizational members (Cyert and March, 1963; March and Simon, 1993). The effect of perceptions of performance on innovativeness is controlled for by including the variable *perceived performance* in the model. The existence of abundant resources allows organizations to invest in projects that would otherwise not be approved when resources are scarce and control over the budget is tight (Cyert and March, 1963; Rosner, 1968; Berry, 1994; Fernandez and Wise, 2009 forthcoming). The variable *resources* is included in the model, therefore, to control for the effects of perception of abundant resources on motivation to innovate.

In addition to vertical or downward communication represented by empowerment *practice 1*, horizontal communication and exchange of information among employees has been found to be a predictor innovativeness (Monge, Cozzens, and Contractor, 1992; Kanter, 1982, 1988; Tjosvold and McNeely, 1985; 1988). To control for this effect, the variable *information sharing* is included in the model. High exchange relationships between superiors and subordinates that are characterized by high levels of trust have been linked to higher subordinate satisfaction, stronger organizational commitment by the subordinate, and higher subordinate performance (see Yukl, 2003; Bass, 1990). The extent to which the respondent has trust and confidence in his/her supervisor could encourage innovative behavior. The variable *trust in leader* is thus included in the model. Finally, the model includes a set of controls for demographic characteristics of the survey respondent, including a dummy variable for whether

or not the respondent works in a field office (*location*), a dummy variable for whether or not the respondent is nonwhite (*minority*), and a categorical variable for the respondent's age (*age*).

Data

The data for the analysis are derived from the 2006 Federal Human Capital Survey (FHCS) conducted by the U.S. Office of Personnel Management. The 2006 FHCS was administered to over 200,000 federal employees working for eighty-two cabinet-level and smaller independent agencies. The survey respondents held positions at five levels, ranging from the non-supervisory level to the level of Senior Executive Service. OPM used a stratified sampling technique to develop statistically valid samples from each of the agencies. The concept of employee empowerment applies particularly to frontline and lower-level employees. The focus of the analysis is, therefore, on those employees at the three lowest levels of the federal bureaucracy: non-supervisory employees, team leaders, and supervisors; managers and senior executives are excluded from this analysis[5]. The 2006 FHCS contains 189,856 observations for non-supervisory employees, team leaders, and supervisors. Of that number, 154,793 or 77% are included in the final empirical analysis, with the remaining observations dropped due to missing data on the outcome, explanatory and/or control variables. No meaningful differences between the samples of observations analyzed and those with missing values were found.

Model selection and fit tests

The variable *motivation to innovate* is a limited dependent variable measured using an ordinal survey indicator. Using ordinary least squares (OLS) regression to estimate this type of dependent variable can result in biased coefficients and misleading results (McKelvey and Zavoina, 1975; Winship and Mare, 1984; Long, 1997; Long and Freese, 2005). Thus, three sets of competing equations using Ordered Logit Model (OLM), Ordered Probit Model (OPM), and Multinomial Logit Model (MNLM) regression are estimated. The results of these three

competing functional forms of *motivation to innovate* are provided in Table 2. The conventional fit statistics such as the Aikaike's Information Criterion (AIC) and the Bayesian Information Criterion (BIC) scalars suggest that MNLM provides a better fit for the data. The absolute value of the difference between these statistics for MNLM in contrast to both ordered probit and logit specification is large; the MNLM estimates are significantly and sufficiently smaller (see Long, 1997). Similarly, the likelihood ratio $\mathcal{X}^2$ coefficient for the MNLM suggests a better fit than the ordered probit and ordered logit specifications of the dependent variable. Finally, the four R^2 coefficients reported (McFadden's, Cox-Snell's, McKelvey and Zavoina's, and Cragg-Uhler's) indicate that the multinomial logit and ordered logit functional forms of perceived performance produce just slightly more precise results than the OPM model. In short, the evidence at hand from global tests of fit appears to point to the MNLM as the preferred specification of perceived innovativeness.

--Insert Table 2 about here--

Recall that the OLM and OPM model estimations are based on the rationale of proportional odds or parallel regression equations. If the ordered models violate this assumption, then a higher-order specification is favored. Consequently, the next step in identifying the proper fit for the data is determining whether the OLM estimates (the better of the two ordered models) violate the fundamental assumption of parallel regression. The *Brant*-test of Parallel Regression Assumption is run to obtain such evidence. The results suggest that the four empowerment practices taken together violate the assumption of parallel regression. When taken individually, none of the empowerment practices passes the test, failing the *Brant*-test quite significantly ($p < 0.001$). None of the control variables in the model pass the parallel regression test either; i.e. in each case a significant test statistic provides evidence that the parallel regression assumption has been violated. The overall model fails the test with a $\mathcal{X}^2_{df=39}$ coefficient of

3,244.42, hence indicating that a multinomial specification should be selected instead of the ordered logit model. Further, in order to relax the parallel regression assumption employed by a traditional ordered logit model, an omnibus likelihood ratio test for the generalized ordered logit (GOLM) constrained and unconstrained models is run. The likelihood ratio test for proportional odds shows that the model fails the omnibus test, too ($\mathcal{X}^2_{LR;\, df=39} = 3{,}637.83; p < 0.001$). These results point to the multinomial model of perceived innovativeness as the best model specification.

Results

The results of the empirical analysis are presented in this section. The tests of the parallel regression assumption for the ordered models indicated that MNLM is the preferred statistical model. In this model, the nonlinear probability of an outcome to occur, i.e., $y = m$ given **x** is:

$$\Pr(y = m|\mathbf{x}_i) = \frac{\exp(\mathbf{x}_i\boldsymbol{\beta}_m)}{\sum_{j=1}^{J}\exp(\mathbf{x}_i\boldsymbol{\beta}_j)}; \text{where } \boldsymbol{\beta}_{\text{A}} = 0$$

Where, **xβ** represents the model equation; in this case the dependent variable is *motivation to innovate*.

The results of the MNLM (Table 2, Model 3) show that only three of the four empowerment practices are statistically correlated with *motivation to innovate* ($p < 0.001$). The independent variable *practice 1* (information about goals and performance) does not appear to be related to *motivation to innovate* ($p = 0.478$). The multinomial logit coefficients presented in Table 3 are statistically significant and in the anticipated direction for *practice 3* (access to job related knowledge and skills) and *practice 4* (discretion to change work processes). In the case of these two empowerment practices, for every one unit increase, the probability of obtaining a response of "strongly disagree", "disagree" and "neither" decreases compared to the probability of obtaining a response of "agree", the comparison category. Conversely, for every one unit

increase in these two empowerment practices, the probability of obtaining a response of "strongly agree" increases significantly compared to the probability of obtaining a response of "agree."

The independent variable *practice 2* (*rewards based on performance*) is found to be negatively associated with *motivation to innovate*. For every one unit increase in this empowerment practice, the probability of obtaining a response of "strongly disagree", "disagree" and "neither" increases compared to the probability of obtaining a response of "agree", the comparison category. Conversely, for every one unit increase in *practice 2*, the probability of obtaining a response of "strongly agree" decreases significantly compared to the probability of obtaining a response of "agree."

--Insert Table 3 about here--

Importantly, the substantive effects of *practices 2, practice 3,* and *practice 4* are all quite sizable. These are illustrated graphically in Figures 1 through 4, which plot the predicted levels of *motivation to innovate* across each of the four empowerment variables, with all other variables held constant at their mean values (also see Table 4). Figure 1 plots the levels of *motivation to innovate* across *practice 1* (information about goals and performance). It illustrates and confirms that there is virtually no relationship between this empowerment practice and the dependent variable. All the lines, representing each outcome category of predicted levels of *motivation to innovate*, are generally flat across the range of *practice 1*. Moreover, even when we observe a slight slope, for example for the outcome category "strongly agree" in relation to the comparison category "agree", and despite the fact that this comparison is statistically significant with a factor change score of 0.88 ($p < 0.001$), the overall magnitude of the effect is virtually nil. After converting the four empowerment variables to standardized scales in order to make interpretation of effects more straightforward, we see that a one unit increase in *practice 1* centered on the

mean is associated with a decrease in the probability of responding "strongly agree" by 1%, all else held at mean values.

---Insert Table 4 about here---

Figure 2 plots the predicted levels of *motivation to innovate* across *practice 2* (rewards based on performance). As seen in this figure, the predicted levels of outcome category "strongly disagree" are flat regardless of the level of this empowerment variable. However, the predicted levels of category "disagree" increase significantly across the range of the second component of empowerment by about 10% (from about 3% to 13%). More specifically, a unit increase in *practice 2* increases the odds of response "disagree" rather than "agree" by a factor of 1.53 , with all other variables held constant ($p < 0.001$). In a similar manner, the predicted levels of outcome "neither" increase significantly and substantively across the range of *practice 2* by about 15% (from 19% to 34%). A one unit increase in *practice 2* is associated with an increase of odds for "neither" compared to "agree" by a factor of 1.26, all else held equal ($p < 0.001$). As for outcome categories "agree" and "strongly agree", we can observe that the lines have downward sloping trajectories for both cases across the range of *practice 2*; both fall by about 13%. The odds of "strongly agree" vs. "agree" for every one unit increase in *practice 2* appear to decrease by a factor of 0.70 (a difference of roughly 43%), all else equal ($p < 0.001$).

--Insert Figures 1 and 2 about here--

Figure 3 plots the predicted levels of *motivation to innovate* across *practice 3* (providing access to job related knowledge and skills). *Practice 3* has a statistically significant coefficient and the largest substantive effect from among the four empowerment practices. The graph shows that the predicted levels of category "strongly agree" increase very sharply but not linearly by about 0.44 when moving from the lowest level of *practice 3* to the highest. The geometric increase can be observed for the mid- to highest levels of *practice 3*, prompting one to conclude

that this most positive outcome choice is only possible for the highest levels of the third empowerment practice. In contrast to "strongly agree", the choice "agree" appears to increase by about 0.40 from the lowest level of *practice 3* to about two-third of that range, after which it slopes downwards by about 0.14, where some of the decrease is absorbed by the most positive category. The odds of "strongly agree" vs. "agree" for each unit increase in *practice 3* appear to increase by a factor of 4.52, all else equal ($p < 0.001$). However, the odds of "neither" and "disagree" vs. "agree" for each unit increase in this independent variable are found to decrease by factors of 0.55 and 0.36, respectively (each decreasing by about 82% and 178%), all other variables held constant ($p < 0.001$). In terms of substantive effect, in Figure 3 we find that the predicted levels of *motivation to innovate* for categories "neither" and "disagree" decrease by slightly over 0.30 for both outcome choices across the range of *practice 3*. Finally, the most negative outcome choice, "strongly disagree", appears to decrease by about 0.05 along the lowest range of *practice 3*, after which it remains flat for two-thirds of the range. Statistically, the odds of "strongly disagree" vs. "agree" for each unit increase in the third dimension of empowerment is found to decline by a factor of 0.19 (a 438% difference), all else equal ($p < 0.001$).

--Insert Figures 3 and 4 about here--

The predicted levels of *motivation to innovate* across *practice 4* (discretion to change work processes), are depicted in Figure 4. In substantive and statistical terms, the effects of this empowerment practice resemble those of *practice 3*. In the figure we observe that both response categories "strongly agree" and "agree" appear to be increasing across the range of this independent variable (former choice has an inward bent curve, while the latter has an outward bent curve). The choice item "strongly agree" changes from about 0 to 0.20 and the choice "agree" changes from 0.30 to about 0.65. At the same time, the odds of "strongly agree" vs. "agree" for each unit increase in *practice 4* appear to increase by a factor of 1.78, all else equal

($p < 0.001$). As was the case with the previous empowerment practice, the odds for categories "neither" and "disagree" vs. outcome "agree" appear to decrease by a factor of 0.57 and 0.32 each (decreases of 75% and 213% respectively) for a unit increase in *practice 4*, all else held constant ($p < 0.001$). The graph shows about a 0.25 decrease in outcomes "neither" and "disagree" across the range of this empowerment practice. The graph also shows that the category "strongly disagree" is mostly flat, despite the fact that the statistical results are significant.

Table 2 indicates that with the exception of *sufficient resources,* all of the control variables are statistically correlated with *motivation to innovate*. However, in terms of the magnitude of the effect, only three control variables merit individual interpretations (see Tables 3 and 4). The variable *rewards for innovation* is found to be the control variable with the strongest substantive effect on the dependent variable, its effect rivaling that of *practice 3* and *practice 4*. For every unit increase in this control variable, the odds for the choice "strongly disagree" vs. "agree" decrease by a factor of 0.19 (a 438% difference), other variables controlled for ($p < 0.001$). In terms of discrete change probabilities, a range change in *rewards for innovation* is associated with a 0.05 decrease in the outcome "strongly disagree" of *motivation to innovate*, all else at mean values. Similar to the effects of *practice* 3 and *practice 4,* the odds for outcome choices "neither" and "disagree" appear to decline by a factor of 0.66 and 0.40, respectively (differences of 52% and 150% each) for each unit increase in *rewards for innovation*, all else equal ($p < 0.001$). In substantive terms, all else constant, these negative-bound changes represent 0.21 and 0.27 shifts in predicted probabilities for the levels of "neither" and "disagree" across the range of this control variable. The two positive outcome choices, "strongly agree" and "agree", are increase as a result of an increase in the levels of *rewards for innovation*; the former category increases by 0.17 while the latter one increase by 0.45. For every one unit increase in this

control variable, the odds of category "strongly agree" vs. "agree" occurring increase by a factor of 1.49, all else equal ($p < 0.001$).

High exchange leadership is the second control variable with a substantive effect on *motivation to innovate*. A range change in this variable is found to decrease the probabilities for choices "disagree" and "neither" by 0.11 and 0.13 respectively, all other variables fixed at their mean values. The gain is found in choices "strongly agree" and "agree" with corresponding probabilities increasing by 0.11 and 0.13. The choice "strongly disagree" appears to remain flat across the range of *high exchange leadership*. Statistically, the odds for "disagree" and "neither" vs. comparison category "agree" decrease by factors 0.70 and 0.84 (differences of 43% and 19% respectively), all else constant ($p < 0.001$), for each unit increase in the levels of *high exchange leadership*. The increase in odds for "strongly agree" vs. "agree" for a unit change in this variable is identical to the results for *rewards for innovation*.

The control variable *job satisfaction* has a substantively significant effect on the dependent variable, albeit a weaker one than the previous two controls. A range change in this control variable is found to decrease the predicted levels of categories "disagree" and "neither" by 0.04 and 0.09 respectively, while categories "strongly agree" and "agree" each gain 0.07 and 0.06. The outcome category "strongly disagree" is unchanged. A unit increase in *job satisfaction* is found to decrease the odds of choosing "disagree" and "neither" vs. "agree" by 0.87 and 0.90, respectively (decrease of roughly 15% and 11% each), all others equal ($p < 0.001$). Alternatively, the odds of "strongly agree" vs. "agree" increase by a factor of 1.29, all else constant ($p < 0.001$), for the same one unit increase in *job satisfaction*.

Discussion and Conclusion

Employee empowerment has gained widespread popularity as a high performance management approach that helps organizations remain competitive, innovative, and adaptive.

While the ultimate goal of adopting employee empowerment is often to improve performance, a key causal mechanism by which that outcome is achieved is through innovative behavior on the part of frontline employees. It is essential therefore to understand how the various empowerment practices affect motivation to innovate.

The pattern of results from this study shows that not all empowerment practices can be used effectively to encourage innovative behavior. Four hypotheses about what motivates frontline employees to innovate were tested, and three were confirmed. The evidence supports the hypotheses that empowerment practices aimed at granting discretion to change work processes and at providing access to job related knowledge and skills have strong positive effects on employee motivation to innovate. As innovation scholars have discovered over the course of several decades of research, innovation is promoted when frontline employees are given the freedom to deviate from standard procedures in an effort to discover ways to improve performance. Training and development of employees improves the odds that such deviations will result in effective adaptations. Tight controls and strict compliance with rules and procedures, on the other hand, makes behavior consistent and routine, thereby significantly diminishing the odds of innovation occurring.

Also as hypothesize, it is found that attempting to empower employees by offering rewards based on performance discourages innovativeness. Rewarding short-term performance, as pay-for-performance schemes often do, seems to drive employees toward settling for proven ways of doing things rather than attempting disruptive changes detrimental to performance in the near term. The results also suggest that frontline employees perceive innovation as a risky endeavor, requiring up-front investments in time, labor and other resources but offering only the promise of a return in the way of improved performance. Interestingly, it is found that offering rewards that specifically target innovation rather than individual performance encourages

innovativeness. The data do not permit a deeper look at the link between different types of rewards and motivation to innovate. Knowledge of the different types of intrinsic and extrinsic rewards used to encourage innovation and of the value employees attach to those rewards would allow managers to more effectively promote innovation through manipulation of rewards and incentives.

Contrary to the hypothesis put forth in this study, the practice of empowering frontline employees by providing information about goals and performance fails to have an effect on the degree to which employees feel encouraged to innovate. Due to greater goal ambiguity in public organizations, goals in federal agencies might not be sufficiently clear and specific to motivate employees. Another possible explanation for this finding involves employee reactions to goals and performance feedback. Goals and performance feedback are often used in place of rules to coordinate and control behavior in organizations (Mintzberg, 1979). Efforts to control employees this way may constrain behavior and prevent employees from trying innovative solutions to problems.

One limitation of the study is that the dependent variable only captures motivation or inclination to innovate. It is not possible to discern with any certainty whether or not such motivation will translate into actual innovative proposals, whether or not those proposals are accepted, or the possible impact of those innovations on performance. Additional longitudinal research is needed to analyze the effects of motivation to innovate on the frequency of innovations developed or adopted and on the subsequent effects these innovations on organizations.

Another limitation of the study is that the results could be potentially susceptible to common method bias since all the data are self-reported data and gathered from a single survey. Common method bias is generally believed to produce artificially inflated correlations

(Crampton and Wager, 1994), although in some cases the bias can also deflate correlations (Cote and Buckley, 1988; Podsakoff, et al., 2003). The Harman single factor test produced a two factor solution (unrotated). In addition, the results of a confirmatory factor analysis of the survey items used to measure the four empowerment practices supported a four factor structure; more importantly, it indicated that a single factor model could not provide a significant fit for data as it failed every single test for goodness-of-fit. These results, while not refuting the presence of common method bias, fail to produce convincing evidence that it indeed exists. Crampton and Wagner (1994) concluded that while the researchers need to be aware of possible common method biases, overall this problem appears to enjoy an undue level of attention. These authors find that on average the common method bias "is neither dominant nor absent" (Crampton and Wagner, 1994, p. 73). If indeed common method bias is present in the study, it could conceivably have inflated the fairly strong correlations between the empowerment practices and the dependent variable. Some care should be taken, therefore, in interpreting the results of this analysis.

Finally, the question of whether empowerment breeds reckless rule breaking among public employees warrants further investigation. Studies have shown that public managers behave responsibly when engaging in innovative behavior (Borins, 2000; Berman and West, 1998) and seek political approval from elected officials when launching new initiatives (Golden, 1990). The potential consequences of employee empowerment for political and legal accountability, however, remain largely unexplored.

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Table 1. Descriptive Statistics for Independent and Control Variables

Variable	*Mean*	*St. Dev.*	*Min.*	*Max.*
practice 1 (information about goals and performance)	-0.04	0.85	-2.37	1.50
practice 2 (rewards based on performance)	-0.06	0.92	-1.93	1.74
practice 3 (access to job related knowledge and skills)	-0.04	0.84	-2.66	1.27
practice 4 (discretion to change work processes)	-0.04	0.79	-1.90	1.34
rewards for innovation	3.14	1.13	1	5
job satisfaction	3.70	1.03	1	5
overall performance	4.20	0.78	1	5
knowledge sharing	3.81	1.00	1	5
high exchange leadership	3.70	1.19	1	5
sufficient resources	3.14	1.21	1	5
location	0.61	0.49	0	1
minority	0.26	0.44	0	1
age	3.34	0.98	1	5

Source: FHCS 2006 dataset; sample size = 189,856.
Note: Sample restricted to 154,793 valid observations, or 77% of the original sample.

Table 2. Model Estimates and Test of Fit, Dependent Variable = Motivation to Innovate, *N* = 154,793

Variable Description	*Model I: Ordered Logit*	*Model II: Ordered Probit*	*Model III: Multinomial Logit*
practice 1 (information about goals and performance)	−0.024* (−2.21)	−0.013* (−2.23)	−0.020 (−0.71)
practice 2 (rewards based on performance)	−0.389*** (−38.19)	−0.207*** (−36.37)	0.617*** (19.83)
practice 3 (access to job related knowledge and skills)	1.122*** (98.62)	0.606*** (97.58)	−1.680*** (−57.32)
practice 4 (discretion to change work processes)	0.902*** (73.64)	0.499*** (74.06)	−0.804*** (−49.61)
rewards for innovation	0.695*** (84.09)	0.382*** (84.20)	−1.683*** (−58.05)
job satisfaction	0.166*** (22.71)	0.095*** (23.30)	−0.269*** (−14.59)
overall performance	0.147*** (17.96)	0.086*** (18.60)	−0.166*** (−8.12)
knowledge sharing	−0.032*** (−5.20)	−0.019*** (−5.40)	0.124*** (8.08)
high exchange leadership	0.326*** (53.13)	0.179*** (52.90)	−0.507*** (−32.27)
sufficient resources	−0.004 (−0.83)	0.002 (0.84)	−0.023 (−1.58)
location (1=field office)	−0.193*** (−18.51)	−0.113*** (−18.88)	0.327*** (9.73)
minority (1 = nonwhite)	0.076*** (6.54)	0.049*** (7.39)	−0.233*** (−6.28)
age category	0.013** (2.59)	0.009** (2.96)	−0.063** (−3.67)
AIC	312,501.6	314,647.9	312,262.4
BIC	312,670.8	314,817.0	312,819.6
BIC'	−133,356.4	−131,210.1	−133,207.5
Likelihood Ratio X^2	133,511.7	131,365.5	133,828.9
McFadden's R^2	0.299	0.295	0.300
ML (Cox-Snell) R^2	0.578	0.572	0.579
McKelvey and Zavoina's R^2	0.624	0.625	---
Cragg-Uhler's (Nagelkerke) R^2	0.612	0.606	0.613

Table 3. Logit Coefficients for the MNLM Specification, Dependent Variable = Motivation to Innovate

Compari-son	Statistic	Logit Coefficient for Dimensions of Empowerment			
		practice 1 (information about goals and performance)	practice 2 (rewards based on performance)	practice 3 (access to job related knowledge and skills)	practice 4 (discretion to change work processes)
SD|A	$\beta_{SD\|A}$	−0.020	0.617	−1.680	−1.804
	$\exp(\beta_{SD\|A})$	0.980	1.853	0.186	0.165
	z	−0.710	19.825	−57.317	−49.611
	p	0.478	0.001	0.001	0.001
D|A	$\beta_{D\|A}$	−0.009	0.427	−1.021	−1.146
	$\exp(\beta_{D\|A})$	0.991	1.533	0.360	0.318
	z	−0.461	22.494	−51.892	−53.125
	p	0.645	0.001	0.001	0.001
N|A	$\beta_{N\|A}$	0.003	0.233	−0.597	−0.569
	$\exp(\beta_{N\|A})$	1.003	1.262	0.551	0.566
	z	0.205	15.563	−36.135	−33.006
	p	0.838	0.001	0.001	0.001
SA|A	$\beta_{SA\|A}$	−0.125	−0.359	1.508	0.579
	$\exp(\beta_{SA\|A})$	0.882	0.698	4.519	1.784
	z	−6.912	−21.988	67.057	27.235
	p	0.001	0.001	0.001	0.001

Compari-son	Statistic	Logit Coefficient for Select Control Variables		
		rewards for innovation	job satisfaction	high exchange leadership
SD|A	$\beta_{SD\|A}$	−1.683	−0.269	−0.507
	$\exp(\beta_{SD\|A})$	0.186	0.764	0.602
	z	−58.054	−14.595	−32.265
	p	0.001	0.001	0.001
D|A	$\beta_{D\|A}$	−0.927	−0.144	−0.351
	$\exp(\beta_{D\|A})$	0.396	0.866	0.704
	z	−60.565	−11.340	−33.620
	p	0.001	0.001	0.001
N|A	$\beta_{N\|A}$	−0.416	−0.107	−0.175
	$\exp(\beta_{N\|A})$	0.659	0.899	0.840
	z	−35.594	−9.946	−20.032
	p	0.001	0.001	0.001
SA|A	$\beta_{SA\|A}$	0.340	0.353	0.395
	$\exp(\beta_{SA\|A})$	1.491	1.287	1.484
	z	30.466	17.829	32.625
	p	0.001	0.001	0.001

Note: a) β is a logit coefficient; b) $\exp(\beta)$ is a factor change; c) z is a z −statistic; d) p is a significance level. Perceived Innovativeness (five-choice outcome): SD = "strongly disagree", D = "disagree", N = "neither agree nor disagree", A = "agree", and SA = "strongly agree".

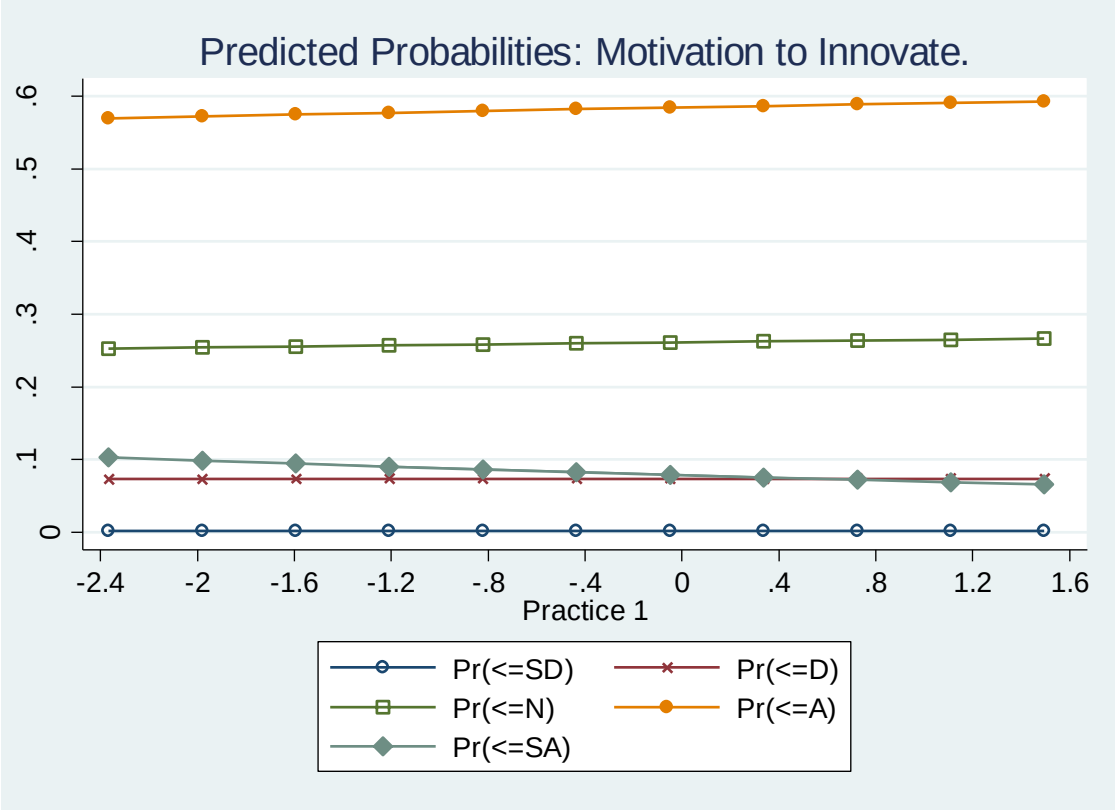
*$p < 0.05$ **$p < 0.01$ ***$p < 0.001$

Table 4. Discrete Change in the Probability of Motivation to Innovate for the MNLM Specification, (All other variables held at mean)

Variable	Change	$\bar{\Delta}$ mean	SD	D	N	SA	A
Overall	$P(\hat{Y})$ at mean	---	0.002	0.074	0.261	0.079	0.584
practice 1(information about goals and performance)	ΔRange	0.01	−0.00	0.00	0.01	−0.04	0.02
	Δ1	0.00	−0.00	0.00	0.00	−0.01	0.01
	StDΔ	0.00	−0.00	0.00	0.00	−0.01	0.00
practice 2 (rewards based on performance)	Δ Range	0.10	0.00	0.10	0.15	−0.13	−0.13
	Δ1	0.03	0.00	0.03	0.04	−0.03	−0.04
	StDΔ	0.03	0.00	0.02	0.04	−0.03	−0.03
practice 3 (access to job related knowledge and skills)	ΔRange	0.28	−0.05	−0.33	−0.31	0.44	0.26
	Δ1	0.08	−0.00	−0.07	−0.12	0.14	0.06
	StDΔ	0.07	−0.00	−0.06	−0.10	0.11	0.05
practice 4 (discretion in relation to work processes)	ΔRange	0.22	−0.03	−0.29	−0.24	0.18	0.36
	Δ1	0.07	−0.00	−0.07	−0.10	0.06	0.11
	StDΔ	0.05	−0.00	−0.06	−0.08	0.05	0.09
rewards for innovation	ΔRange	0.21	−0.04	−0.27	−0.21	0.17	0.35
	Δ1	0.05	−0.00	−0.06	−0.07	0.04	0.09
	StDΔ	0.06	−0.00	−0.06	−0.08	0.04	0.10
job satisfaction	ΔRange	0.05	−0.00	−0.04	−0.09	0.07	0.06
	Δ1	0.01	−0.00	−0.01	−0.02	0.02	0.01
	StDΔ	0.01	−0.00	−0.01	−0.02	0.02	0.01
high exchange leadership	ΔRange	0.10	−0.01	−0.11	−0.13	0.11	0.13
	Δ1	0.02	−0.00	−0.02	−0.03	0.03	0.02
	StDΔ	0.03	−0.00	−0.03	−0.04	0.04	0.03

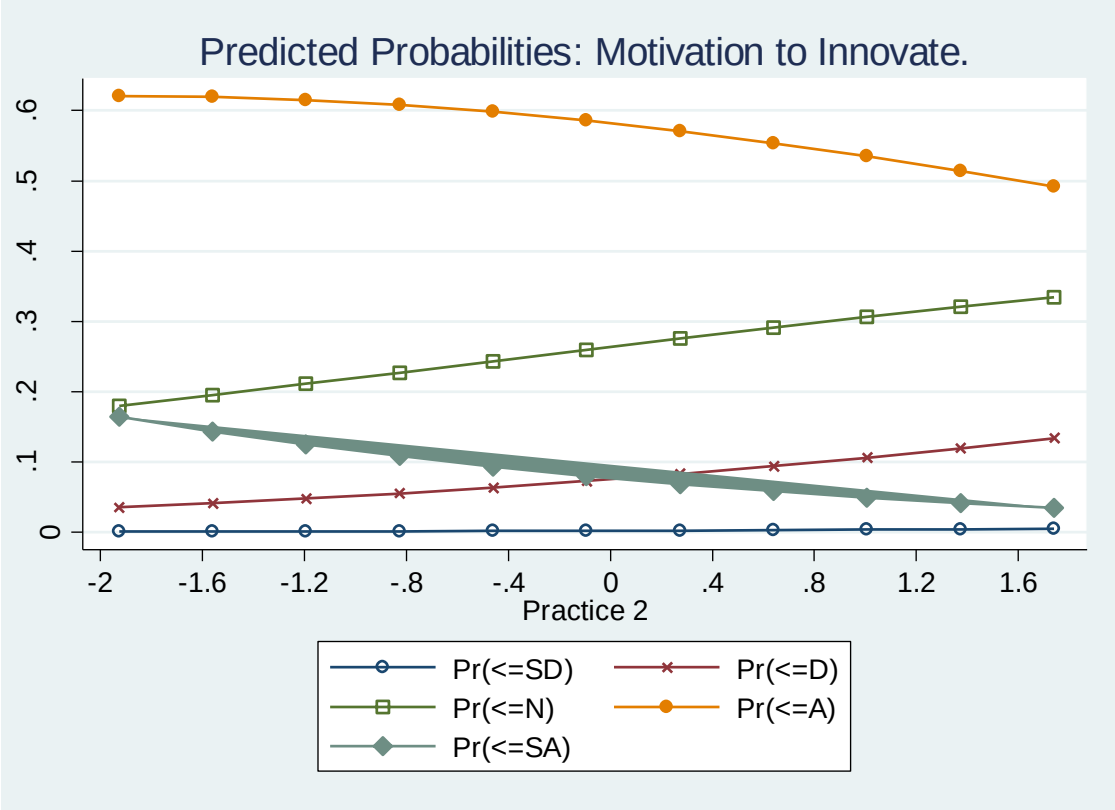
Note: a) $\bar{\Delta}$ mean: is the average absolute discrete change; b) Δ Range is change from the minimum to the maximum; c) Δ1 is centered change of 1 around the mean; d) StDΔ is centered marginal change around the mean. Perceived Innovativeness (five-choice outcome): SD = "strongly disagree", D = "disagree", N = "neither agree nor disagree", A = "agree", and SA = "strongly agree".

Figure 1. Predicted Levels of Motivation to Innovate, Empowerment Practice 1 (Information about Organizational Goals and Performance)



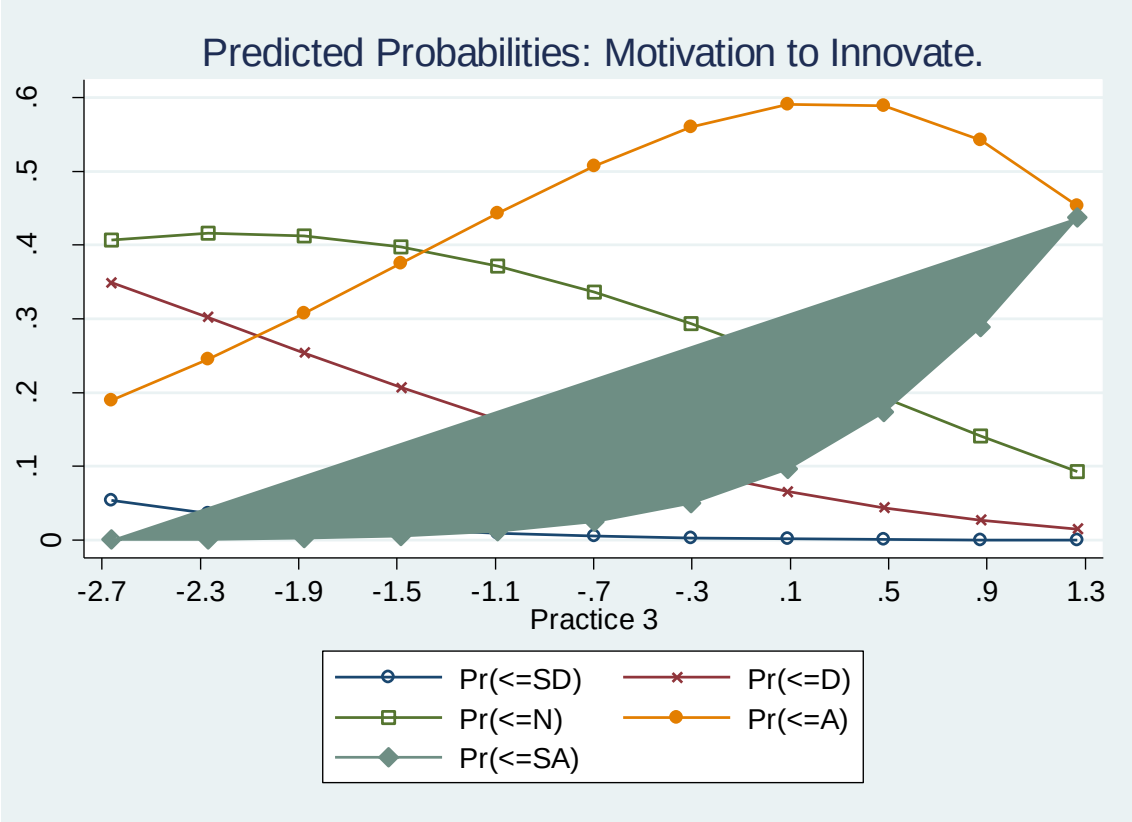
Note: Response categories for outcome variable are labeled SD = "strongly disagree", D = "disagree", N = "neither agree nor disagree", A = "agree", and SA = "strongly agree"

Figure 2. Predicted Levels of Motivation to Innovate, Empowerment Practice 2 (Rewards Based on Performance)



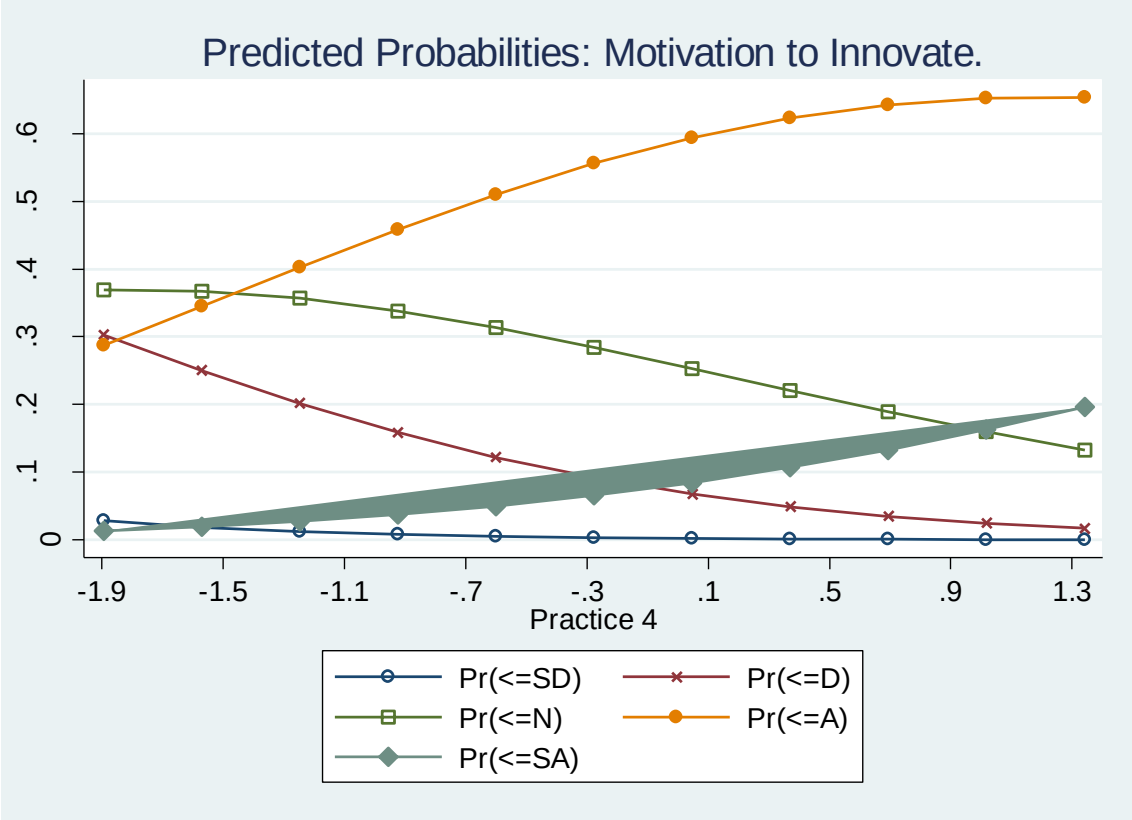
Note: Response categories for outcome variable are labeled SD = "strongly disagree", D = "disagree", N = "neither agree nor disagree", A = "agree", and SA = "strongly agree"

Figure 3. Predicted Levels of Motivation to Innovate, Empowerment Practice 3 (Access to Job Related Knowledge and Skills)



Note: Response categories for outcome variable are labeled SD = "strongly disagree", D = "disagree", N = "neither agree nor disagree", A = "agree", and SA = "strongly agree"

Figure 4. Predicted Levels of Motivation to Innovate, Empowerment Practice 4 (Discretion to Change Work Processes)



Note: Response categories for outcome variable are labeled SD = "strongly disagree", D = "disagree", N = "neither agree nor disagree", A = "agree", and SA = "strongly agree"

Appendix 1. Measures of Employee Empowerment

practice 1 (information about goals and performance)

Survey indicators

- Managers review and evaluate the organization's progress toward meeting its goals and objectives. (1 = strongly disagree through 5 = strongly agree)
- Supervisors/team leaders provide employees with constructive suggestions to improve their job performance. (1 = strongly disagree through 5 = strongly agree)
- How satisfied are you with the information you receive from management on what's going on in your organization? (1 = very dissatisfied through 5 = very satisfied)

Cronbach's alpha test, mean interval covariance = 0.62
Cronbach's alpha test, scale reliability coefficient = 0.80

practice 2 (rewards based on performance)

Survey indicators

- Promotions in my work unit are based on merit. (1 = strongly disagree through 5 = strongly agree)
- Employees are rewarded for providing high quality products and services to customers. (1 = strongly disagree through 5 = strongly agree)
- Pay raises depend on how well employees perform their jobs. (1 = strongly disagree through 5 = strongly agree)
- Awards in my work unit depend on how well employees perform their jobs. (1 = strongly disagree through 5 = strongly agree)

Cronbach's alpha test, mean interval covariance = 0.87
Cronbach's alpha test, scale reliability coefficient = 0.88

practice 3 (access to job related knowledge and skills)

Survey indicators

- I am given a real opportunity to improve my skills in my organization. (1 = strongly disagree through 5 = strongly agree)
- The workforce has the job-relevant knowledge and skills necessary to accomplish organizational goals. (1 = strongly disagree through 5 = strongly agree)
- Supervisors/team leaders in my work unit support employee development. (1 = strongly disagree through 5 = strongly agree)

Cronbach's alpha test, mean interval covariance = 0.49
Cronbach's alpha test, scale reliability coefficient = 0.74

practice 4 (discretion to change work processes)

Survey indicators

- Employees have a feeling of personal empowerment with respect to work processes. (1 = strongly disagree through 5 = strongly agree)
- How satisfied are you with your involvement in decisions that affect your work? (1 = very dissatisfied through 5 = very satisfied)

Cronbach's alpha test, mean interval covariance = 0.74
Cronbach's alpha test, scale reliability coefficient = 0.77

Appendix 2. Measures of Control Variables

rewards for innovation
"Creativity and innovations are rewarded." (1 = strongly disagree through 5 = strongly agree)

job satisfaction
"Considering everything how satisfied are you with your job?" (1 = very satisfied through 5 = very dissatisfied)

overall performance
"How would you rate the overall quality of work done by your work group?" (1 = very poor through 5 = very good)

knowledge sharing
"Employees share job knowledge with each other." (1 = strongly disagree through 5 = strongly agree)

trust in leader
"I have trust and confidence in my supervisor." (1 = strongly disagree through 5 = strongly agree)

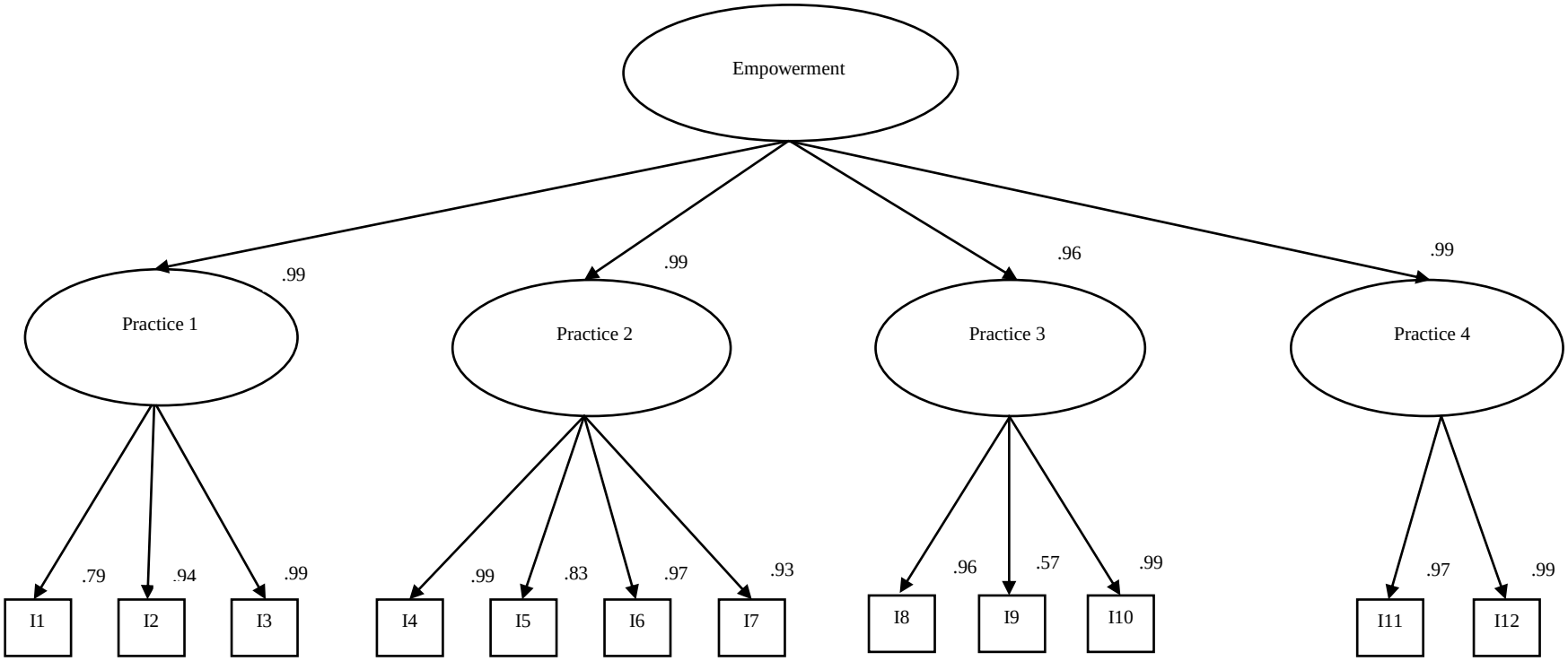
sufficient resources
"I have sufficient resources to get my job done." (1 = strongly disagree through 5 = strongly agree)

location
Respondent's work location. (1 = field office, 0 = headquarters)

minority
Respondent's race. (1 = nonwhite, 0 = white)

age
Respondent's age. (1 = 26-29; 2 = 30-39; 3 = 40-49; 4 = 50-59; 5 = 60-69)

Appendix 3. Higher-Order Confirmatory Factor Analysis, Employee Empowerment



Comparative Fit Index (CFI) = 0.94 Normed Fit Index (NFI) = 0.94 Joreskog and Sorbom Goodness-of-Fit Index (GFI) = 0.93

Root Mean Square Error of Approximation (RMSEA) = 0.09 Parsimony Ratio (PRATIO) = 0.76 Parsimony Normed Fit Index (PNFI) = 0.71

Standardized Room Mean Square Residuals (Stand RMR) = 0.04

Notes

[1] Lawler, Mohrman, and Ledford (1992, 1995) found that these positive effects were greater in service firms than in manufacturing firms, even though empowerment practices appear to be more prevalent in the latter than in the former.

[2] They go on to describe the empowering of employees as "a process of enhancing feelings of self-efficacy among organizational members through the identification of conditions that foster powerlessness and through their removal by both formal organizational practices and informal techniques of providing efficacy information" (p. 474). This motivational process involves five stages: Stage 1, the presence of conditions leading to a psychological state of powerlessness; Stage 2, the use of empowerment strategies and techniques by managers; Stage 3, the removal of conditions leading to powerlessness and the transmission of information that enhances self-efficacy; Stage 4, a feeling of empowerment as a result of receiving and processing this information; and Stage 5, the behavioral effects of empowerment, including greater effort and persistence.

[3] Even when an innovation is borrowed or designed by elected officials and political appointees, street-level bureaucrats still exercise considerable discretion in the manner in which the innovation is implemented, thus influencing its final form. Innovations need not be fixed or invariant (Rogers, 2003). Those responsible for implementing the innovation do not simply copy or imitate how other organizations have used the innovation. Instead, they reinvent the innovation, modifying and tweaking it to fit the particular structure, conditions, and problem facing their organization. Flexibility and customization during the implementation process can enhance the effectiveness of an innovation for an organization. The model of innovation by "groping along" suggests a similar process in public organizations (Behn, 1988; Golden, 1990).

[4] A higher-order confirmatory factor analysis (CFA) was performed to assess the discriminant and convergent validity of the four-dimensional definition of employee empowerment. Multiple ordinal survey items shown in Appendix 1 were used to measure the four empowerment practices. As seen in Appendix 3, each of the survey items loaded strongly and in the anticipated direction with the corresponding factor (i.e., empowerment practice) ($p < 0.001$). Those four factors, in turn, have very strong positive correlations with a second-order factor representing the underlying construct of employee empowerment ($p < 0.001$). These results suggest there are four distinct dimensions to employee empowerment as suggested by Bowen and Lawler, thus demonstrating discriminant validity. Additionally, the strong correlations between each of the four empowerment practices and the second-order factor offer strong evidence of convergent validity.

The statistics for several goodness-of-fit indices support the four-factor model of empowerment. The statistics for the comparative fit index (CFI), which is minimally affected by sample size, is 0.94, indicating a good fit for the four-factor model (Fan, Thompson, and Wang, 1999). The Joreskog and Sorbom goodness-of-fit index of 0.93 also suggests a good model fit. The normed fit index (NFI) statistic of 0.94 and the root mean square error of approximation (RMSEA) of 0.09 both point to an acceptable fit for the four-factor model (Schumacker and Lomax, 2004). Complex models are more likely to generate better fit statistics than parsimonious ones. It is recommended therefore that models be subjected to goodness of fit measures that penalize for lack of parsimony. The model with a four-factor structure has parsimony ratio (PRATIO) and parsimony normed fit index (PNFI) statistics of 0.76 and 0.71, both of which are indicative of a reasonably parsimonious fit. It should be noted that the chi square test results reject the four-factor model ($p < 0.01$). Large sample sizes like the one used in this CFA are much more likely to result in Type II errors. Garson (2009) suggests, therefore, discounting the chi square results if other fit statistics support a model with such a large sample size.

In contrast to this evidence favoring a four-factor model of employee empowerment, the higher-order CFA results reject a model with a one-factor structure. The CFI and NFI statistics for a one-factor model fail to reach the 0.90 cutoff point; both are only 0.89. And the RMSEA statistic (0.12) is above the conventional cutoff for even an adequate model fit (Schumacker and Lomax, 2004). In addition, a comparison of the four-factor and one-factor models, in terms of their Akaike information criterion (AIC) statistics, favors the former over the latter. The lower AIC statistic for the four-factor model (67,147.25) is considerably lower than the AIC statistic for the one-factor model (125,414.95), indicating a significantly better model fit (Burnham and Anderson, 2004; Long, 1997).

[5] An MNLM estimation using this full sample of respondents provides remarkably similar results to those reported above from a truncated sample of only non-supervisory employees, team leaders and supervisors.