

## **Employee Motivations, Managerial Trustworthiness, and Work Attitudes**

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### **Abstract**

Scholars and practitioners have emphasized the benefits of a highly motivated workforce. Although scholars have studied the causes and consequences of high employee motivation, many questions associated with this phenomenon remain unanswered. One question involves the conditions under which employee motivation is elevated or depressed. Recently, Grant and Sumanth (forthcoming) demonstrated experimentally that prosocial motivation increased when the trustworthiness of managers was high. Higher prosocial motivation was, in turn, associated with increased employee performance. We replicate this model in a public setting to assess the effects of trustworthy managers on employee motivation.

This research considers both intrinsic and extrinsic motivations, and tests how managerial trustworthiness interacts with those two motivations. At the individual level, work attitudes including satisfaction and intent to leave are used as outcome variables. To address the common source bias from the first analysis, the research also tests whether employee motivations are still influential at the organizational level by using the Best Places to Work index and the Program Assessment Rating Tool (PART).

Analysis results demonstrate that both intrinsic and extrinsic motivations matter for employee satisfaction and intent to leave. Managerial trustworthiness interacts with both intrinsic and extrinsic motivation, but in different ways. For employee satisfaction, when agencies have trustworthy leaders, they increase the influence of intrinsic motivation while they work more as a replacement of extrinsic motivation. At the organizational level, only intrinsic motivation is associated with the “Best Places to Work” index.

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Scholars and practitioners have emphasized the benefits of a highly motivated workforce. Although scholars have studied the causes and consequences of high employee motivation, many questions associated with this phenomenon remain unanswered. One question involves the conditions under which employee motivation is elevated or depressed. Recently, Grant and Sumanth (forthcoming) demonstrated experimentally that prosocial motivation increased when the trustworthiness of managers was high. Higher prosocial motivation was, in turn, associated with increased employee performance. We replicate this model in a public setting to assess the effects of highly trustworthy managers on employee motivation.

Motivation is a multi-dimensional concept. One well-established way to think about dimensions of motivation is according to the origins of individual motivation: intrinsic and extrinsic. The former arises from the task itself, while the latter comes from expectations of external rewards. Amabile (1993, p.186) define two concepts as follows; “Individuals are *intrinsically motivated* when they seek enjoyment, interest, satisfaction of curiosity, self-expression, or personal challenge in the work. Individuals are *extrinsically motivated* when they engage in the work in order to obtain some goal that is apart from the work itself.” The two motivations are likely to have unique influences on work attitudes. We compare their relative influences for two work attitudes: employee satisfaction and intent to leave.

We explore the influences of intrinsic and extrinsic motivations when varying one condition affecting employee motivation, managerial trustworthiness. The value of trustworthy managers is acknowledged as an antecedent of trust, which in turn leads to positive attitudes and behaviors within workplaces. Trust within organizations increase subordinates’ compliance to

rules and voluntary deference (Kramer, 1999). This research assumes that the managerial trustworthiness strengthens the links between motivation and work attitudes by increasing employees' expectancy.

Using the 2008 Federal Human Capital Survey (FHCS), the research tests the theory by employing several analyses. At the individual level, we test the association between intrinsic and extrinsic motivations and two employee attitudes: satisfaction and intent to leave. Then, to address the common source bias residing in the first analysis, we test whether employee motivations are still influential at organizational level by two organizational outcomes, the Best Places to Work index and the Program Assessment Rating Tool (PART).<sup>1</sup> We employ ordinary least squares (OLS) regression and binary logit regression as the main analytic methods.

In the upcoming sections, we discuss theoretical and empirical links among employee motivation and managerial trustworthiness, which leads to the research framework. Following the explanation of data, measurements, and method, we will report analysis results at both individual and organizational level. We conclude with a discussion of the implications and limitations of the research.

### **Employee Motivation**

An enduring motivational framework's is Deci and Ryan's (2004) self-determination theory. Their theory is the source of a common distinction between extrinsic and intrinsic motivations. Extrinsic motivation refers to whenever an activity is done in order to attain some

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<sup>1</sup> The Best Places to Work index comes from the FHCS 2008 data. The index is comprised of the same measurements of employee satisfaction used by this research. Although the data has the same source, testing the relationship at the organizational level by using the aggregated measures will help us to avoid the common source bias. At least, we remove the possibility that the relationship is explained by an individual perception. It tests the relationship between the average level of motivation and the average level of satisfaction within a given agency.

instrumental outcome. In contrast, intrinsic motivation refers to doing an activity simply for the enjoyment of the activity itself.

The Deci and Ryan (2004) theory actually envisions a continuum of motivations, ranging from controlled to autonomous motivation. Ryan and Deci (2005) contend that the internalization of values into an identity, which for them is a source of motivation, is based upon the satisfaction of three basic psychological needs, competence, autonomy, and relatedness. They thus distinguish four types of identity regulation corresponding to types of extrinsic motivation: external regulation, introjection, identification, and integration. If an environment fosters the basic needs of individuals, the degree of internalization of identities will be higher. More importantly, the effect of this regulation will be stronger to the extent that the associated identities are autonomous. In the current version of the Deci and Ryan (2004) theory, two forms of extrinsic motivation, identification and integration, afford individuals relatively high degrees of autonomy. These types of extrinsic motivation permit relatively high motivation, but fall short of motivation levels attained from intrinsic motivation, which involves doing an activity for its inherent satisfactions.

An issue long contested in the motivational literature is whether extrinsic motivations encroach on intrinsic motivations (Calder and Staw, 1975). Empirical research and recent theoretical developments suggest that increasing extrinsic rewards may lead to individual perceptions that their behavior is under the control of the rewards and that this, in turn, reduces intrinsic motivation. From a meta-analysis of 128 experiments, Deci, Koestner and Ryan (1999) concluded that contingent rewards undermined free-choice intrinsic motivation. Recent economic research on motivation crowding (Frey, 1997; Frey and Jegen, 2001) supports the view that extrinsic rewards can “crowd out” intrinsic motivation. But this research also specifies

certain conditions under which extrinsic rewards may “crowd in” intrinsic motivation. Research about public service motivation (Perry and Wise, 1990; Perry, Hondeghem and Wise, 2009) also predicts tradeoffs between extrinsic rewards and public service motivation.

### **Managerial Trustworthiness**

Trustworthiness has been frequently mentioned as the antecedent of trust. As scholars have come to understand trust as a managerial resource, they have identified the elements of trustworthiness as antecedents of trust, including competence, consistency, fairness, integrity, loyalty, openness, receptivity, benevolence, and value congruence (Sitkin & Roth, 1993; Butler, 1991; Larzelere & Huston, 1980). Mayer et al. (1995) synthesized these elements into three core antecedents of trust as “factors of perceived trustworthiness:” ability, benevolence, and integrity.

Ability is understood as the trustee’s competence in his or her role in the organization. This factor is critical in that it serves as a fundamental basis of trust building. From expectancy perspective, if supervisors do not have competences to achieve performance, trust may not emerge even though they have benevolence and integrity. Benevolence reflects positive personal attachment to a trustor. Paying attention to the well-beings of trustors and giving personalized care are the examples of benevolent behaviors. Mayer et al. (1995, p.719) define integrity broadly by encompassing issues such as “the consistency of the trustee’s past actions, credible communications about the trustee from other parties, belief that the trustee has a strong sense of justice, and the extent to which the trustee’s actions are congruent with his or her words” (Mayer et al., 1995, p. 719). We use the concept by focusing on honesty and fairness.

The research assumes that managerial trustworthiness is significantly associated with the given outcomes, employee satisfaction and intent to leave, by building trust between managers

and subordinates. While trust decreases social uncertainty, opportunistic behaviors, and transaction costs, it enhances cooperation, teamwork, and goal acceptance within organizations (Dirks and Ferrin, 2001; Kramer, 1999; Williamson, 1993). Thus, although we do not comprehensively test the relationships between trustworthiness, trust, and the outcomes, we expect that managerial trustworthiness will have positive influences on the given outcomes. The link between managerial trustworthiness and trust in managers are demonstrated by many empirical studies (e.g. references; Mayer et al., 1995). Employing Mayer et al.'s (1995) typology, this research first tests whether the three elements constitutes the dimensions of trustworthiness by the higher-order confirmatory factor analysis. Then, it tests how managerial trustworthiness is related with outcome variables.

### **Managerial Trustworthiness and Motivation**

Besides the relationships with the outcome variables, the relationships between managerial trustworthiness and employee motivation is a more critical concern of this research. Adopting the logic of the expectancy theory, this research assumes that managerial trustworthiness strengthens the links between motivation and work attitudes by enhancing employee expectancy. In his expectancy theory, Vroom (1964) explains motivation by three factors, expectancy, instrumentality, and valence of rewards, where expectancy means the probability that employees can achieve good performance. By working with trustworthy supervisors, employees' expectancy for task performance and agency goal achievement will increase (Grant and Sumanth, forthcoming; Vroom, 1964). Having trustworthy supervisors helps employees direct their efforts toward their task performance without worrying about interruptions from supervisors or conflicts with them (Mayer and Gavin, 2005). Thus, one can

reasonably expect that managerial trustworthiness will increase employee motivation. We assume that this logic is applicable to both intrinsic and extrinsic motivations. Employees having intrinsic motivation will be motivated by achieving their tasks and organizational goals, and employees with extrinsic motivation will be motivated by having rewards coming from demonstrating performance.

### **Research Framework**

The research framework for employee satisfaction appears in Figure 1. Both intrinsic and extrinsic motivations are expected to have positive associations with employee satisfaction. Although managerial trustworthiness has direct effects on satisfaction, it also moderates the relationships between motivations and satisfaction. The research assumes that managerial trustworthiness strengthens the ties by increasing employee expectancy. The research includes several control variables that are often considered to explain employee satisfaction. Both individual resources and goal directedness by manager are assumed to have positive correlations with satisfaction. Four demographic variables are included; gender, supervisory status, minority, and plan to retire. The plan to retire variable represents an employee's plans to retire.

[Figure 1 about here]

Figure 2 explains the research framework for intent to leave. The basic structure is the same as the framework in Figure 1; both intrinsic and extrinsic motivations affect employees' intent to leave, and managerial trustworthiness is assumed to interact with the motivations. One distinction is that several additional factors come into play for intent to leave. Satisfaction is controlled in that it is commonly considered as an antecedent of intent to leave. Thus, we test a more stringent model by not considering the influences of motivations and trustworthiness

through employee satisfaction. Age and working years in the current agency are controlled. The older the employees and the longer they work, the less likely they are to leave their organizations.

[Figure 2 about here]

## **Methods**

We now discuss the data used to test our models, measurement of the variables, and analytic methods.

### **Data**

This research uses the 2008 Federal Human Capital Survey (FHCS). Since 2002, the Office of Personnel Management (OPM) has conducted the survey every two years to measure the perceptions of federal employees about various features of federal workforces (Office of Personnel Management, 2009). Survey population is full-time, permanent employees working in agencies listed in the President's Management Council, and they constitute 97 percent of workforces of the executive branch. Stratified random sampling is used, and 212,223 among 417,128 employees completed the self-administered web survey, showing 51 percent response rate (Office of Personnel Management, 2009). All main variables including intrinsic and extrinsic motivation and managerial trustworthiness come from this survey measures.

For organizational level analysis, we use two outcome measures, the Best Places to Work index and the Program Assessment Rating Tool (PART). The former is the index generated by using the FHCS data, and the index uses the same measurements of our employee satisfaction variable. Although the research relies on the same data source, it partly removes the common source bias by aggregating all measures into organizational level. As an initiative by the Office

of Management and Budget (OMB), the Program Assessment Rating Tool (PART) evaluated over 1,000 federal programs since 2002. We match this data with each bureaus and independent agencies included in the 2008 FHCS. Because the survey was implemented in 2008, we only considered program assessed in 2008, the number of which is only 67.

## **Measurements**

Most main independent variables are measured by multiple items. Except trustworthiness, we integrate the multiple measurements into a single indicator by using factor scores. Below are the measurements of intrinsic and extrinsic motivation. Three items measure intrinsic motivation, all of which fairly well reflect the meaningfulness of work to respondents. Extrinsic motivation is measured by four survey items that measures instrumentality of external awards. This characteristic of measurements is one limitation of this research. The items still reflect respondents' perceived instrumentality for external rewards, but they do not directly capture how much respondents are driven by such external rewards. Nevertheless, we use the items in that they still capture some aspects of extrinsic motivation.

### **Intrinsic Motivation**

*My work gives me a feeling of personal accomplishment.*

*I like the kind of work I do.*

*The work I do is important.*

### **Extrinsic Motivation**

*Employees are rewarded for providing high quality products and services to customers.*

*Pay raises depend on how well employees perform their jobs.*

*Awards in my work unit depend on how well employees perform their jobs.*

*In my work unit, differences in performance are recognized in a meaningful way.*

For managerial trustworthiness variable, a latent variable score was calculated. We constructed the variable as a multi-dimensional concept comprised of three elements, ability, benevolence, and integrity. Ability and benevolence are measured by two survey items, and integrity is measured by three questions. Below one can find the measurements for managerial trustworthiness. They have some limitations in that those measures are not originally designed to measure trustworthiness. For example, items of ability are not specific enough and rather ask some general impressions of supervisors. Likewise, benevolence items do not strictly differentiate managers' good intention from their obligations. They may give constructive feedback because they are required to do so. Nevertheless, they still capture some facets of trustworthiness and the best measurements available from the survey. The research will test their appropriateness by the second-order confirmatory factor analysis, which is a strict analytic method to test the validity of measurements.

#### Managerial Trustworthiness

*I have trust and confidence in my supervisor. (Ability)*

*Overall, how good a job do you feel is being done by your immediate supervisor/team leader?*

*(Ability)*

*Supervisors/team leaders in my work unit support employee development. (Benevolence)*

*Supervisors/team leaders provide employees with constructive suggestions to improve their job performance. (Benevolence)*

*My organization's leaders maintain high standards of honesty and integrity. (Integrity)*

*Complaints, disputes or grievances are resolved fairly in my work unit. (Integrity)*

*I can disclose a suspected violation of any law, rule or regulation without fear of reprisal.*

*(Integrity)*

To demonstrate that the three dimensions constitute managerial trustworthiness, the research uses a higher-order confirmatory factor analysis, from which the latent variable score is calculated. However, there is little difference between the factor score and the latent variable score. The correlation between the latent variable score and the factor score for managerial trustworthiness was 0.99. One can find detailed information of measurements in the appendix.

### **Analytic Method**

This research uses several statistical analyses. First, it uses second-order confirmatory factor analysis to calculate the latent variable score for trustworthiness. Because trustworthiness is a multi-dimensional concept comprised of three factors, ability, benevolence, and integrity, we use multiple indicators for each factor and test whether our measurements constitute factors of trustworthiness, which is a higher-order factor. The LISREL 8.80 software tests the model by various goodness-of-fit indices. We then import the latent variable score of trustworthiness to run both the ordinary least squares (OLS) regression for employee satisfaction and the binary logit analysis for intent to leave. Finally, we aggregate the data to the bureau-level and run the OLS regression at the organizational level.

## **Analysis I**

This section reports the results of individual level analysis. First, we explain the higher-order confirmatory factor analysis by LISREL. Following descriptive statistics, the OLS regression for employee satisfaction and the logit analysis for intent to leave are illustrated. For both analyses, interactions between managerial trustworthiness and motivation are discussed.

### **Higher-order Confirmatory Factor Analysis**

Figure 3 shows the confirmatory factor analysis result, which supports the given model. Except the Chi-square test, all main goodness-of-fit indices show very good results. Root Mean Square Error of Approximation (RMSEA) is less than 0.05, which is assumed as a good fit. Comparative fit index (CFI), Normed fit index (NFI), and Goodness of fit index (GFI) are all close to 1.00, acceptable fit of which is over 0.90. Standardized RMR, assumed a good fit if it less than 0.05, is 0.012. The result lets us to retain the given model temporarily.

[Figure 3 about here]

From the relationships between trustworthiness and the three elements, benevolence is most closely related to trustworthiness with 0.95 standardized estimates. Ability has the lowest coefficient as 0.83. This implies that trustworthiness is more than just ability; benevolence and integrity constitute important dimensions of it. However, we cannot be confident yet because of the limitations of our measurements. The analysis should be replicated with measurements more directly tap each concept.

### **Descriptive Statistics**

Table 1 and Table 2 explain descriptive statistics of variables. Variables with multiple measurements except trustworthiness are all standardized by using factor score; satisfaction, intrinsic motivation, extrinsic motivation, individual resources, and goal directedness have a mean of zero. Managerial trustworthiness is an imported latent variable score, having a mean of zero and ranging from -2.4 to 1.3. In the given sample, 46 percent respondents are female, 34 percent have supervisory status, and 30 percent people are minorities. 4 percent of respondents plan to retire within a year. Age and working years are measured by five and six categories each.

[Table 1 here]

From the zero order correlation, both types of motivation and managerial trustworthiness are positively correlated with satisfaction, and they have negative correlations with intent to leave. Correlations between demographic variables and the outcome variables are not large. Supervisory status has the largest correlations among all; it is positively correlated with satisfaction, and negatively correlated with intent to leave. Females, minorities, people who plan to retire within a year have negative correlation with satisfaction, but the strength is quite weak.

[Table 2 here]

### **OLS Regression for Employee Satisfaction**

Table 3 illustrates the OLS regression result for employee satisfaction. The R-square value, 0.71, shows that the model explains employee satisfaction fairly well. From the VIF test, the variable having the highest VIF value is trustworthiness, but the VIF value was 3.72. Thus, multicollinearity may not be a serious problem of this regression analysis.

[Table 3 here]

First, both intrinsic and extrinsic motivations are positively associated with employee satisfaction. The beta coefficient reveals that the leverage of intrinsic motivation is roughly three times as large as one of extrinsic motivation. The direct influence of managerial trustworthiness is also substantial in that its beta coefficient is the second largest following intrinsic motivation.

From the coefficients of interaction terms between motivation and trustworthiness, we see some interesting findings. Interaction between intrinsic motivation and trustworthiness is positive, which confirms our expectation; under high trustworthy managers, the link between the intrinsic motivation and satisfaction becomes stronger. The figure 4 explains the relationship.

[Figure 4 here]

On the other hand, the coefficient of interaction term between extrinsic motivation and trustworthiness is negative and significant. Unexpectedly, the link between extrinsic motivation and satisfaction become much weaker under high level of managerial trustworthiness. Figure 5 illustrates the relationship. In other words, managerial trustworthiness works more as a replacement of extrinsic motivation rather than a facilitator of it. If agencies experience deficiency of resources and cannot provide enough rewards to their members, managerial trustworthiness can supplement the deficiencies and maintain employee satisfaction.

[Figure 5 here]

Most control variables show the expected directions; both individual resources and goal directedness are positively associated with employee satisfaction. Minorities and employee who plan to retire are negatively related to satisfaction, but their leverages are small. The result implies that intrinsic motivation and trustworthiness are two main drivers of employee satisfaction.

## Binary Logit Analysis for Intent to Leave

Intent to leave is measured as a binary variable, which requires using the binary logic regression analysis. As expected, employee satisfaction has the largest leverage on intent to leave. A standard deviation increase of employee satisfaction decreases the odds of leaving by 61 percent, holding all other variables constant. Even after controlling satisfaction, although their leverages are decreased, both intrinsic and extrinsic motivations are significantly associated with intent to leave. Holding all other variables constant, one standard deviation increase of intrinsic and extrinsic motivation decreases the odds of leaving by 9 and 7 percent each. Managerial trustworthiness shows a larger leverage than motivations; one standard deviation increase lowers the odds by 12 percent when holding all other variables constant.

[Table 4 here]

Both interaction terms of motivation and trustworthiness are statistically significant and show the same direction: they decrease the probability to leave. Figure 6 explains how predicted probability of intent to leave is changed by the level of trustworthiness and intrinsic motivation. One can confirm that the probability decreases as the level of intrinsic motivation increases. The probability is lower under the high level of managerial trustworthiness.

[Figure 6 here]

Figure 7 presents the interaction effect of extrinsic motivation and managerial trustworthiness. The pattern is similar to one of intrinsic motivation and trustworthiness; under higher level of managerial trustworthiness, the leverage of extrinsic motivation depressing intent to leave increases. The predicted probability of leaving decreases as the level of extrinsic motivation increases. Finally, managerial trustworthiness strengthens the suppressing influence of intrinsic and extrinsic motivations on intent to leave.

[Figure 7 here]

From the individual analysis, the research confirms that intrinsic and extrinsic motivations matter for both employee satisfaction and intent to leave. Managerial trustworthiness is also demonstrated as a useful resource managing employee motivation and suppressing intent to leave. Moreover, managerial trustworthiness enhances the link of motivations and the given outcome variables. Under the high level of trustworthiness, leverage of motivation for the outcome variables became stronger. One exception is the interaction of trustworthiness and extrinsic motivation for employee satisfaction, where trustworthiness works more as a replacement of extrinsic rewards rather than facilitator. This is not necessarily a bad sign because trustworthy managers can supplement the deficiency of extra rewards in maintaining employee satisfaction.

## **Analysis II**

In spite of these supporting results, we cannot guarantee that our analysis purely shows the functional relationships among the variables because of the common source bias. Because both our independent and dependent variables are measured by respondents' perception, it is difficult to discern the functional relationships from respondents' overall attitudes. To address this bias, we run the regression model at the organizational level.

As discussed, two outcome measures are considered for the organizational level analysis. One is the Best Places to Work index, which is developed by using the FHCS. The measurements of the index are the same with the employee satisfaction measurements of this research. Although the dependent variable still comes from the same data source, the common source bias is partly removed by aggregating the data into bureau/independent agency level. The

other measure is the PART score. We matched the PART score evaluated in 2008 with the bureaus. After the first matching, the number of observation decreased into 54. Because there are some agencies having multiple programs evaluated, 38 cases were finally retained. When integrating the multiple program scores, we give weights to each score by their program budget.

### **Descriptive Statistics**

The organizational level analysis considers a small number of variables because of the small number of observation. All demographic variables are removed, and interaction variables are removed because the interaction is plausible only at the individual level. Table 5 and 6 explain the descriptive statistics of variables included in the organizational level analyses. By the aggregation into the organizational level, standard deviations are much larger than those of individual level analysis. Theoretically, the PART score ranges from zero to one. The higher the score, the higher the performance is. In the given sample, the score ranges from 0.31 to 0.93.

[Table 5 here]

From the zero-order correlations, we can observe significant correlations among the variables from the FHCS data. However, there is no significant relationship between survey measures and the PART score. From the high correlations between satisfaction (the Best Places to Work index) and other independent variables, multicollinearity might be an issue of the regression analysis.

[Table 6 here]

### **OLS regression for Satisfaction (Best Places to Work index)**

OLS regression for satisfaction demonstrates the positive relationship between intrinsic motivation and employee satisfaction even at the organizational level. The average level of intrinsic motivation has positive correlation with the average level of employee satisfaction. Interestingly, managerial trustworthiness has a larger leverage than intrinsic motivation. The beta coefficient is about 72 percent larger than one of intrinsic motivation.

[Table 7 here]

Extrinsic motivation and other control variables are not statistically significant. However, this might be because of multicollinearity. From the VIF test, the VIF value of trustworthiness was 7.92. Although the value is not very high, our small sample size makes the analysis more susceptible to multicollinearity. When we remove trustworthiness from the model, both extrinsic motivation and goal directedness have positive and significant coefficients.

### **OLS Regression for PART score**

As expected from the zero-order correlations, table 8 shows no significant relationship between the considered variables and the PART score. The small number of sample might be one reason, but the average level of motivation and the average level of managerial trustworthiness of agencies are not associated with the organizational performance measured by the PART.

[Table 8 here]

One reason might be that the PART score does not capture the whole dimension of organizational effectiveness. It is originally designed to evaluate “program” performance, and the score is heavily driven by the program results, which constitutes 50 percent of the final PART score. Thus, the PART score does not capture other dimensions of effectiveness such as higher level of commitment and loyalty, or effective internal management.

## Conclusions

This research provides additional empirical evidence for the importance of a highly motivated workforce. Both intrinsic and extrinsic motivations are positively associated with employee satisfaction, while they are negatively related to intent to leave. Managerial trustworthiness also shows strong associations with the given outcomes. More importantly, the research demonstrates the interactions between managerial trustworthiness and two kinds of motivation. For intrinsic motivation, trustworthy managers strengthen its associations with the given outcomes: under high levels of trustworthiness, the influence of intrinsic motivation increases for satisfaction and intent to leave. Trustworthiness and extrinsic motivation interact differently. While trustworthiness strengthens the link between extrinsic motivation and turnover intention, it weakens the tie between extrinsic motivation and employee satisfaction. That is, under high levels of trustworthiness, the association between extrinsic motivation and satisfaction decreases. The role of managerial trustworthiness seems to be a complement of extrinsic motivation. This role may be useful for public organizations that commonly suffer from insufficient resources. Even though organizations cannot provide enough external rewards, the deficiency can be supplemented by trustworthy managers.

This research is not without limitations. As mentioned earlier, using secondary data prevents us from using the most accurate measurements. Replicating the research using better measurements is required. The failure to confirm the effects of motivation at the organizational level is another limitation. Although we demonstrate the positive correlations of the average level of intrinsic motivation and managerial trustworthiness with the Best Place to Work index, the associations with the PART score were not statistically significant. Future research using

another external measure of effectiveness is required to overcome the common source bias.

There are more areas requiring future research. This research did not consider organizational characteristics affecting intrinsic and extrinsic motivations. By different environments and task characteristic, leverage of each motivation can be varied. Exploring such contingencies will provide guidelines to public managers for how they use the limited resources; what kind of motivations they want to focus under what conditions.

In spite of the limitations, this research provides several practical implications.

Cultivating motivation is an enduring factor making workers more productive and maintaining high retention rates. Both federal and state workforces are experiencing the retirement tsunami, and retaining a competent workforce is a critical challenge in upcoming decades (Lewis and Cho, 2009). Providing both meaningful and challenging work and appropriate external rewards will be beneficial to retain employees. As major government consulting works such as the Volcker and the Winter Commissions indicated, delegating more authorities may need to be accompanied (National Commission on the Public Service, 1989; National Commission on the State and local Public Service, 1993). Developing managerial trustworthiness will be another venue to increase satisfaction while decreasing intent to leave. The second order confirmatory factor analysis demonstrates the three elements of trustworthiness, ability, benevolence, and integrity. Other than pursuing competencies in their tasks, public managers must be attentive to well-beings of their subordinate and establishing fair and consistent practices in workplace. Government may help such efforts by designing more training programs focusing on these elements.

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Figure 1. Employee Satisfaction Model

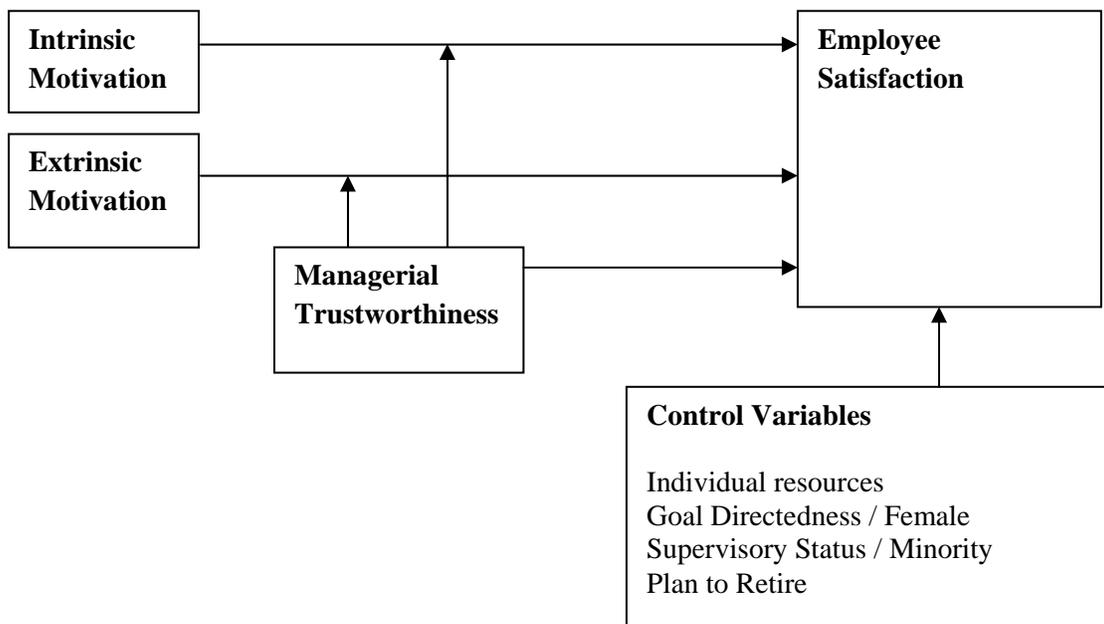


Figure 2. Intent to Leave Model

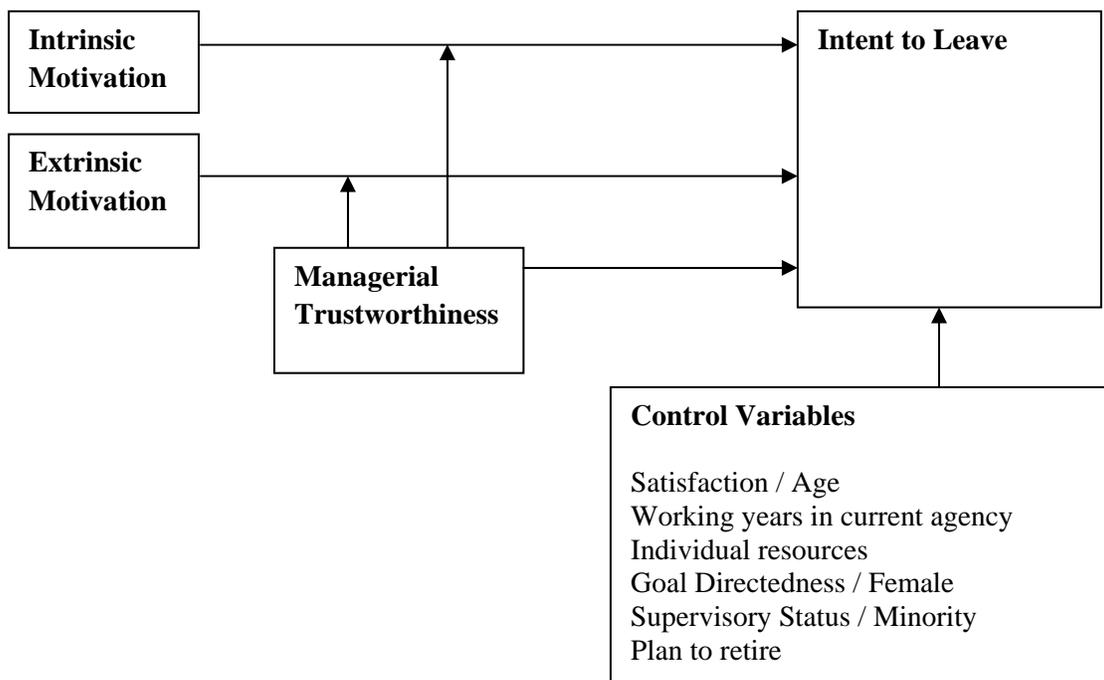
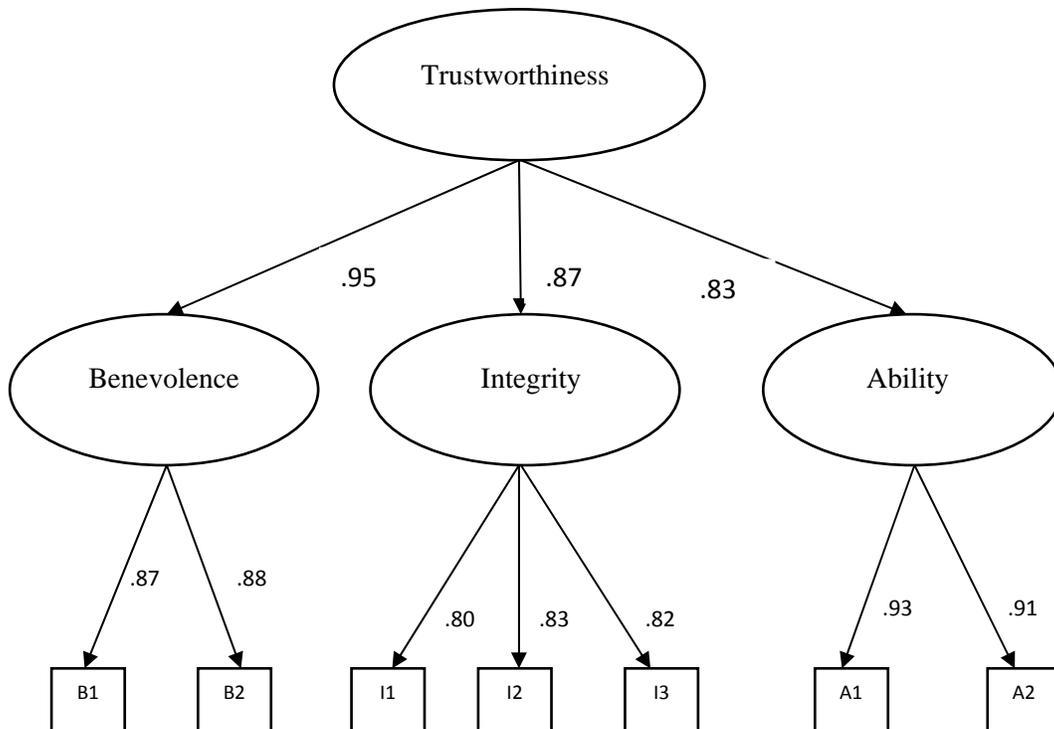


Figure 3 Higher-Order Confirmatory Factor Analysis (Standardized Estimates)



Comparative Fit Index (CFI) = 1.00

Normed Fit Index = 1.00 Parsimony Normed Fit Index (PNFI) = 0.52

Root Mean Square Error of Approximation (RMSEA) = 0.043

Standardized RMR = 0.012 Goodness of Fit Index (GFI) = 0.99

Figure 4 Interaction of Intrinsic Motivation and Trustworthiness for Satisfaction

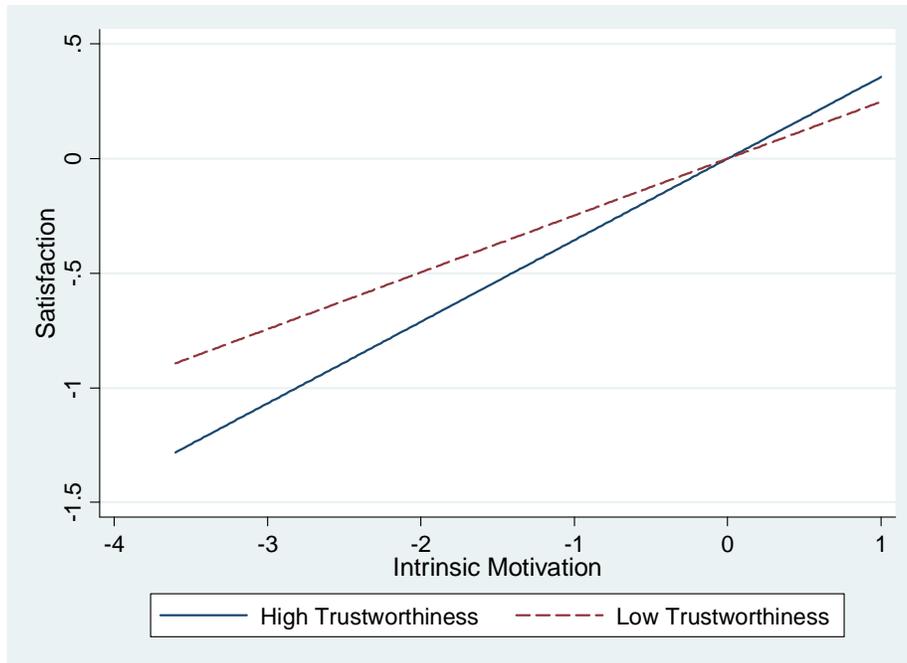


Figure 4 Interaction of Extrinsic Motivation and Trustworthiness for Satisfaction

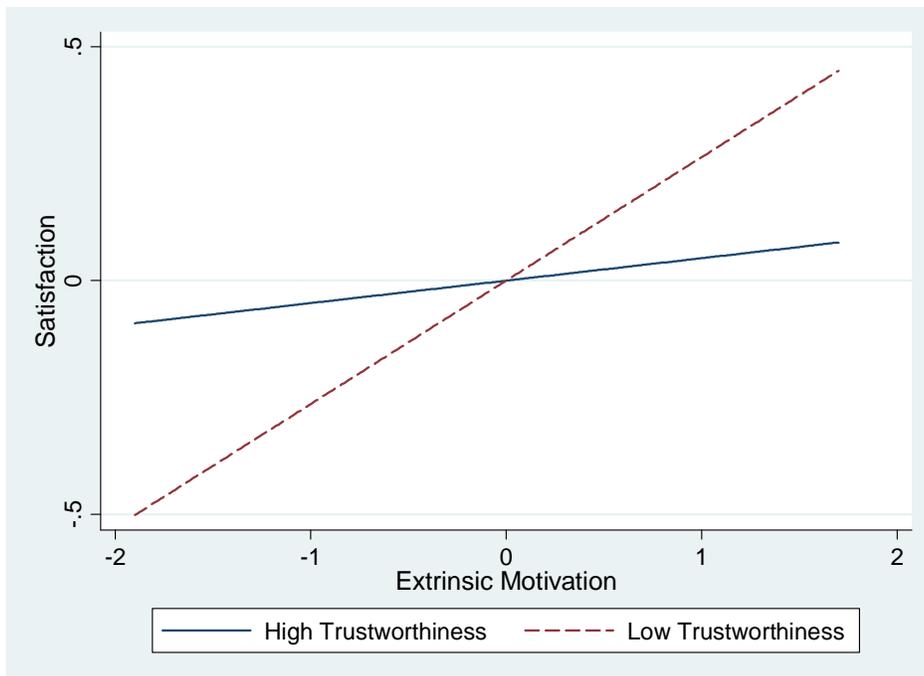


Figure 6 Interaction of Intrinsic Motivation and Trustworthiness for Intent to Leave

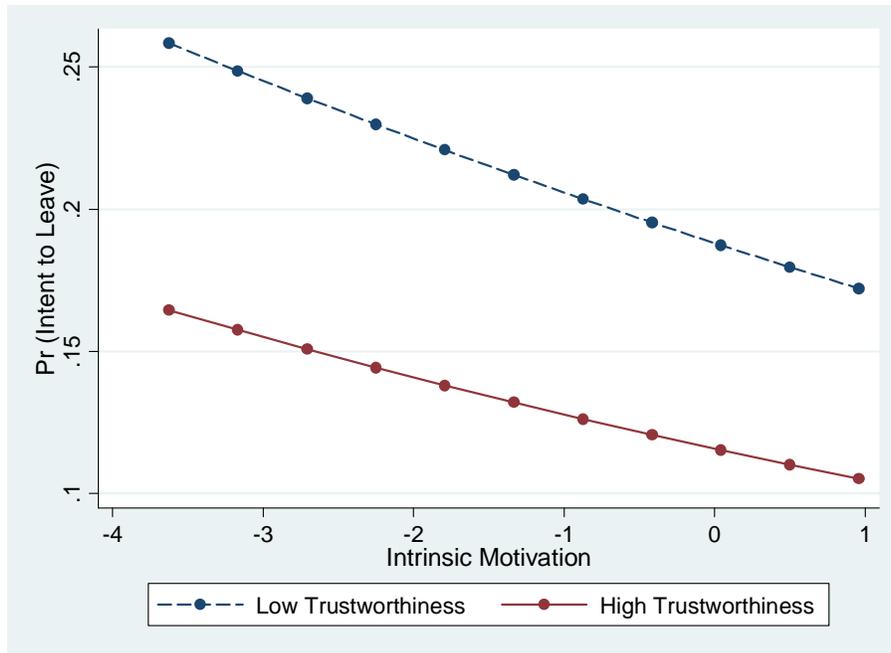


Figure 7 Interaction of Extrinsic Motivation and Trustworthiness for Intent to Leave

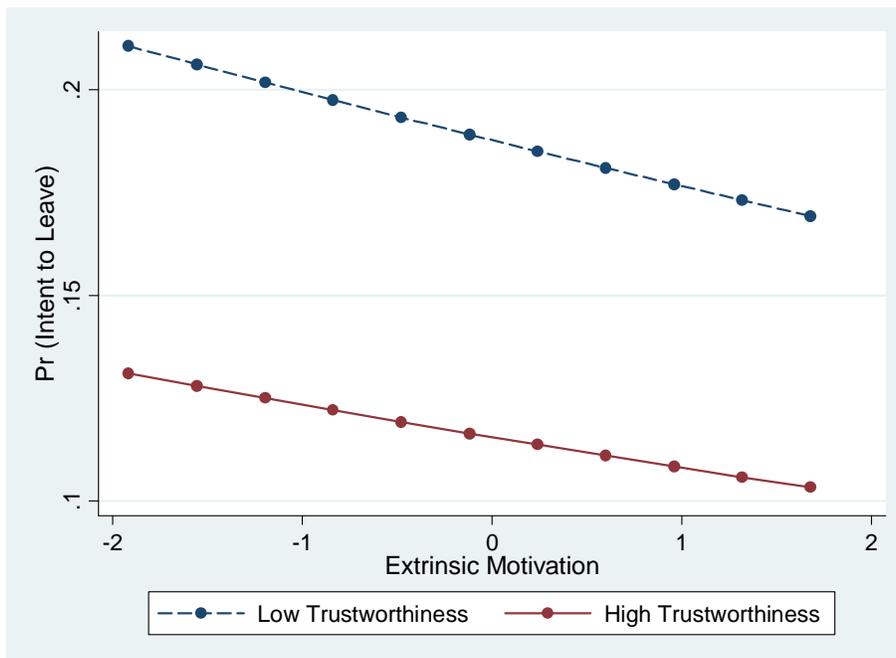


Table 1 Summary Statistics of Variables

Variable	Mean	Standard Dev.	Min	Max
Satisfaction	-4.42e-09	0.93	-2.47	1.24
Intent to Leave	0.26	0.44	0	1
Intrinsic Motivation	8.31e-09	0.87	-3.63	0.96
Extrinsic Motivation	4.61e-09	0.94	-1.92	1.68
Trustworthiness	2.88e-08	0.83	-2.35	1.27
Intrinsic*Trustworthiness	0.37	0.92	-4.60	8.52
Extrinsic*Trustworthiness	0.59	0.96	-3.94	4.50
Individual Resources	7.57e-09	0.82	-2.17	1.41
Goal Directedness	-1.05e-08	0.91	-2.35	1.30
Female	0.46	0.50	0	1
Supervisor	0.34	0.47	0	1
Minority	0.30	0.46	0	1
Plan to Retire	0.04	0.20	0	1
Age	3.43	0.99	1	5
Working Years	5.03	1.23	1	6

Table 2 Zero-order Correlations

Variables	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1. Satisfaction														
2. Intent to Leave	-0.45*													
3. Intrinsic Motivation	0.65*	-0.31*												
4. Extrinsic Motivation	0.67*	-0.30*	0.44*											
5. Trustworthiness	0.77*	-0.35*	0.52*	0.76*										
6. Intrinsic*Trustworthiness	-0.24*	0.14*	-0.39*	-0.14*	-0.22*									
7. Extrinsic*Trustworthiness	-0.31*	0.16*	-0.14*	-0.27*	-0.42*	0.51*								
8. Individual Resources	0.58*	-0.27*	0.41*	0.48*	0.53*	-0.12*	-0.15*							
9. Goal Directedness	0.66*	-0.28*	0.44*	0.62*	0.71*	-0.15*	-0.25*	0.47*						
10. Female	-0.02*	0.01*	0.00	-0.06*	-0.08*	-0.01	0.05*	0.04*	-0.00					
11. Supervisory Status	0.14*	-0.06*	0.14*	0.22*	0.20*	-0.04*	-0.08*	-0.07*	0.13*	-0.23*				
12. Minority	-0.02*	0.06*	0.01*	-0.02*	-0.07*	0.00	0.04*	0.07*	-0.01*	0.29*	-0.10*			
13. Retire	-0.03*	0.10*	-0.02*	-0.00	0.01*	0.01*	0.01*	-0.01	-0.01*	-0.05*	0.05*	-0.04*		
14. Age	0.01*	-0.13*	0.07*	0.03*	-0.00	-0.00	0.01*	-0.01*	0.00	-0.08*	0.14*	-0.08*	0.20*	
15. Working Years	-0.00	-0.16*	0.04*	0.05*	0.01*	-0.01	-0.01	-0.06*	0.00	-0.05*	0.29*	-0.06*	0.15*	0.60*

N =; + p&lt;.05; \* p&lt;.01

Table 3 OLS Regression of Employee Satisfaction

	Coefficient	Standard Error	Beta
Intrinsic Motivation	0.343***	0.003	0.324
Extrinsic Motivation	0.113***	0.004	0.116
Trustworthiness	0.348***	0.005	0.313
Intrinsic*Trustworthiness	0.033***	0.003	0.033
Extrinsic*Trustworthiness	-0.053***	0.003	-0.055
Individual Resources	0.187***	0.003	0.168
Goal Directedness	0.133***	0.003	0.132
Female	0.014***	0.004	0.008
Supervisory Status	-0.001	0.005	-0.001
Minority	-0.012*	0.006	-0.005
Retire	-0.098***	0.009	-0.024
Constant	0.046***	0.004	
N		53690	
F-value		12117.64	
R <sup>2</sup>		0.7129	

\* p < .05; \*\* p < .01; \*\*\* p < .001

Table 4 Logit Regression of Intent to Leave

	Coefficient	Robust Std. Err.	% Change in Odds by one std. dev.
Employee Satisfaction	-1.055***	0.037	-61.0
Intrinsic Motivation	-0.113***	0.023	-9.1
Extrinsic Motivation	-0.075**	0.025	-6.7
Trustworthiness	-0.158***	0.032	-12.0
Intrinsic*Trustworthiness	-0.060***	0.018	-5.2
Extrinsic*Trustworthiness	-0.065**	0.021	-5.9
Individual Resources	-0.112***	0.024	-8.6
Goal Directedness	0.063*	0.029	5.9
Female	-0.037	0.061	-1.9
Supervisory Status	0.255***	0.049	12.7
Minority	0.288***	0.055	11.3
Retire	4.446***	0.269	36.7
Age	-0.233***	0.030	-19.1
Working Years	-0.308***	0.023	-31.7
Constant	0.429***	0.127	
N		48834	
Wald Chi-square		5493.98	
Pseudo R <sup>2</sup>		0.2147	

\* p < .05; \*\* p < .01; \*\*\* p < .001

Table 5 Summary Statistics of Variables for Organizational-level Analysis

Variable	Mean	Standard Dev.	Min	Max
Employee Satisfaction	-0.10	0.20	-0.54	0.34
PART Score	0.70	0.15	0.31	0.93
Intrinsic Motivation	-0.06	0.12	-0.39	0.16
Extrinsic Motivation	-0.05	0.20	-0.53	0.37
Trustworthiness	-0.06	0.16	-0.49	0.22
Individual Resources	-0.06	0.14	-0.32	0.22
Goal Directedness	-0.07	0.22	-0.68	0.34

Table 6 Zero-order Correlations for Organizational-level Analysis

Variables	1	2	3	4	5	6
1. Satisfaction						
2. PART Score	0.03					
3. Intrinsic Motivation	0.70**	0.16				
4. Extrinsic Motivation	0.76**	0.13	0.42**			
5. Trustworthiness	0.88**	0.08	0.47**	0.88**		
6. Individual Resources	0.51**	-0.03	0.19	0.46**	0.58**	
7. Goal Directedness	0.82**	-0.03	0.49**	0.77**	0.86**	0.51**

\*  $p < .05$ ; \*\*  $p < .01$

Table 7 OLS Regression of Satisfaction

	Coefficient	Standard Error	Beta
Intrinsic Motivation	0.610***	0.114	0.361
Extrinsic Motivation	-0.047	0.122	-0.048
Trustworthiness	0.767***	0.202	0.622
Individual Resources	0.064	0.107	0.124
Goal Directedness	0.114	0.108	0.043
Constant	0.004	0.014	
N		38	
F-value		52.61	
R <sup>2</sup>		0.8915	

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

Table 8 OLS Regression of PART

	Coefficient	Standard Error	Beta
Intrinsic Motivation	0.237	0.247	0.188
Extrinsic Motivation	0.190	0.263	0.259
Trustworthiness	0.160	0.437	0.174
Individual Resources	-0.299	0.232	-0.438
Goal Directedness	-0.064	0.233	-0.058
Constant	0.704	0.030	
N		38	
F-value		0.62	
R <sup>2</sup>		0.0885	

\* p < .05; \*\* p < .01; \*\*\* p < .001

## Appendix: Measurements of Variables

### Intrinsic Motivation

*My work gives me a feeling of personal accomplishment.*

*I like the kind of work I do.*

*The work I do is important.*

### Extrinsic Motivation

*Employee are rewarded for providing high quality products and services to customers.*

*Pay raises depend on how well employees perform their jobs.*

*Awards in my work unit depend on how well employees perform their jobs.*

*In my work unit, differences in performance are recognized in a meaningful way.*

### Managerial Trustworthiness

*I have trust and confidence in my supervisor. (Ability)*

*Overall, how good a job do you feel is being done by your immediate supervisor/team leader?  
(Ability)*

*Supervisors/team leaders in my work unit support employee development. (Benevolence)*

*Supervisors/team leaders provide employees with constructive suggestions to improve their job performance. (Benevolence)*

*My organization's leaders maintain high standards of honesty and integrity. (Integrity)*

*Complaints, disputes or grievances are resolved fairly in my work unit. (Integrity)*

*I can disclose a suspected violation of any law, rule or regulation without fear of reprisal.  
(Integrity)*

### Satisfaction

*Considering everything, how satisfied are you with your job?*

*Considering everything, how satisfied are you with your organization?*

*I recommend my organization as a good place to work.*

### Intent to leave

*Are you considering leaving your organization within the next year, and if so, why?*

*[A] No / [B] Yes, to retire / [C] Yes, to take another job within the Federal Government*

*[D] Yes, to take another job outside the Federal Government / [E] Yes, other*

*Note: The variable is coded as a binary variable; A is coded into 0, and C, D, and E are coded into 1. B is coded as missing. We control people who will retire within an year by another variable, retire. By this coding, we lose roughly 4,600 cases (53,442-48,837= 4,605).*

### Individual Resources

*I have enough information to do my job well.*

*I have sufficient resources (for example, people, materials, budget) to get my job done.*

*My workload is reasonable.*

### Goal Directedness

*Managers communicate the goals and priorities of the organization.*

*Managers review and evaluate the organization's progress toward meeting its goals and objectives.*

Female

*Are you: Male / Female.*

*Note: Female is coded as 1.*

Race

*Are you Hispanic or Latino?*

*[A] Yes / [B] No*

*Are you:*

*[A] American Indian or Alaska Native / [B] Asian / [C] Black or African American*

*[D] Native Hawaiian or Other Pacific Islander / [E] White / [F] Two or more races*

*Note: Two questions are integrated and all minorities other than Whites are coded as 1.*

Retire

*I am planning to retire:*

*[A] Within one year / [B] Between one and three years / [C] Between three and five years*

*[D] Five or more years*

*Note: A is coded as one and others are coded into zero. Thus, "retire" variable means respondents who will retire within one year.*

Age

*What is your age group?*

*1) 29 and under; 2) 30-39; 3) 40-49; 4) 50-59; 5) 60 or older*

Work year

*How long have you been with your current agency?*

*1) Less than 1 year; 2) 1 to 3 years; 3) 4 to 5 years; 4) 6 to 10 years; 5) 11 to 20 years; 6) More than 20 years*