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What is This?
Intrinsic Motivation and Employee Attitudes: Role of Managerial Trustworthiness, Goal Directedness, and Extrinsic Reward Expectancy

Yoon Jik Cho1 and James L. Perry1,2

Abstract
Motivation scholars have argued that intrinsic motivation is an important driver of employee attitudes. This research tests the influence of intrinsic motivation on employee attitudes and explores three factors conditioning the effects of intrinsic motivation: managerial trustworthiness, goal directedness, and extrinsic reward expectancy. The analysis demonstrates that intrinsic motivation is substantively associated with both employee satisfaction and turnover intention. It also reveals that the three conditional factors interact with intrinsic motivation. Managerial trustworthiness and goal directedness increase the leverage of intrinsic motivation on employee satisfaction, whereas extrinsic rewards expectancy decreases the leverage. With respect to turnover intention, the factors directly influence it rather than affect it indirectly through intrinsic motivation. The implications of the results for theory and managerial strategies for employee motivation are discussed.

Keywords
employee attitudes, behavior, and motivation, organizational behavior/development, federal government HRM, turnover/organizational mobility, human capital

The federal government is expecting a massive retirement of baby boomers during the next decade. The size of the retirement “tsunami” and the federal government’s ability...
to weather it and replenish human capital is vitally linked to fundamental employee attitudes, such as employee job satisfaction and willingness to stay. In managing employee attitudes, scholars and practitioners have emphasized the importance of motivation. Although scholars have studied extensively the causes and consequences of motivation, questions associated with this phenomenon remain unanswered. One question germane to the state of employee attitudes in government organizations involves conditions under which the effect of employee motivation is elevated or depressed. Recent research has begun to pay attention to the issue. Using the construct of person–job fit, Steijn (2008) found that workers with a public service motivation (PSM) fit are more satisfied and less likely to leave. In other words, the effect of PSM is enhanced when workers believe that their job is useful for society. Other scholars have explored conditions enhancing the influence of prosocial motivation. Grant (2008) showed that the effect of prosocial motivation is strengthened when accompanied with intrinsic motivation. Grant and Sumanth (2009) demonstrated that the leverage of prosocial motivation also increases when managerial trustworthiness is high. Among various types of motivation, intrinsic motivation has been noted as having a large effect on employee attitudes and performance (Deci & Ryan, 2004).

Focusing on intrinsic motivation, the present study tests the associations between intrinsic motivation and employee attitudes measured by employee satisfaction and turnover intention. More importantly, it explores several factors conditioning the effect of intrinsic motivation. Based on the previous research and theory, we consider managerial trustworthiness, goal directedness, and extrinsic reward expectancy. The former two factors are expected to strengthen the links between intrinsic motivation and employee attitudes by fulfilling employee psychological needs and expectancy for goal achievement. On the other hand, extrinsic reward expectancy is assumed to crowd out intrinsic motivation.

Using the 2008 Federal Human Capital Survey (FHCS), we test the association between intrinsic motivation and two employee attitudes, satisfaction and intent to leave, by employing ordinary least squares (OLS) regression and binary logit regression. In the next section, we introduce the research framework by discussing theoretical and empirical links among intrinsic motivation and three conditional factors, managerial trustworthiness, goal directedness, and extrinsic reward expectancy. Following an explanation of data, measurements, and method, we report the results of empirical analysis. We conclude with a discussion of the theoretical and practical implications, study limitations, and a future research agenda.

**Theoretical Framework**

We present the theory underlying our hypotheses in three steps. First, we review the basic tenets of self-determination theory, which explains the role of intrinsic motivation. Next, we discuss three factors conditioning the leverage of intrinsic motivation, including managerial trustworthiness, goal directedness, and extrinsic reward expectancy.
The presentation of the theory concludes with discussion of how intrinsic motivation and the three factors are expected to interact. Following presentation of the theoretical framework, we explicate the research hypotheses.

**Intrinsic Motivation**

Motivation is a multidimensional construct. 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) offers a formal definition:

> 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. (p. 186)

Research suggests that intrinsic motivation may be more effective than extrinsic motivation. Deci and Ryan’s (2004) self-determination theory, for instance, envisions a continuum of motivations, ranging from controlled to autonomous motivation. They contend that internalization of values into an identity, which is itself a source of motivation, is based on 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 (Deci & Ryan, 2004). 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. Although these types of extrinsic motivation permit relatively high motivation, they fall short of motivation levels attained from intrinsic motivation. Intrinsic motivation is distinctive in that employees are motivated without external rewards or recognition, and it works as the most powerful driver of employee attitudes and performance.

**Conditions Influencing the Effects of Intrinsic Motivation**

Research on the effects of intrinsic motivation has considered moderating and mediating influences, but much of this research has focused on the attributes of individuals in light of the attention given to them in Hackman and Oldham’s (1976) job characteristics model. The present study considers the influence of two situational variables, managerial trustworthiness and goal directedness, and an individual attribute, extrinsic reward expectancy. The first two factors have demonstrable relevance to public sector organizations. Public management scholars have recently emphasized the importance of middle managers in their roles of managing values and administrative reforms.
(Paarlberg & Perry, 2007; Ridder, Bruns, & Spier, 2006; Van Wart, 2003) and their trustworthiness makes a difference in workplace. Besides serving as an antecedent of trust, trustworthiness enhances job performance (Dirks & Skarlicki, 2009). Cho and Ringquist (2011) recently demonstrated that managerial trustworthiness is substantially related to cooperation and work quality in federal agencies. Goal ambiguity is considered one of the distinctive characteristics of public organizations (Chun & Rainey, 2005), which may differentiate the effect of intrinsic motivation. The third factor, extrinsic reward expectancy, has its meaning in that we test whether there is a crowding out in the public sector organizations. The current research explores the direct associations of the three factors with employee attitudes and how they moderate the effect of intrinsic motivation.

**Managerial Trustworthiness**

Managerial trustworthiness works as an antecedent of trust. As scholars have come to understand trust as a managerial resource, they have identified the elements of trustworthiness, including competence, consistency, fairness, integrity, loyalty, openness, receptivity, benevolence, and value congruence (Butler, 1991; Larzelere & Huston, 1980; Sitkin & Roth, 1993). Mayer, Davis, and Schoorman (1995) synthesized these elements into three, ability, benevolence, and integrity, which they called factors of perceived trustworthiness.

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 an expectancy perspective, if supervisors do not have the competence to perform, trust may not emerge even though they have benevolence and integrity. Benevolence reflects positive personal attachment to a trustor (Mayer et al., 1995). Paying attention to the well-beings of trustors and giving personalized care are examples of benevolent behaviors. Mayer et al. (1995) define integrity as a broad concept including consistency between words and actions, fair treatment of people, and transparency in communication. We associate integrity with honesty and fairness.

Managerial trustworthiness is positively associated with employee attitudes, including employee satisfaction and intent to leave, by facilitating trust building between managers and subordinates (Dirks & Ferrin, 2001; Kramer, 1999; Mayer et al., 1995). However, the effects of trustworthiness are not confined to its role as an antecedent of trust because it also directly leads to positive outcomes within organizations. Managerial trustworthiness increases affective commitment, risk-taking behaviors, organizational citizenship behaviors, and task performance (Colquitt, Scott, & LePine, 2007). Dirks and Skarlicki (2009) demonstrate that trustworthy employees perform better than others because trustworthy employees receive more benefits and resources from coworkers. Besides a direct effect, managerial trustworthiness might produce a moderating effect because it nurtures an environment where employees direct their energy toward goal achievement (Dirks, 1999). Recent studies lead us to examine the moderating role
of trustworthiness in federal agencies. Grant and Sumanth (2009) confirmed that, by working with trustworthy managers, the effect of prosocial motivation on job performance is magnified. Investigating federal agencies, Yang and Kassekert (2010) found that the tie between management reforms and job satisfaction is enhanced under a high level of trust in leadership.

**Goal Directedness**

Goal directedness is a critical role of leaders. Goal setting theory posits that having clear and challenging goals increase motivation (Locke & Latham, 1990). Methods to define and provide clear goals are found in many major management initiatives. The Government Performance and Results Act (GPRA) of 1993, for example, requires every federal agency to set goals and performance targets. Employing the idea of strategic planning, the Act emphasizes the importance of clarifying mission and objectives. Consistent with goal setting theory, Chun and Rainey (2005) demonstrated that federal agencies having ambiguous goals suffer from low performance. To effectively manage this characteristic of government organizations, we need to understand how goal ambiguity affects diverse managerial practices and employee motivation and how to mitigate its possible negative influences.

Leader behaviors can help to mitigate goal ambiguity. Their efforts to communicate a mission can clarify goals. Scholars of transformational leadership indicate that communicating a vision is a crucial attribute of effective leaders (Baum, Locke, & Kirkpatrick, 1998). For example, Kouzes and Posner (1987) argue that the vision should be communicated through both a written statement and personal communication, and communication by managers can inspire employees (Westly & Mintzberg, 1989). Baum et al. (1998) showed that communicating a vision leads to better organizational performance.

**Extrinsic Reward Expectancy**

Performance-based incentives for public employees have been emphasized since the Civil Service Reform Act of 1978. Those incentives are extrinsic in that they accrue to employees from something apart from the work itself. Although the effect might be less than intrinsic motivation (Deci & Ryan, 2004), the expectancy for those extrinsic rewards can positively influence employee attitudes.

Besides its direct effect, extrinsic reward expectancy may interact with intrinsic motivation. A long-standing controversy in the motivational literature is whether extrinsic motivations encroach on intrinsic motivations (Calder & 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 & Jegen, 2001) supports the view that extrinsic rewards can “crowd out” intrinsic motivation.

Public service motivation (Perry, Hondeghem, & Wise, 2010; Perry & Wise, 1990; Wright, 2007) research also suggests tradeoffs between extrinsic rewards and public service motivation. Perry and Wise (1990) predicted that organizations that attracted employees with high levels of public service motivation would be less dependent on utilitarian (i.e., extrinsic) incentives to manage employee performance, but follow-on research has been limited (Perry et al., 2010). Based on a study of 807 New York State employees, Wright (2007) concluded, “... intrinsic rewards provided by the nature or function of the organization may be more important to public sector employees than—or compensate for the limited availability of—performance-related extrinsic rewards” (p. 60).

If a crowding-out effect exists, then it has an implication for what kinds of incentives should play a major role in motivating public employees. However, one finds little research directly exploring the issue in the public management field (See Bertelli, 2006, for exception). The current research seeks to fill the gap by examining how extrinsic reward expectancy moderates the effect of intrinsic motivation.

**Interactions Between Intrinsic Motivation and Conditional Factors**

In addition to the direct influence of intrinsic motivation on employee attitudes, the moderating relationships between intrinsic motivation and the three conditional factors are another central concern of this research. Adopting the logic from self-determination theory, this research posits that managerial trustworthiness and goal directedness strengthen the links between intrinsic motivation and work attitudes. Self-determination theory argues that meeting three psychological needs, autonomy, relatedness, and competence, determines the level of motivation (Ryan & Deci, 2004). Conditions supporting fulfillment of the psychological needs will enhance intrinsic motivation by facilitating feelings of competence (Ryan & Deci, 2000).

Managerial trustworthiness can reinforce the condition. For example, benevolence satisfies the relatedness need among the three psychological needs; when employees receive personalized care and respect from their managers, they are willing to accept the management system of the organization (Blau, 1964; Whitener, Brodt, Korsgaard, & Werner, 1998). In a broad sense, working with leaders who are competent in their roles and who establish fair practices in workplaces will enhance employees’ feeling of autonomy and competence by buffering employees from unfavorable external influences. Recent research by Grant and Sumanth (2009) gives us further confidence about the relationship. Their research reveals that the tie between prosocial motivation and job performance is strengthened under trustworthy managers. One can expect a similar effect, the increased feeling of competence, when leaders clarify goals and set priorities. Ambiguous goals lead to role ambiguity of public managers (Pandey &
Wright, 2006), which may decrease their motivation and performance (Locke & Latham, 1990). In contrast, goal directedness by leaders nurtures working conditions where employees can achieve their potential in accomplishing tasks by increasing employees’ belief in the impact of their work (Piccolo & Colquitt, 2006). This enhanced feeling of competence will lead to increased influence of intrinsic motivation.

In contrast to the influences of managerial trustworthiness and goal directedness, we posit that extrinsic reward expectancy will decrease influence of intrinsic motivation. As noted above, an accumulation of research finds “crowding out” of intrinsic motivation when extrinsic motivation increases. In a study of the Internal Revenue Service (IRS), Bertelli (2006) observed motivation crowding out among supervisors with high levels of intrinsic motivation. Because of the perception of being controlled, the effect of intrinsic motivation will be lessened when employees perceive high expectancy of extrinsic rewards.

This research expects that managerial trustworthiness and goal directedness will strengthen the tie between intrinsic motivation and work attitudes. In other words, they will promote the positive linkage between intrinsic motivation and employee satisfaction, whereas they will reinforce the negative linkage between the motivation and intent to leave. On the other hand, extrinsic reward expectancy is likely to weaken the tie because employees are more likely to perceive external intervention as reducing their self-determination, thereby substituting extrinsic control for intrinsic motivation (Frey & Jegen, 2001).

**Hypotheses**

The research framework appears in Figure 1. Intrinsic motivation is expected to have positive associations with both employee satisfaction and turnover intention. Besides their direct effects, the three conditional factors, managerial trustworthiness, goal directedness, and extrinsic reward expectancy, moderate the relationships between intrinsic motivation and the attitudes. As the signals in parentheses indicate, managerial trustworthiness and goal directedness are expected to strengthen the ties by fulfilling the psychological needs of employees, whereas extrinsic reward expectancy is assumed to weaken the ties by crowding out. Accordingly, we establish following hypotheses.

*Hypothesis 1:* Intrinsic motivation will be positively associated with employee satisfaction and will be negatively associated with turnover intention.

*Hypothesis 2:* The tie between intrinsic motivation and employee attitudes will be strengthened under high levels of managerial trustworthiness.

*Hypothesis 3:* The tie between intrinsic motivation and employee attitudes will be strengthened under high levels of goal directedness.

*Hypothesis 4:* The tie between intrinsic motivation and employee attitudes will be weakened under high levels of extrinsic reward expectancy.
The framework includes several control variables that are often considered to explain employee attitudes. Individual resources are assumed to have a positive correlation with satisfaction, whereas it is expected to have a negative relationship with intent to leave in that the importance of resources has been acknowledged among scholars (e.g., Boyne, 2003; Rainey & Steinbauer, 1999). In addition, several demographic variables are included: gender (female); racial minority; supervisory status; age; and agency experience.

**Method**

The data were drawn from the 2008 Federal Human Capital Survey (FHCS). Since 2002, the U.S. Office of Personnel Management (OPM) has conducted the survey every 2 years to measure the perceptions of federal employees (U.S. Office of Personnel Management, 2009). The survey population includes full-time, permanent employees working in agencies listed in the President’s Management Council, who constitute 97% of the executive branch workforce. In addition, 54 small/independent agencies participated in the survey. Using a probability sampling based on organizational
affiliations and supervisory status, the OPM randomly selected 463,545 employees. A total of 212,223 of 417,128 employees who actually received the survey responded, which represents a 51% response rate (U.S. Office of Personnel Management, 2009).

**Measures and Analysis Methods**

Table 1 presents the measures for the study variables. All primary independent variables are measured by multiple items. They have acceptable Cronbach’s alpha values, ranging from .72 to .92. We integrate the multiple measurements into a single indicator by using a mean value. Except for demographic factors, all items are ordinal-based on 5-point Likert-type scale for which the scales anchors varied. For example, regarding employee satisfaction, the anchors for the first two items vary from *very dissatisfied* to *very satisfied*, while the third one ranges from *strongly disagree* to *strongly agree*. Because the scales have the same 5-point ordinal structure and show acceptable internal consistencies, we concluded it was reasonable to integrate the measures.

Three items, all of which represent the meaningfulness of work, measure intrinsic motivation. For managerial trustworthiness, we conceived the variable as a multidimensional construct comprised of three elements, ability, benevolence, and integrity. Ability and benevolence are measured by two survey items and integrity by three. Our focus is to examine the direct and moderating effect of trustworthiness as an integrated indicator, and a higher order confirmatory factor analysis demonstrates that the three elements constitute a higher latent factor, managerial trustworthiness (see appendix). Most goodness-of-fit indices show a very good fit except the chi-square test. Because the test is quite sensitive to the sample size, it is common that the null hypothesis is rejected with the current large sample size. Accordingly, a single indicator of trustworthiness was created and used for the analysis. Measures of goal directedness focus on communication of goals and priorities and regular evaluation of goal achievement. Extrinsic reward expectancy is measured by four items that reflect the instrumentality of external awards. Many demographic factors are measured by binary variables, including female, minority, and supervisory status. Age and agency experience are measured using categorical variables with five and six categories, respectively.

Regarding analytic methods, we use two statistical techniques to test our predictions about employee satisfaction and intent to leave. The ordinary least squares (OLS) regression is employed to test employee satisfaction, which has 16 possible values by integrating three measures. Then, we use a binary logit analysis to test employees’ intent to leave because the variable is coded as a dummy variable.

**Results**

We begin presenting our results with an assessment of potential common method bias. Next we turn to presentation of descriptive statistics, followed by the OLS regression for employee satisfaction and the logit analysis for intent to leave. For
### Table 1. Measurements of Variables

<table>
<thead>
<tr>
<th>Dependent variables</th>
<th>Employee satisfaction</th>
<th>Considering everything, how satisfied are you with your job?</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Considering everything, how satisfied are you with your organization?</td>
</tr>
<tr>
<td></td>
<td></td>
<td>I recommend my organization as a good place to work.</td>
</tr>
<tr>
<td>Intent to leave</td>
<td>Are you considering leaving your organization within the next year, and if so, why?</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Note: The variable is coded as a binary variable; A is coded into 0, and B, C, D, and E are coded into 1.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Independent variables</th>
<th>Intrinsic motivation</th>
<th>My work gives me a feeling of personal accomplishment.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>I like the kind of work I do.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>The work I do is important.</td>
</tr>
<tr>
<td></td>
<td>Managerial trustworthiness</td>
<td>I have trust and confidence in my supervisor: (Ability)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Overall, how good a job do you feel is being done by your immediate supervisor/team leader? (Ability)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Supervisors/team leaders in my work unit support employee development. (Benevolence)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Supervisors/team leaders provide employees with constructive suggestions to improve their job performance. (Benevolence)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>My organization’s leaders maintain high standards of honesty and integrity. (Integrity)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Complaints, disputes or grievances are resolved fairly in my work unit. (Integrity)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>I can disclose a suspected violation of any law, rule or regulation without fear of reprisal. (Integrity)</td>
</tr>
<tr>
<td></td>
<td>Goal directedness</td>
<td>Managers communicate the goals and priorities of the organization. Managers review and evaluate the organization’s progress toward meeting its goals and objectives.</td>
</tr>
<tr>
<td></td>
<td>Extrinsic reward expectancy</td>
<td>Employees are rewarded for providing high quality products and services to customers.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Pay raises depend on how well employees perform their jobs.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Awards in my work unit depend on how well employees perform their jobs.</td>
</tr>
<tr>
<td></td>
<td>Individual resources</td>
<td>I have sufficient resources (for example, people, materials, budget) to get my job done.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>My workload is reasonable.</td>
</tr>
</tbody>
</table>

(continued)
Table 1. (continued)

<table>
<thead>
<tr>
<th>Variable</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Female</td>
<td>Are you: Male/Female. Note: Female is coded as 1.</td>
</tr>
<tr>
<td>Minority</td>
<td>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.</td>
</tr>
<tr>
<td>Supervisory status</td>
<td>What is your supervisory status? [A] Nonsupervisor/[B] Team Leader/[C] Supervisor/[D] Manager/[E] Executive Note: Nonsupervisor and Team Leader are coded as 0, whereas Supervisor, Manager, and Executive are coded as 1.</td>
</tr>
<tr>
<td>Age</td>
<td>What is your age group? (a) 29 and under; (b) 30-39; (c) 40-49; (d) 50-59; (e) 60 or older</td>
</tr>
<tr>
<td>Agency experience</td>
<td>How long have you been with your current agency? (a) Less than 1 year; (b) 1 to 3 years; (c) 4 to 5 years; (d) 6 to 10 years; (e) 11 to 20 years; (f) More than 20 years</td>
</tr>
</tbody>
</table>

both analyses, interactions between intrinsic motivation and three conditional factors are discussed.

Test of Common Method Bias

We tested for common method bias because the 2008 FHCS is the source for all the data we analyzed. To examine the seriousness of the bias, Harman’s single-factor test is widely used. It examines the result of a factor analysis for all variables in the model (Podsakoff, MacKenzie, Lee, & Podsakoff, 2003). If only a single factor emerges from the analysis or if one factor explains most of the covariance, then it is assumed that the bias is serious (Podsakoff et al., 2003). The factor analysis resulted in five factors and the biggest factor explains only 28% of the covariance among the measures. This indicates the bias is not serious so we were able to proceed with the analysis.

Descriptive Statistics

Table 2 presents descriptive statistics for the study variables. Variables comprised of multiple items are integrated by using a mean value. Because the 2008 FHCS uses 5-point Likert-type scales, the minimum value is 1 and maximum value is 5. Among major variables, extrinsic reward expectancy has the lowest mean, 3.11, whereas
intrinsic motivation shows the largest mean value. In the sample, 46% of respondents are female, 30% are minorities, and 34% have supervisory status.

Zero-order correlations among the study variables appear in Table 3. The correlations among several variables are high, including satisfaction, trustworthiness, intrinsic motivation, and individual resources. To test whether these variables are properly measured as differentiated concepts, we conducted a confirmatory factor analysis for variables included in the model. The analysis showed acceptable goodness-of-fit indices (result not shown). Root mean square error of approximation (RMSEA) was 0.079, within the range of acceptable fit of 0.80. Normed fit index (NFI), comparative fit index (CFI), and goodness-of-fit index (GFI) are over 0.90, which reflects acceptable fit ($NFI = 0.97; CFI = 0.97; GFI = 0.90$). Standardized root mean square residual (RMR) was 0.035, for which the upper threshold is 0.05.

**OLS Regression for Employee Satisfaction**

Table 4 presents the OLS regression results for employee satisfaction. The $R$-squared value, .73, shows that the model explains employee satisfaction fairly well. From the Variance Inflation Factor (VIF) test, the variable with the highest VIF value is the interaction term between intrinsic motivation and trustworthiness (4.17), and the mean VIF is 2.09. Thus, multicollinearity does not appear to be a problem.

As expected, intrinsic motivation is strongly associated with employee satisfaction. It has the second largest coefficient in the model. The beta coefficients reveal that the leverage of intrinsic motivation is over three times as large as for extrinsic reward expectancy. The postestimation demonstrates that the coefficients of two variables are statistically different. Although extrinsic reward expectancy does not fully reflect extrinsic motivation, the result supports a basic tenet of self-determination theory;
<table>
<thead>
<tr>
<th>Variables</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
<th>11</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Satisfaction</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>(0.90)</td>
</tr>
<tr>
<td>2. Intent to leave</td>
<td></td>
<td>-0.41**</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Intrinsic motivation</td>
<td>0.66**</td>
<td>-0.28**</td>
<td>(0.80)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Trustworthiness</td>
<td>0.80**</td>
<td>-0.32**</td>
<td>0.53**</td>
<td>(0.92)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Goal directedness</td>
<td>0.65**</td>
<td>-0.25**</td>
<td>0.44**</td>
<td>0.72**</td>
<td>(0.90)</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>6. Reward expectancy</td>
<td>0.66**</td>
<td>-0.26**</td>
<td>0.44**</td>
<td>0.74**</td>
<td>0.60**</td>
<td>(0.87)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. Individual resources</td>
<td>0.50**</td>
<td>-0.21**</td>
<td>0.32**</td>
<td>0.45**</td>
<td>0.40**</td>
<td>0.42**</td>
<td>(0.90)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. Female</td>
<td>-0.02**</td>
<td>-0.01**</td>
<td>0.01</td>
<td>-0.08**</td>
<td>-0.01</td>
<td>-0.05**</td>
<td>0.05**</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9. Minority</td>
<td>-0.02**</td>
<td>0.04**</td>
<td>0.01**</td>
<td>-0.08**</td>
<td>-0.01</td>
<td>-0.02**</td>
<td>0.07**</td>
<td>0.29**</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10. Supervisory status</td>
<td>0.14**</td>
<td>-0.03**</td>
<td>0.14**</td>
<td>0.20**</td>
<td>0.13**</td>
<td>0.20**</td>
<td>-0.11**</td>
<td>-0.23**</td>
<td>-0.10**</td>
<td></td>
<td></td>
</tr>
<tr>
<td>11. Age</td>
<td>0.01**</td>
<td>-0.01**</td>
<td>0.07**</td>
<td>0.00</td>
<td>0.00</td>
<td>0.02**</td>
<td>-0.02**</td>
<td>-0.08**</td>
<td>-0.08**</td>
<td>0.14**</td>
<td></td>
</tr>
<tr>
<td>12. Agency experience</td>
<td>0.00</td>
<td>-0.03**</td>
<td>0.04**</td>
<td>0.01</td>
<td>0.00</td>
<td>0.04**</td>
<td>-0.08**</td>
<td>-0.05**</td>
<td>-0.06**</td>
<td>0.29**</td>
<td>0.60**</td>
</tr>
</tbody>
</table>

Note: Cronbach’s alpha in the parentheses for variables with multi-item measures. N = 56,712.

*p < .05. **p < .01.
Table 4. OLS Regression of Employee Satisfaction

<table>
<thead>
<tr>
<th></th>
<th>Coefficient</th>
<th>SE</th>
<th>β</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intrinsic motivation</td>
<td>0.419****</td>
<td>0.004</td>
<td>0.318</td>
</tr>
<tr>
<td>Trustworthiness</td>
<td>0.463****</td>
<td>0.004</td>
<td>0.431</td>
</tr>
<tr>
<td>Goal directedness</td>
<td>0.092****</td>
<td>0.003</td>
<td>0.094</td>
</tr>
<tr>
<td>Reward Expectancy</td>
<td>0.085****</td>
<td>0.003</td>
<td>0.089</td>
</tr>
<tr>
<td>Intrinsic × Trustworthiness</td>
<td>0.014****</td>
<td>0.003</td>
<td>0.018</td>
</tr>
<tr>
<td>Intrinsic × Goal Directedness</td>
<td>0.006**</td>
<td>0.003</td>
<td>0.008</td>
</tr>
<tr>
<td>Intrinsic × Reward Expectancy</td>
<td>-0.023****</td>
<td>0.003</td>
<td>-0.027</td>
</tr>
<tr>
<td>Individual resources</td>
<td>0.126****</td>
<td>0.002</td>
<td>0.135</td>
</tr>
<tr>
<td>Female</td>
<td>0.020****</td>
<td>0.005</td>
<td>0.010</td>
</tr>
<tr>
<td>Minority</td>
<td>0.006</td>
<td>0.006</td>
<td>0.002</td>
</tr>
<tr>
<td>Supervisory status</td>
<td>-0.001</td>
<td>0.005</td>
<td>-0.000</td>
</tr>
<tr>
<td>Age</td>
<td>-0.021****</td>
<td>0.003</td>
<td>-0.020</td>
</tr>
<tr>
<td>Agency experience</td>
<td>0.003</td>
<td>0.002</td>
<td>0.004</td>
</tr>
<tr>
<td>Constant</td>
<td>-0.653****</td>
<td>0.017</td>
<td></td>
</tr>
</tbody>
</table>

N 56,969
F-value 11,687.58
R² .7273

*p < .10. **p < .05. ***p < .01. ****p < .001.

intrinsic motivation is a stronger driver than extrinsic motivation. One can observe the value of managerial trustworthiness as a managerial resource. It has the largest leverage among the variables, and the postestimation shows that its coefficient is statistically larger than one for intrinsic motivation. Although their coefficients are not as large as managerial trustworthiness, goal directedness and external reward expectancy are positively associated with employee satisfaction.

The expectations for interaction terms are confirmed by the analysis. All three interaction terms are statistically significant in the directions expected. Figure 2 shows the interaction between intrinsic motivation and managerial trustworthiness. As the level of intrinsic motivation increases, employee satisfaction is elevated. When the level of managerial trustworthiness moves from the lowest to the highest (from dashed line to solid line), the positive tie between intrinsic motivation and satisfaction is further strengthened. One can observe a similar result for the interaction between intrinsic motivation and goal directedness. From Figure 3, under the highest level of goal directedness (when it has a value of 5), the leverage of intrinsic motivation on employee satisfaction increases. On the other hand, under the lowest level of goal directedness, one observes the decreased coefficient of intrinsic motivation. Although the 95% confidence intervals do not overlap, the indirect effect of goal directedness through intrinsic motivation is not large. The coefficient of the interaction is less than half of that between intrinsic motivation and managerial trustworthiness. Altogether, when managers
Figure 2. Interaction of intrinsic motivation and managerial trustworthiness for employee satisfaction

Figure 3. Interaction of intrinsic motivation and goal directedness for employee satisfaction
Figure 4. Interaction of intrinsic motivation and extrinsic reward expectancy for employee satisfaction

are trustworthy and communicate goals effectively, the link between employees’ intrinsic motivation and satisfaction becomes stronger.

In contrast to interactions with trustworthiness and goal directedness, the coefficient of the interaction term between intrinsic motivation and extrinsic reward expectancy is negative. Figure 4 shows the interaction, which reflects that the influence of intrinsic motivation on employee satisfaction is highest when the expectation of extrinsic reward is lowest (dashed line). As the expectancy increases, the effect of intrinsic motivation on satisfaction decreases as represented in the solid line. In other words, by partly reflecting extrinsic motivation, high expectancy for extrinsic reward may work as a substitute for intrinsic motivation. Crowding-out theory is supported by the analysis, and it has the largest leverage among the three interaction terms (see beta coefficients).

With regard to the control variables, as expected, individual resources is positively associated with satisfaction, exhibiting the third largest coefficient. All other conditions being equal, females are more satisfied than males, whereas racial minorities and supervisors show no difference. Older workers have lower satisfaction than others. Overall, however, the coefficients of demographic factors are not large. Rather, intrinsic motivation and managerial trustworthiness are the two main drivers of employee satisfaction.
Table 5. Logit Regression of Intent to Leave

<table>
<thead>
<tr>
<th></th>
<th>Coefficient</th>
<th>Robust SE</th>
<th>% Change in odds by one SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intrinsic motivation</td>
<td>−0.438****</td>
<td>0.021</td>
<td>−27.8</td>
</tr>
<tr>
<td>Trustworthiness</td>
<td>−0.408****</td>
<td>0.021</td>
<td>−31.0</td>
</tr>
<tr>
<td>Goal directedness</td>
<td>−0.017</td>
<td>0.018</td>
<td>−1.7</td>
</tr>
<tr>
<td>Reward expectancy</td>
<td>−0.086****</td>
<td>0.018</td>
<td>−8.5</td>
</tr>
<tr>
<td>Intrinsic × Trustworthiness</td>
<td>−0.028*</td>
<td>0.015</td>
<td>−3.4</td>
</tr>
<tr>
<td>Intrinsic × Goal Directedness</td>
<td>0.002</td>
<td>0.011</td>
<td>0.3</td>
</tr>
<tr>
<td>Intrinsic × Reward Expectancy</td>
<td>0.002</td>
<td>0.017</td>
<td>0.3</td>
</tr>
<tr>
<td>Individual resources</td>
<td>−0.142****</td>
<td>0.011</td>
<td>−13.9</td>
</tr>
<tr>
<td>Female</td>
<td>−0.122****</td>
<td>0.042</td>
<td>−5.9</td>
</tr>
<tr>
<td>Minority</td>
<td>0.216****</td>
<td>0.047</td>
<td>8.4</td>
</tr>
<tr>
<td>Supervisory status</td>
<td>0.250****</td>
<td>0.035</td>
<td>12.4</td>
</tr>
<tr>
<td>Age</td>
<td>0.191****</td>
<td>0.033</td>
<td>19.2</td>
</tr>
<tr>
<td>Agency experience</td>
<td>−0.164****</td>
<td>0.019</td>
<td>−18.2</td>
</tr>
<tr>
<td>Constant</td>
<td>3.018****</td>
<td>0.173</td>
<td></td>
</tr>
</tbody>
</table>

\( N = 56,712 \)
Wald chi-square 2,785.22
Pseudo \( R^2 \) 0.0887

*p < .10. **p < .05. ***p < .01. ****p < .001.

Binary Logit Analysis for Intent to Leave

Because intent to leave is measured as a binary variable, we used binary logit regression analysis. As shown in Table 5, intrinsic motivation and managerial trustworthiness are significantly associated with turnover intention in a negative way. Managerial trustworthiness has a slightly higher leverage than intrinsic motivation. However, their leverages are not statistically different by Wald test. One standard deviation increase of intrinsic motivation decreases the odds of leaving by 28%, holding all other variables constant. Similarly, when all other variables are held constant at their means, one standard deviation increase of managerial trustworthiness decreases the odds by 31%. Unexpectedly, goal directedness is not significant in decreasing turnover intention, whereas reward expectancy lessens intent to leave.

Regarding the interaction terms, none of them is significant at the .05 significance level; the interaction between intrinsic motivation and managerial trustworthiness has a negative coefficient, but it is significant at the 0.10 significance level. Furthermore, the coefficient is not large. Thus, if there is any moderating effect of trustworthiness on turnover intention, it is negligible when compared to other variables. Finally, managerial trustworthiness and external reward expectancy directly affect turnover intention rather than work through intrinsic motivation.
Among the control variables, several factors are substantially related to intent to leave. Whereas having enough resources lessens turnover intention, minorities and employees with supervisory status are more likely to leave the agency. When all other variables are constant, a one standard deviation increase in the minority and supervisor variables increases the odds of leaving by 8% and 12%, respectively. Employees with longer agency experience are less likely to leave; the odds of leaving decrease by 18% by one standard deviation increase. Finally, within the given model, intrinsic motivation and managerial trustworthiness are the most powerful drivers suppressing turnover intention of employees. However, demographic factors are also substantially associated with turnover intention. Some of the coefficients are comparable with those for individual resources.

Discussion

The analyses demonstrate that intrinsic motivation matters for both employee satisfaction and intent to leave, which confirms Hypothesis 1. Managerial trustworthiness is also confirmed to be a useful resource, elevating employee satisfaction and suppressing intent to leave. Moreover, managerial trustworthiness fosters links between intrinsic motivation and employee satisfaction. Under high levels of trustworthiness, the leverage of intrinsic motivation on satisfaction becomes stronger. In other words, managerial trustworthiness crowds in intrinsic motivation for employee satisfaction. For turnover intention, however, the interaction term was significant at only the 0.1 level, which means that Hypothesis 2 is partly confirmed. Likewise, the expectations for the interaction effects of goal directedness and extrinsic reward expectancy are partly supported. Regarding employee satisfaction, goal directedness paints a similar picture to managerial trustworthiness; it strengthens the tie between intrinsic motivation and satisfaction. On the other hand, extrinsic reward expectancy works in the opposite direction, supporting that extrinsic rewards act to crowd out intrinsic motivation. Under high expectancy for extrinsic reward, the influence of intrinsic motivation on employee satisfaction decreases. However, goal directedness and extrinsic reward expectancy do not show interactions for turnover intention. Hypotheses 3 and 4 are therefore only partly confirmed.

The analysis generally supports the theory we posited for employee satisfaction. As self-determination theory predicts, the tie between intrinsic motivation and employee satisfaction is strengthened under high levels of managerial trustworthiness and goal directedness. On the other hand, crowding-out theory is confirmed in that the tie between intrinsic motivation and employee satisfaction was weakened under high levels of extrinsic reward expectancy. Although the measure does not fully reflect extrinsic motivation because our measurements focus on reward expectancy rather than whether a respondent is attracted to extrinsic rewards, the result shows that the expectancy crowds out intrinsic motivation. In summary, under high levels of managerial trustworthiness and goal directedness, intrinsic motivation is “crowded in” for employee satisfaction, whereas it is “crowded out” under a high level of extrinsic reward expectancy.
In addition, the current analysis demonstrates the basic tenet of self-determination theory because the leverage of intrinsic motivation is larger than extrinsic reward expectancy for both outcomes. While extrinsic rewards based on merit remains a critical factor affecting employee attitudes, intrinsic motivation, as “a prototype of self-determined activity,” is more influential than extrinsic motivation (Ryan & Deci, 2000, p. 62).

We derive several practical implications from our study. First, cultivating intrinsic motivation is an enduring process that enhances employee satisfaction and maintains high retention rates. Both federal and state workforces confront a potential retirement tsunami, and retaining a competent workforce is becoming more critical (Lewis & Cho, 2011; U.S. Government Accountability Office [GAO], 2009). Despite the payoffs from managing motivation and managerial trustworthiness, Paul Light (2007, p. 408) argues that recent political appointees put more value on their own advancement than “intrinsic value of public service.” While providing extrinsic rewards is still critical to attract competent employees, intrinsic rewards also need to be emphasized (Light, 2007). The current research confirms the importance of intrinsic motivation for the day-to-day operation of public bureaucracy because it has larger consequences for satisfaction and intent to leave than extrinsic reward expectancy. Moreover, the analysis implies that too much focus on extrinsic rewards may crowd out intrinsic motivation. Efforts to find an appropriate balance between the two are desirable.

Another implication is the role of middle managers who play pivotal positions in shaping perceptions of managerial trustworthiness and goal directedness. As bridges connecting top management and frontline workers, the importance of middle managers is increasing. Van Wart (2003) stresses the administrative leadership role of middle managers with their increased discretion under New Public Management (NPM) reforms. Studying employees working at a Department of Defense installation, Paarlberg and Perry (2007) identify the role of middle managers in values management:

Middle managers play key roles in interpreting strategic values in terms of employees’ values and their everyday work responsibilities, as well as communicating and rewarding performance toward those values in ways that reflect and build on employees’ individual values. As such, middle managers play key roles as “integrators,” connecting organization strategy to employees’ functional values that derive from societal, cultural, and religious experiences. (p. 396)

Ridder et al. (2006) also argue that the involvement of middle managers is critical for successful implementation of new managerial initiatives. If these arguments are correct, governments need to pay more attention to middle managers and their leadership roles. They can play a central role in elevating the effects of employee motivation by providing meaningful work, clarifying organizational goals, and creating climates of trust.

How can public managers improve their own performance in these critical activities? A higher order confirmatory factor analysis confirmed that the three elements, ability,
benevolence, and integrity, constitute a higher level factor, trustworthiness. In addition, the OLS regression analysis confirms that the manner in which managers fulfill their roles is as critical as the roles themselves; developing managerial trustworthiness is a prominent route to increase employee satisfaction while decreasing their intent to leave. Other than pursuing competencies in their tasks, public managers must be attentive to the well-beings of their subordinates and establishing fair and consistent practices in the workplace. Governments may want to facilitate managers’ development of trustworthiness by designing programs to enhance component elements such as integrity and benevolence.

**Conclusion**

This research adds empirical evidence for the importance of an intrinsically motivated workforce. Intrinsic motivation is positively associated with employee satisfaction, whereas it is negatively related to intent to leave. Managerial trustworthiness also shows comparable strong associations with those attitudes. More important, regarding employee satisfaction, it interacts with intrinsic motivation in a way that produces a salutary result for organizations. Like managerial trustworthiness, goal directedness also strengthens the association between intrinsic motivation and employee satisfaction. On the contrary, high levels of extrinsic reward expectancy weaken the tie.

The research is not without limitations. Relying on secondary data prevents us from more precise specification of measures. The measurements of extrinsic reward expectancy partly reflect extrinsic motivation, but they do not fully capture the concept. Thus, our test of crowding theory has a limitation. The indicators for managerial trustworthiness could also be improved. The indicators for ability paint supervisory competence more abstractly than we would construct them. The benevolence items do not strictly differentiate managers’ good intentions from their obligations; they may give constructive feedback because they are required to do so. To some extent, the third measure of integrity reflects organizational integrity rather than focuses on managers’ integrity. Consequently, although the current measurements capture the essence of managerial trustworthiness, we believe collecting primary data would increase the validity of the findings.

A second limitation of the research is our reliance on a single data source, the 2008 FHCS. Because survey respondents have a tendency to maintain consistency in their responses, independent and dependent variables are affected by common method bias, which inflates the relationships among variables (Podsakoff & Organ, 1986). Although Harman’s single-factor test demonstrates that bias is not very serious, one needs to be cautious in interpreting the results. Nevertheless, using perceived measures is reasonable in the present study because employee satisfaction and intent to leave reflect employee cognitions so survey respondents can provide the most accurate data. Furthermore, Crampton and Wagner (1994) reveal that, although the bias does exist, it is not sufficiently large to invalidate an analysis relying on a single data source.

Several areas for future research follow from the limitations. Research using more precise measures for trustworthiness is desirable. To solve the common method bias
issue, investigators should pursue using multiple data sources. When multiple sources of data are not available, potential sources generating the bias can be identified and controlled by including questions reflecting social desirability or transient mood state (Podsakoff et al., 2003). Alternatively, one may employ different research designs such as field experiments. Experimental design can control the time of measurements so that independent and dependent variables are measured at different points of time (Podsakoff et al., 2003), which relieves the bias.

Another area for future research is to explore additional conditions affecting intrinsic and extrinsic motivations, including organizational characteristics. Exploring such contingencies will provide additional guidance to public managers for motivational strategies they want to emphasize under different conditions. Yang and Kassekert’s (2010) recent analysis of the effects of civil service overhaul, contracting out, and managing-for-results on employee satisfaction is a good example of how organizational characteristics and change could be tied to employee attitudes and motivation.

Finally, more micro-level research on administrative leadership would be helpful. With the wave of NPM emphasizing decentralization and entrepreneurship, the role of middle managers is expected to further increase. As this study and others demonstrate the importance of middle managers in administrative leadership (Paarlberg & Perry, 2007; Ridder et al., 2006; Van Wart, 2003), we need to explore how they shape behaviors and attitudes of their subordinates and how those managerial activities change the organizational culture and affect the performance of public bureaucracy.

**Appendix**

*Higher Order Confirmatory Factor Analysis for Managerial Trustworthiness*

Note: All estimates are standardized.
Declaration of Conflicting Interests

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Notes

1. The research uses the term, “employee satisfaction” rather than “job satisfaction” because it considers a broader range of satisfactions.

2. The current model is not comprehensive in that it does not include all relevant variables. Other variables, for instance, job security, may need to be controlled because they affect employee motivation (e.g. Battaglio, 2010; Oh & Lewis, 2009; Jurkiewicz & Brown, 1998). Nevertheless, the current model reasonably covers variables frequently used to explain employee attitudes.

3. The third measure of integrity has a broader perspective than the first two measures by reflecting the climate of organizational integrity. However, to some extent, we believe that there is a spillover effect that managers’ integrity affects the overall climate of integrity at the organizational level. Rehg, Miceli, Near, and Van Scotter (2008) indicate that most whistle-blowers try internal channels first before pursuing external channels. Because managers are often perceived as representatives of an organization, managers’ ability to successfully resolve wrongdoing with integrity is likely to positively affect organizational integrity. In addition, from a statistical perspective, the Cronbach’s alpha showed an acceptable value (.85 for the three measures of integrity) and the analysis results were changed little by the revised indicator of trustworthiness with the item removed.

4. To assure we had a good model fit, we compared several alternative models with the hypothesized model. The hypothesized model achieved better goodness-of-fit indices than all the alternatives we tested.

5. The research ran the regression model for all survey respondents. When we removed executives from the analysis, we found little difference in the results.

6. When we ran the model in a hierarchical manner, the $R^2$-squared value was .2814 with control variables only. The value was increased to .6545 with trustworthiness, goal directedness, and reward expectancy variables. Finally, when we enter intrinsic motivation and interaction terms, the $R^2$-squared value became .7273.

References


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