TI 2003-048/3
Tinbergen Institute Discussion Paper

The Effects of Performance Measurement and Compensation on Motivation

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THE EFFECTS OF PERFORMANCE MEASUREMENT AND COMPENSATION ON MOTIVATION

An Empirical Study

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We would like to thank the organization and the participants of the 2002 conference of the Performance Measurement Association in Boston for helpful discussions and also seminar participants of the Dutch Labor Market Conference. We are grateful for the comments provided by Bruno S. Frey.

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ABSTRACT

The design and implementation of a performance measurement and compensation system can strongly effect the motivation of employees. Building on economic and psychological theory this study develops a conceptual model that is used to empirically test this effect. We find that the employee's perception of the compensation system influences the motivation of agents. Our survey results demonstrate a significant positive relationship between the perceived characteristics of the compensation system and extrinsic motivation. Intrinsic motivation is not affected by the design of the monetary compensation system, but is affected by promotion opportunities. The compensation system also significantly affects other indicators of motivation, namely work satisfaction and turnover intent. Further research could extend these results by investigating the relationship between extrinsic and intrinsic motivation on the one hand and individual and company performance on the other.

Keywords: *Performance measurement, Compensation, Promotions, Intrinsic Motivation, Extrinsic Motivation*

JEL Classification Code: J41; J33

INTRODUCTION

The strong public interest in incentive compensation has presumably largely been caused by the great increase in CEO salaries in the late 1990s. Their remunerations, being tied to company stock-price performance through stock options, have benefited from the bull market of the 1990s (Murphy, 1999). Executive compensation has also attracted a large amount of academic research, in particular by agency theorists who have focused on the relationship between managerial performance and incentives (c.f. Prendergast, 1999).

Prendergast (1999) concludes that little empirical work has been done on (incentive) compensation for *workers*. We will try to partly fill this gap by focusing upon different levels of employees and assessing the effects of compensation systems from an employee and a firm perspective. We will consider not only the absolute level of rewards, but also the performance measurement and evaluation systems, and career concerns. The perception of these processes by employees determines their actions and thus the effectiveness of those systems.

While economists have greatly neglected the psychological effects (Frey, 1997), organizational psychologists have already analyzed the concept of motivation for many years. They have explored relationships with all sorts of external and internal conditions, both theoretically and empirically (Locke and Henne, 1986). The result is a variety of work motivation theories that have great potential for understanding the impact of a compensation system on effort. A 'crosspollination' of the two streams of research is the logical next step.

We contribute to this crosspollination by combining social psychology and economics. Building on Frey (1997), we combine agency theory (economics focus) and crowding theory (psychological focus) to study the motivational effect of a compensation system. In the next section the theoretical background is discussed. We then build a framework from which hypotheses are developed that will be empirically tested in a case study environment. The fourth section describes the data and methodologies and five discusses the empirical results. The last section concludes.

THEORETICAL BACKGROUND

Incentives, being the essence of economics (Prendergast, 1999), are widely discussed in the agency literature. An agency relationship can be defined as "…a contract under which one or more persons (the principal(s)) engage another person (the agent) to perform some service on their behalf which involves delegating some decision making authority to the agent" (Jensen and Meckling, 1976). There are three basic assumptions underlying agency theory. The first assumption is that agents are self-interested. This is illustrated by the fact that an agent will choose actions to maximize utility and is assumed to be effort averse. In real life this assumption is expressed by on-the-job consumption, shirking and pursuing off-the-job opportunities (Kunz and Pfaff, 2002). The second assumption concerns the attitude towards risk. Whereas the principal is generally considered to be risk neutral, agents are considered to be risk averse. Therefore, the agent will require additional compensation in the form of a risk premium, for taking on risks of the principal. The third assumption concerns information asymmetry. The agent possesses private information that is not available to the principal free of charge. The principal thus has limited information on the actions of the agent, her actual level of effort and the state of nature.

These three assumptions introduce the moral hazard type of agency problem. In order to mitigate the agency problem, the principal will invest in monitoring and steering the actions of an agent, especially through incentive compensation, in a direction that is in line with the principal's objective. The so-called *agency costs* that these monitoring and steering activities produce are imposed upon the principal and result in a second best solution.

This classic model has been extended in multiple dimensions in order to remove some of its unrealistic features. Fama (1980) shows the potential effects of career concerns on current behavior. Career concerns occur whenever the labor market uses the current output of a worker to adjust the belief on the worker's ability. The labor market then bases future wages of the worker on the updated beliefs. In this manner, career concerns may serve as a substitute for incentive compensation as these concerns themselves form an incentive for the agent to optimize the labor market's belief of her ability. A second extension to the original agency model is the dimension of goal alignment (e.g. Baker, 2002). Agents can behave in a way that

is beneficial to the agent, but harmful to the principal, whenever the performance measure used in the incentive contract is not perfectly in line with the principal's objective. Paying for the wrong behavior will have a wasteful or dysfunctional effect on the value of the firm (Baker, 2002). Hence, a performance measure should be selected that optimally trades off the desire of controllability with the need of goal alignment (Baker, 2002).

The above-discussed extensions of the standard agency model have ensured the continuous growth of insights in industrial relations. Although agency theory assumes that (monetary) incentives affect effort, economic literature has largely neglected the various psychological effects of monetary rewards on motivation and thus on effort (Frey, 1997). Economic scholars have taken a clinical approach to motivation, meaning that the behavior of agents is assumed to be rational. Industrial-organizational psychology and organizational behavior have spent greater attention to the confusing concept "motivation" (Locke and Henne, 1986). Recently however, serious attempts have been made to insert psychological approaches in economic theory (e.g. Frey, 1997; Frey and Jegen, 2001; Osterloh and Frey, 2000).

Research on motivation has distinguished intrinsic and extrinsic motivation (Calder and Staw, 1975). Extrinsic motivation is motivation gained by externally influenced need satisfaction and is thus for example stimulated by monetary incentives (Frey, 1997). Agency theorists exclusively rely on extrinsic motivation in order to assess the amount of effort an agent is expected to display. This way, they neglect the potential effects of the incentive contract on intrinsic motivation. The existence of intrinsic motivation is difficult to reconcile with agency theory. Intrinsic motivation indicates that under certain conditions employees are prepared to undertake a task for immediate need satisfaction or for its own sake (Calder and Staw, 1975; Deci and Ryan, 1985) and that some tasks will be performed without monetary payments. This is contradictory to the standard economic assumptions of agents being self-interested and the disutility of labor. Although agency theorists consider intrinsic motivation irrelevant for their purposes (Frey, 1997) even founders of agency theory have stressed the importance of the psychological impact of incentive compensation on behavior (Jensen, 1994).

Reconciling both research streams, Deci (1975) first described a relationship between external rewards and intrinsic motivation in forming the cognitive evaluation theory. He stated that external interventions, such as monetary incentives, (may) have a controlling and an informing aspect. These two aspects however have an opposing effect on intrinsic motivation. The controlling aspect on the one hand enhances the feeling of being put under external pressure and thereby establishes a negative effect of a controlling intervention on intrinsic motivation. The informing aspect on the other hand can influence the perceived competence and strengthens the feeling of being in control (Eisenberger, Rhoades and Cameron, 1999): it generates a positive association between the intervention and intrinsic motivation.

This cognitive evaluation theory is closely related to the crowding theory as described by Frey (1997). The crowding theory distinguishes two potential effects of external interventions on the level of intrinsic motivation. Whenever agents perceive an external intervention to be controlling, the intrinsic motivation will decline, which is called crowding-out. If the agent perceives an external intervention to be informing or supporting, her level of intrinsic motivation is expected to increase, which is called crowding-in (Frey, 1997; Frey and Oberholzer-Gee, 1997). This leaves the ultimate effect of external intervention on motivation undetermined.

Another relationship between external interventions and motivation described in the social psychological literature is based on the impact of psychological contracts (Osterloh and Frey, 2000). Various relationships and ties between the agents and principal are expected to influence the level of motivation. For example the perception of *fairness* of a contract is an important element of psychological contracts. Reciprocity theory postulates that agents prefer a condition of fairness in their exchange relationships with the principal. This fairness can be quantified by the size of the surplus seized by the principal (Anderhub, Gachter and Konigstein, 2000). An agent is expected to at least partly determine the level of motivation on her perception of fairness (Fehr and Gachter, 2000). Standard agency theory, based on rationality of the agent, is not able to deal with this type of interaction between the agent and the principal.

CONCEPTUAL MODEL AND HYPOTHESES

Our conceptual model, partly a derivative of a model by Lawler (1986), includes the interrelationships between employee effort, employee performance, the firm's compensation system, and the motivational level of individuals. An overview of the model is shown in Figure 1. In the sequel, we first discuss the main elements of our definition of the 'compensation system': (1) performance measurement and evaluation, (2) monetary compensation, both fixed and variable, (3) career concerns. We then describe the criteria used to evaluate the employee's perception of the compensation system. Subsequently, employee motivation and individual indicators for the level of motivation are discussed. Finally, we formulate hypotheses.

Compensation System

The output or performance of an agent is a function of effort, ability and an error term, capturing all uncontrollable factors, at least from the agent's perspective. Given the agent's private information *vis a vis* the principal, the latter must depend on performance measures in order to estimate the effort the agent has employed. Performance measures are selected based on two criteria: (a) alignment with the principal's objective and, (b) controllability by the agent (Baker, 2002). The performance measure is used to evaluate the performance of the employee, which forms the basis for determining the amount of variable monetary compensation an employee will receive and for making career decisions. Fixed compensation, as opposed to variable compensation, does not induce effort and its role is limited to retention and selection. In practice, completely fixed compensation that is totally unrelated to performance is extremely rare, for instance, the probability of being fired creates an incentive to perform. Two forms of fixed compensation are primary compensation and secondary compensation. Primary compensation consists of monetary payments for employees. Secondary conditions are the non-monetary benefits such as a company car, cell phone and pension benefits. In this paper we will focus on monetary payments only.

Besides incentive compensation, we also consider the incentive functioning of career concerns. Apart from an improvement in fit between employee and job, promotions also have

an incentive effect, since increased monetary and non-monetary rewards are usually associated with a promotion. In addition, a higher position in the organizational ranks increases the status of the employee and a new job can also bring about new challenges that can strengthen intrinsic motivation.

The combination of these elements of the compensation system, i.e. *performance measurement and evaluation*, *monetary compensation* and *career concerns* link employee performance to motivation, which in turn affects effort and other indicators for the level of motivation. (See Figure 1).

Insert Figure 1 about here

According to Thierry (1987) the effectiveness of a compensation system depends on three perceived characteristics, namely (1) *transparency,* (2) *fairness* and (3) *controllability.* These concepts are closely related and we will explain them in more detail.

Transparency. The perceived transparency of a compensation system depends on two characteristics: communication and complexity. A transparent system informs risk averse employees not only of the rules of the compensation system, but also of the objectives of the firm. Clear communication of these rules towards the personnel will enhance the understanding of the methodologies, measures and targets used and thereby create a better basis of support for the compensation system. (Perceived) uncertainty decreases the effectiveness of incentive compensation (Gibbons, 1998).

In sum, the perception of transparency is expected to have a positive relationship with extrinsic motivation. Diminishing the risk of exerting effort without being rewarded accordingly is expected to have a positive effect on the willingness to exert effort. This leads to the following hypothesis:

Hypothesis 1. Perceived transparency of the different elements of the compensation system has a positive relationship with extrinsic motivation.

Fairness. Although economic theory of trust is not well developed, the veracity and honesty of the principal is expected to have great impact on the actions of the agent (Prendergast, 1999). Several other theories have focused on the concept of fairness as well, but have used different perspectives. Reciprocity theory emphasizes the agent's need to receive a fair amount of compensation relative to the principal. The surplus, created by the agency contract, should be fairly divided in order to maximize incentives, according to this theory. If this condition is not met in the perception of the agent, her motivation is expected to decrease (Anderhub, Gachter and Konigstein, 2000). Moreover, equity theory emphasizes the agent's need to receive a fair amount of compensation relative to the other agents. The agent is expected to compare her ratio of performance over reward to the same ratio of other agents. Any deviation in this ratio causes a state of inequity (Locke and Henne, 1986). Recently Janssen (2001) has shown empirically that managers who perceive effort-reward fairness perform better and feel more satisfied than managers who perceive 'underreward unfairness'. Although the need for fairness seems to be clearly understood theoretically, biased, inaccurate and inflated performance evaluations have often been reported in economic studies (Prendergast, 1999). Supervisors tend to evaluate their personnel with relatively high scores. Telling employees that their performance is (below) average will make both parties unhappy in the short run, which partially explains the too high portion of positive evaluation scores and the existence of forced rankings. But inaccurate or untrue and undifferentiated evaluations reduce the effectiveness of incentives in organizations (Prendergast, 1999).

Hence, perceived fairness is expected to be a determinant of motivation. This leads to the following hypothesis:

Hypothesis 2. Perceived fairness of the different elements of the compensation system has a positive relationship with extrinsic motivation.

Controllability. The third characteristic we use to evaluate the compensation system's effectiveness is the perceived relationship between effort and (variable) compensation. Baker (2002) defines *controllability* as the extent to which the agent is able to control or influence the outcome. This strive for 'noise reduction' is one of the two main criteria that determine

the choice of the optimal performance measure: the effect of effort on the performance measure should vary as little as possible in order to have control of one's incentive compensation.

Within the cognitive evaluation theory, the controlling and informing elements of a compensation system are expected to have an effect not only on performance but on motivation as well (Frey, 1997). Employees perceive controllability and the controlling element of the compensation system as two opposite sides of the same coin. The need for self-determination is the foundation for this dimension (Deci and Ryan, 1985). An agent who is given the possibility to help determine the performance measures that are used in an incentive program, will perceive the performance measurement itself as less controlling. This is in line with the cognitive evaluation theory were the informing and controlling elements are proxies for the possibilities of self-determination of the employees.

Although the underlying theoretical concepts are different for the cognitive evaluation theory and the agency theory, the expected relationship between control (self-determination) and motivation is similar:

Hypothesis 3. Perceived controllability over the different elements of the compensation system has a positive relationship with extrinsic motivation.

Differentiation within motivation. In the psychological and economical literature (e.g. Lawler, 1986) motivation is viewed as a proxy for the amount of effort that will be exerted. Effort, ability and external circumstances determine actual performance, which in turn determines compensation. In the introduction two types of motivation were distinguished, namely intrinsic and extrinsic motivation. Both types of motivation will determine the total motivation. Therefore, both types of motivation must be taken into account while analyzing the optimal amount of effort that can be reached.

The hypotheses formulated thus far relate to extrinsic motivation. The potential effect of a compensation system on intrinsic motivation has been disputed heavily in the literature (Kunz and Pfaff, 2002; Eisenberger and Cameron, 1996). Kunz and Pfaff (2002) state that especially economists seem reluctant to accept the construct of intrinsic motivation. Intrinsic

motivation may be the response to fuzzy extrinsic motivators, such as fear of discharge and the relationship with other employees (Kreps, 1997). Also the workers may take such pride in the work that the cost of effort at some point may be negative (which can be interpreted as intrinsic motivation). Intrinsic motivation is the manifestation of the internal drives of individuals: intrinsic motivation will by definition only be influenced by the 'work itself' and not by the associated monetary incentives. 'Work itself' can be characterized by concepts such as the enjoyment of performing the basic tasks belonging to the current job, colleagues, atmosphere, organizational culture, etc. Therefore we formulate the following two hypotheses:

Hypothesis 4. The perception of transparency, controllability and fairness of the monetary part of the compensation system has no effect on intrinsic motivation.

Hypothesis 5. The perception of transparency, controllability and fairness of the promotion opportunities has a positive effect on intrinsic motivation.

Indicators for the level of motivation. Besides the expected relationships discussed above, the perceived quality of a compensation system is also likely to be related to other indicators of motivation that are more tangible than intrinsic and extrinsic motivation. We use three such indicators for the individual level of motivation: (1) *Work satisfaction,* which should be positively related to the perceived quality of the compensation system, (2) Turnover intent, a proxy of undesired *employee turnover,* which we expect to be negatively correlated to the perceived quality of the compensation system and finally (3) *Absenteeism caused by sick leave,* which is assumed to be negatively correlated to the perceived quality of the compensation system. The empirical validity of these four indirect effects will be tested, based on the following hypothesis:

Hypotheses 6. The perception of transparency, controllability and fairness of the compensation system will increase work satisfaction and decrease turnover intent and sick leave.

DATA AND METHODOLOGY

Research Site

The research site central in this study is a division of a Dutch company, listed at the Amsterdam Stock Exchange, the Dutch section of Euronext. The division is a publishing company and consists of different clusters, each serving its own market segment. The data collection period stretched from week 7 to week 34 in 2001. At the beginning of this period, the division employed 1798 workers, of which 1496 were included in the study. The employees that were not included did not have a permanent contract, such as freelance reporters and interns.

Data are collected at a single research site to circumvent the problem of having to control for company specific factors, such as country specific differences (this division only operates in The Netherlands), differences in organizational culture, differences in organizational forms etc. Especially the unobserved heterogeneity in corporate cultures of various companies might have a strong impact on the analyses since corporate culture and the associated various implicit contracts can strongly affect intrinsic motivation.

In order to test the hypotheses we have collected personnel data and conducted a survey amongst all individual employees. Before setting up and sending out the survey we conducted ten interviews with senior management in order to understand the organization, the activities performed and the incentive systems in place. The personnel data consist of information on compensation systems and all actual payments to individual employees. We also extracted job descriptions and socio-demographic data for all 1496 employees. The questionnaires were sent to all 1496 employees by snail mail and were returned anonymously through internal post by 31% of the employees. The questionnaire renders information about employee perceptions of the various elements of the compensation system, as well as individual assessments of their levels of motivation (both intrinsic and extrinsic). It also generates data for other indicators for the level of motivation. In the sequel, we first discuss some general descriptive results at the firm level based on the personnel files and then discuss the questionnaire and the individual level results.

Firm level descriptives

Sample. Table 1 compares characteristics of the respondents with those of the population of the entire division. The sample proves to be fairly representative. Comparing the population and sample averages, none of the variables is significantly different.

Table 1 further shows that the percentage of female employees in the firm is fairly large, 69%. Over 40% of the employees population is younger than 35, a quarter is older than 45. More than 30% has been working already for over ten years with this publishing company. Over 40% works in the editorial staff. Five percent is part of the sales force, nine percent works in a marketing department, whereas the remaining 45% is working in various other staff departments. Thirteen percent of the total work force receives explicit incentive compensation. Moreover, editorial, sales and marketing employees are clustered according to the magazines for which they work. This is not shown in the table.

Insert Table 1 about here

Compensation system. The first element of the compensation system we discuss is performance evaluation. Formal processes for evaluating the entire staff have been absent, though plans for the introduction of an overall performance evaluation procedure for the whole staff were in a final stage at the time the survey was sent out. Formal evaluation of employees with incentive compensation did already exist. The evaluation meetings are being held in the first quartile of each year. During these (approx. one hour) sessions the performance of the previous year is discussed and the targets for the next period are communicated. However, the period for which the targets are set stretches from January to December. Thus, communication of targets is being done fairly untimely since they are communicated to employees two or three months after the start of the target period.

The second element of the compensation system we study is fixed compensation. The compensation system of the company is based on two different collective labor agreements. The first labor agreement has been formulated for journalists and the editorial staff. The second labor agreement applies to the remaining employees. Both agreements have different pay level scales. Each job has been rated in a standard function evaluation system, based on

different aspects of the job, and classified into different categories. The total number of job categories within the organization is 49. This large number of categories is caused by the fact that historically ascribed categories are still in use. Each category consists of eleven, sometimes fourteen salary steps. Normally, an employee is put into a higher step each year until the maximum of the category has been reached.

Incentive compensation, the next element we consider, applies to 13.1 % of the total workforce. Two groups can be distinguished that have incentive compensation. The first group consists of employees within the sales department. Their incentive compensation is based on their performance on three main objectives. On average, 5.6 % of their total fixed annual monetary compensation consists of incentive compensation. The second group of employees with incentive compensation is the middle and top management. Depending on the category and the department middle and top management are awarded incentive compensation based on their performance on different measures. For every management position certain measures are mandatory. The supervisor determines additional measures, the target and the pay-performance schema. This results in a variable compensation that in 2000 was equal to 21.9 % of total management remuneration.

The last element of the compensation system we consider is promotion. A combination of two specific circumstances causes a promotion to be an especially important incentive device at this company. The first circumstance is the lack of alternative possibilities for salary increases within this division. There are three generic possibilities for salary increases. The first is a promotion to a position in a higher category. The second is incentive compensation, which only applies to only 13% of the employees. These two methods are performance based. The third method is an automatic (and modest) salary increase by means of a yearly salary step within every job-category. This last method is not based on the performance of the employees. Moreover, a large proportion of employees in this firm have reached the highest step within their job category. Figure 2 sketches the situation for the editorial staff, all without incentive compensation: 45% have reached the highest compensation given their job category. Hence, given the lack of alternative salary increases, a promotion is all the more important as an incentive device.

The second reason why promotions are such an important incentive is the above industry average salary increase at a promotion: The total amount of compensation for lower level employees within this division is below the median amount of compensation for the same type of employees in peer companies whereas at higher levels within the organization the total amount of compensation catches up with peer companies and even surpasses the median amount of compensation. This implies that a promotion within this division will have stronger impact on compensation than an inter-company promotion within the industry.

Insert Figure 2 about here

Questionnaires

Table 2 shows the core questions of the questionnaire, along with the sample mean scores and standard deviations. The questions concerning the employees' perception of the compensation system, as well as those related to motivation and individual performance were all formulated as statements. Employees were asked to react to the statements by providing answers ranging from 1 (1 = Completely disagree) to 5 (5 = Completely agree). Multiple questions have been asked to assess single constructs. The internal consistency of the constructed items (transparency, fairness, controllability, intrinsic and extrinsic motivation) is tested by means of Cronbach's alpha. Factor analysis has been done to provide insights into the relationship between the various answers.

Transparency. The perceived transparency for each element of the compensation system was assessed by asking questions concerning the complexity and the clarity of communication of each element. In total three statements were formulated that tried to capture transparency. They all contained the word "clear", either referring to the dimension of communication or the dimension of complexity. Besides, respondents were asked to evaluate the transparency of the overall compensation system. The transparency of the element monetary compensation was measured by only one statement. Two statements measured the transparency of promotion opportunities. For this item the coefficient alpha was equal to .83.

Fairness. The perceived fairness of the monetary compensation system was measured by using three statements. The statements tried to capture different dimensions of the concept

of fairness. The internal fairness is measured by asking whether the employees feel that the compensation system treats them fairly. The second statement measures if the match between pay and performance is perceived to be fair. The third statement focuses on the external fairness (the current level of monetary compensation compared to competitive firms). The coefficient alpha for this item equals .83. A single statement measured the perceived fairness of internal promotions.

Controllability. Statements concerning potential employee influence on the compensation system capture controllability. To this end, we focused on the terms *"influence"* and *"being in control"*. Single statements measured the perceived controllability of the two elements of the compensation system: pay and promotion

Motivation. In order to grasp the level of job motivation of the individual employees, the respondents were asked to react to fourteen statements. Seven statements were intended to estimate the level of extrinsic motivation. The intrinsic motivation of the employees was estimated with a second series of questions. Factor analysis was used to identify the underlying dimensions of the responses to the fourteen motivational statements. The analysis initially revealed three underlying factors that measure motivation. This three factor solution was determined by using the criterion of eigenvalue > 1 for each component. A scree plot of the factor results however suggests a two-factor solution. This result, combined with the low eigenvalue (1.236) of the third component, strongly suggested the use of two factors. The rotated component matrix of the two factors option supports our principal assumption: one factor is loaded with the extrinsic motivation questions, while the intrinsic motivation questions load the second factor.

The internal consistency of the two components of motivation was again estimated with Cronbach's alpha. The scale reliability of the summative scale for extrinsic motivation was .77. In order to generate a proper construct for intrinsic motivation the negatively stated variables 4 and 6 were inversely recoded. The initial Cronbach's alpha equals .79 whereby the alpha has a value of .84 after deletion of the "willingness to work overtime" variable. Its relatively low factor score already suggested the inappropriateness of this variable to be incorporated in the construct of intrinsic motivation. We therefore measure the construct "intrinsic motivation" by means of the remaining six proxies for intrinsic motivation.

Also three other indicators of individual motivation are analyzed in this paper. These indicators, overall work satisfaction, turnover intent and sick leave, were all measured by the results on a single statement. Overall work satisfaction was expressed by the employees on a ten point scale. The second individual indicator of the level of motivation, turnover intent, was assessed by means of the statement: "I've often seriously considered to quit and work elsewhere". Sick leave is a relatively objective indicator and was assessed by the question "How many days have you approximately been absent in 2000 due to health reasons?". The categorized answers were considered only for employees that were employed by the company throughout the entire year 2000.

Control Variables. Individual differences in demographic factors can have an impact on the relationship between the variables (e.g. Janssen, 2001). Therefore, demographic control variables were used in each of the analyses. The respondents were divided into three groups: younger than 35, between 35 and 45 and older than 45. Respondents with high levels of education (a university or college degree) are distinguished from the rest (dummy variable). The dummy for gender is one for male respondents, and zero for females. Respondents are part of one of four organizational groups: editorial staff (group 1), sales (group 2), marketing (group 3) and support staff (group 4). A dummy distinguishes participants in an incentive program from the rest. Furthermore a dummy for managers was used as well as a dummy for having explicit targets. Three categories of tenure were used (less than 5 years, between 5 and 10 years and more than 10 years). A similar division was based on the amount of years the respondents were working in the same function/ task (less than 1 year, between 1 and 4 years and more than 4 years).

Descriptive statistics

In order to get an overview of the sample data, tables 3 and 4 present descriptive statistics for the dependent and independent variables obtained by the questionnaire. Table 3 compares the means of the different dependent variables while using the control variables to divide the sample into sub-groups. It shows that tenure and task tenure are negatively related to work satisfaction. Employees that have worked less than five years with the organization have a mean score for work satisfaction that is higher than the same score for employees that have been with the organization for over ten years (7.17, $p < 0.05$). This difference is even clearer once the focus shifts to task tenure. Performing the same tasks for less than one year provides the employee with a median work satisfaction of 7.29, while staying without a promotion for more than four years diminishes the level of satisfaction to 6.80 ($p < 0.01$).

Insert Table 3 about here

The table also indicates differentiations for the level of intrinsic and extrinsic motivation. The groups 2 (Sales) and 4 (Staff) without incentive compensation have a lower level of intrinsic motivation than the other groups. On average management functions have a higher level of intrinsic motivation (4.31 versus 4.16, $p < 0.05$).

Table 4 provides the descriptive statistics for the variables used to analyze the effect of the entire compensation system on motivation and other indicators of individual motivation. Extrinsic motivation is positively correlated with all perceived characteristics of compensation and promotion opportunities, the only exception being the transparency of the compensation system. The extent to which the perceived characteristics correlate with intrinsic motivation is limited: the only significant (and positive) correlation is with the transparency of promotion opportunities ($r = .23$, $p < .01$). Both extrinsic and intrinsic motivation are significantly correlated with tturnover intent and work satisfaction. Sick leave shows no significant correlations with the two types of motivation or with the characteristics. The next section discusses the regression results that test the hypotheses. We first briefly describe the standard regression techniques used.

Insert Table 4 about here

Regression techniques

To test the hypothesized relationships between the perceptions of the compensation system and the two types of motivation we use OLS regression. This is appropriate since the dependent variable, constructed from an average of 6 or 7 statements, and therefore no longer an ordinal variable, meets the standard statistical requirements for OLS regression. For interpretation purposes of the coefficients, the independent and dependent variables of these regressions were measured on a logarithmic scale. For regressions with work satisfaction, turnover intent and sick leave as dependent variables we will use an ordered probit model. This model is suitable for regression with an ordinal dependent variable resulting from the usage of a single construct.

RESULTS

We will first present the relationships of the characteristics of the total compensation system with both extrinsic and intrinsic motivation. This will be followed by a discussion of the relationship of the same characteristics with work satisfaction, turnover intent and sick leave.

The effects of monetary compensation and promotions on motivation

Table 5 displays the regression results concerning the overall motivational effects of monetary compensation and promotions with extrinsic and intrinsic motivation as the dependent variables. The independent variables are the perceptions of the monetary part of the compensation system and the promotion part. A large number of control variables is used to restrain the impact of demographic factors on the two types of motivation. Four out of six characteristics have a significant relationship with extrinsic motivation, namely the perceived fairness of the compensation system and the transparency, fairness and controllability of promotions. The perceived fairness of the monetary compensation has the strongest effect on extrinsic motivation: a marginal increase will have a 34% beneficial effect. The transparency and the controllability of the compensation system were found to have no effect on the level of extrinsic motivation. The level of intrinsic motivation is not influenced by any of the characteristics of the monetary compensation system. However, two perceived characteristics of promotion opportunities have a significant positive effect on intrinsic motivation.

Insert Table 5 about here

The control variables that are significantly correlated with extrinsic motivation are the individual employee characteristics gender and task tenure. The significant control variables in the regression explaining variations in intrinsic motivation are age and the organizational department where the employees are working. In order to test for multicollinearity, the VIF scores were also measured. The highest score (3.003) was below common excepted tolerance levels and indicates that multicollinearity does not significantly affect our results.

The effects of monetary compensation and promotions on indicators of motivation

While investigating the relationship between the compensation and promotion system and motivation, it is informative to look at the more direct consequences of motivation. Table 6 presents the results of these tests, namely the relationship between the compensation system and work satisfaction, turnover intent and sick leave.

Insert Table 6 about here

Work satisfaction is significantly positively affected by the fairness of the monetary compensation and the transparency and controllability of promotion opportunities. Work satisfaction is also significantly negatively related with the transparency of monetary compensation, an unexpected result. Turnover intent has a significant negative relationship with the perception of the fairness of monetary compensation and the transparency of promotion opportunities. Sick leave was not significantly related to any of the six characteristics of the compensation and promotion system

Discussion of the results

Combining the empirical results with the hypotheses gives an indication of the validity of our conceptual model. Hypothesis one is partly supported by the results. Transparency of the promotion opportunities is found to have a significant positive effect on the level of extrinsic motivation. The relationship between the perception of transparency of monetary compensation and extrinsic motivation has not been proven to be significant. No relationship is found between controllability of the compensation system and motivation. Hypothesis three is supported as far as promotion opportunities are concerned, but does not hold for monetary compensation. The findings entirely support hypothesis two: a significant relationship has been established between the perception of fairness of both monetary compensation and promotions and extrinsic motivation.

Hypothesis four is also supported by the results. No significant relationship has been exposed between the perceptions of the characteristics of the monetary part of the

compensation system and intrinsic motivation. However, intrinsic motivation is significantly influenced by the perception of transparency and fairness of the promotion opportunities. This result does not hold for the other characteristic of the promotion opportunities. Therefore hypothesis five, that predicts a significant relationship between intrinsic motivation and all characteristics, is partly supported.

The hypothesis concerning the impact of motivation on more tangible indicators of motivation is partly supported by the results. Overall we find that fairness of monetary compensation has the expected relationship with both work satisfaction and turnover intent. The same holds for the transparency of the promotion opportunities: transparency is positively related with work satisfaction and negative related with turnover intent. The controllability of promotion opportunities has the same relationship with work satisfaction. An unexpected result was the negative influence of a transparent monetary compensation system and work satisfaction. No significant results were found for sick leave.

CONCLUSION

Various schools of thought in both the psychological and economic literature have made incentive compensation the central subject of study, without coming to a univocal answer. This paper tests a conceptual model that is original in its compilation and tries to combine existing elements of psychological and economic theory. The empirical tests of the conceptual model enable us to evaluate the model.

The first theory is the crowding theory. This theory has been developed in an attempt to stretch the boundaries of economic theory. Our regression results do not find support for the crowding theory. We have not located evidence of a significant negative relationship between monetary compensation and intrinsic motivation. We do find that intrinsic motivation is influenced by job related issues such as job enrichment. Monetary incentives do not have such an effect. Promotion opportunities are proven to have a significant contribution to the degree of intrinsic motivation. Transparent promotional opportunities can increase the prospect of enjoyable future tasks and thereby intrinsic motivation.

The results have also partly tested both the reciprocity and equity theory by investigating the relationship of the perception of fairness and motivation. As hypothesized, the perceived fairness of the monetary and promotional parts of the compensation system has a significant relationship with extrinsic motivation. This result is predicted by both the reciprocity theory and the equity theory. The feeling of being treated correctly by a company will induce fair behavior in return. Employees will not undertake tasks, while considering the possibility of shirking and the potential danger of this behavior on future levels of compensation, but they will undertake tasks because they feel obliged to return the fair treatments they receive. The support for the importance of perceived fairness is clearly a recurring empirical result in this study.

The confirmation of the reciprocity and equity theory emphasizes the academic relevance of this paper, but the conceptual model and the empirical results also have a managerial relevance. They supply managers with a tool to distinguish between different elements that build a compensation system. The potential impact of the tool would be that both extrinsic as well as intrinsic motivation are improved. An increase of extrinsic

motivation can be reached by improving elements of both the monetary compensation system and promotional opportunities. As we have shown, an increase in the perception of fairness will increase the level of extrinsic motivation. The characteristics of promotions have been shown to have a positive relationship with both types of motivation. Therefore, it can be seen as an important managerial tool, for an increase in the level of motivation is not limited to an increase in effort. We have shown that a well perceived compensation system also has a beneficial effect for companies on major indicators of motivation: work satisfaction and turnover intent. We can conclude that a compensation system can be of great importance for managers in order to increase both motivation and individual performance.

Limitations and suggestions for further research

Our study has three main limitations. The first one is the difficulty to investigate the causality of the relationships. Consistent with the expectancy theory, motivation is based on the expected value of the rewards (monetary compensation and promotions). Motivation in turn is linked to performance. Performance in turn is an input parameter into the performance measurement and evaluation system. The perception of the compensation system will therefore consist of updated believes of how motivation results in rewards. Although the causality remains an issue worth investigating, the relationships we have formulated are based on existing psychological and economic literature.

The research site causes the second limitation. The research site was a single Dutch company. This leads to the limitation that we are unable to identify the practical boundaries of this study and the possibility of generalizing the results.

The third limitation is related to the research methodology. In our methodology we were not able to combine the questionnaire with hard data that illustrate the actual level of effort displayed by the employees. Some might argue that we implicitly assumed that motivation is a beneficial parameter that should be maximized. In reality, maximizing the principal's utility will not necessarily lead to a maximization of employee motivation. The costs of improving the compensation system should be weighed with the benefits of motivated personnel.

Much work remains to be done. An important possible contribution is to increase the understanding of the mutual relations between extrinsic, intrinsic motivation and total

motivation. This paper has shown the existence of a positive relationship between the characteristics of a compensation system and both types of motivation, but has not dealt with the interaction of the two types of motivation with respect to total motivation. The impact of a compensation system on the performance of employees depends for a large part on the importance of extrinsic motivation for total motivation. Further research might also lead to an improved understanding of the optimal balance between improving the monetary compensation system and promotion opportunities.

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FIGURE 1
Conceptual Model

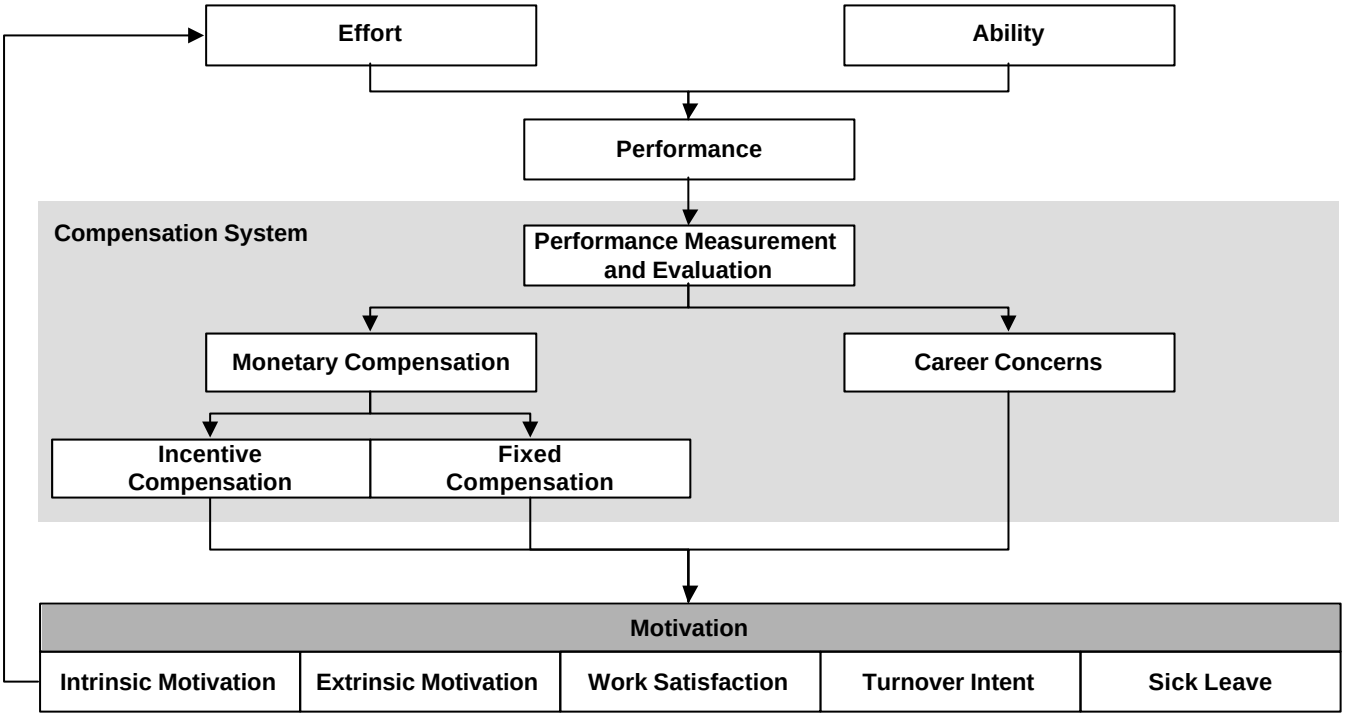

FIGURE 2
Frequency Distribution of Salary Steps for the Editorial Staff

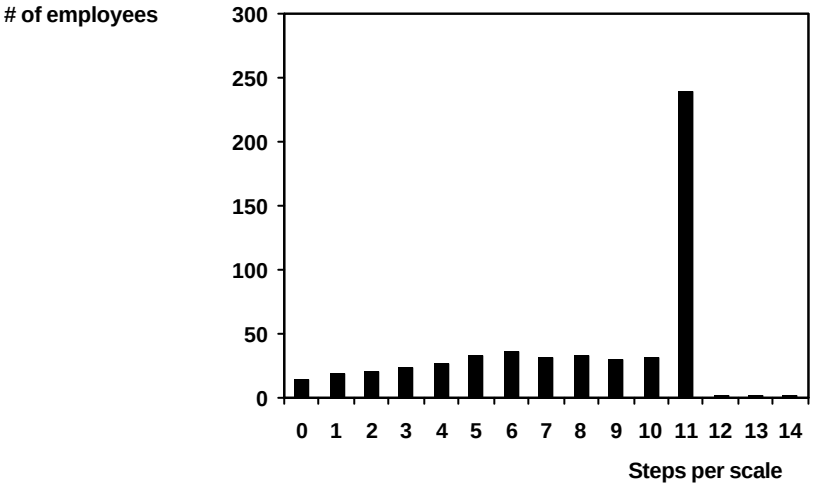

TABLE 1
Sample Descriptives

		Total population		Sample	
		Absolute	**Percentage**	**Absolute**	**Percentage**
Gender	Female	1024	69%	319	70%
	Male	450	31%	137	30%
	Unknown	22		4	
Age (years)	< 25	46	3%	12	3%
	25 – 34	571	38%	185	40%
	35 – 44	438	29%	150	33%
	45 – 54	302	20%	81	18%
	> 55	139	9%	30	7%
	Unknown	0		2	
Tenure (years)	< 1	85	6%	46	10%
	1 – 5	756	51%	188	41%
	6 – 10	183	12%	67	15%
	11 – 15	128	9%	37	8%
	> 16	344	23%	116	26%
	Unknown	0		6	
Discipline	Editorial	599	40%	189	42%
	Sales	77	5%	42	9%
	Marketing	141	9%	80	18%
	Staff and other	679	45%	137	31%
	Unknown	0		12	
Incentive compensation	No	1305	87%	370	81%
	Yes	191	13%	90	20%
	Unknown	0		0	
	TOTAL	1496		460	

TABLE 2
Summary of Questionnaire [1]

Perception		Question	Mean	Std. Dev.
Transparency	Mon. Comp.	The way in which my salary is determined is fully clear to me.	3.49	1.23
	Car. Conc.	It's clear to me what my promotion possibilities are.	3.04	1.27
	Car. Conc.	It's clear to me what the criteria are for me to get promoted to the next level.	2.68	1.25
Fairness	Mon. Comp.	I feel fully appreciated by the total compensation I receive for the work I do.	2.99	1.15
	Mon. Comp.	My compensation fits my performance.	2.90	1.20
	Mon. Comp.	My salary is good when compared to what I could earn in another company doing the same job.	2.89	1.12
	Car. Conc.	People who I've seen receive promotions at *the company* deserve them.	2.89	0.87
Controllability	Mon. Comp.	I can influence my total compensation by working harder.	1.71	1.04
	Car. Conc.	I have full control over my ability to get promoted.	3.08	1.20
Extrinsic motivation	1	The manner in which I am compensated ensures that I am motivated to give the fullest effort possible.	3.02	1.12
	2	There are enough promotion possibilities to stimulate me to work hard.	2.59	1.04
	3	I'm satisfied with the way in which my compensation is determined.	2.80	0.97
	4	I'm satisfied with the promotion possibilities existing in *the company*.	2.81	1.03
	5	I get the feeling that *the company* finds it important to have a solid and clear compensation system.	2.77	1.02
	6	I'm enthusiastic about my salary level.	2.97	1.05
	7	I find the compensation system to be motivating.	2.70	1.09
Intrinsic motivation	1	If it's really necessary I'm prepared to work overtime even if I don't get paid for this specifically.	4.13	1.14
	2	I get much satisfaction from the work I do.	4.00	0.88
	3	My job is worth the effort.	4.23	0.76
	4	I'm very satisfied with my job.	3.85	0.88
	5	I often have to force myself to got to work	1.54	0.88
	6	Usually I'm enthusiastic about my job.	4.14	0.86
	7	While at work I often feel like the day will never end.	1.53	0.84
Work Satisfaction		Considering all the aspects of my present job, my overall satisfaction can be expressed with the following grade: (on a scale of 1 to 10):	7.04	1.21
Turnover Intent		I've often seriously considered quitting and finding a job elsewhere.	2.61	1.18

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[1] Mon. Comp. refers to questions regarding monetary compensation; Car. Conc. refers to questions regarding career concerns.

TABLE 3

Descriptive Statistics of Control Variables

		Extrinsic Mot.	Intrinsic Mot.	Satis-faction	Turnover Intent	Sick Leave
Age	<35	2.85	4.10**	7.08	2.62	1.27
	35-45	2.76	4.23	6.99	2.62	1.48*
	>45	2.80	4.31*	7.05	2.59	1.35
Education	Low	2.87	4.16	7.08	2.29**	1.39
	High	2.78	4.21	7.02	2.79**	1.35
Gender	Female	2.80	4.20	7.02	2.74	1.33
	Male	2.86	4.15	7.15	2.15	1.47
Tenure	<5	2.89*	4.12*	7.17*	2.47**	1.26*
	5 till 10	2.68	4.27	6.95	3.09**	1.44
	>10	2.76	4.25	6.90	2.63	1.46
Task tenure	<1	3.06**	4.27	7.29	2.36	1.35
	1 till 4	2.83	4.16	7.11	2.60	1.29*
	>4	2.66**	4.21	6.80**	2.76	1.49*
Management	No	2.79	4.16*	6.96**	2.57	1.41**
	Yes	2.90	4.31*	7.38**	2.81	1.14**
Parttime	No	2.80	4.20	7.02	2.74**	1.33
	Yes	2.86	4.15	7.15	2.15**	1.47
Targets	No	2.81	4.16	6.97*	2.57	1.39
	Yes	2.82	4.29	7.26*	2.73	1.29
Discipline	Gr 1 with inc comp	2.78	4.44	7.28	3.22*	1.35
	Gr 1 without inc comp	2.74	4.35**	7.04	2.68	1.37
	Gr 2 with inc comp	2.93	4.32	7.56*	2.29	1.54
	Gr 2 without inc comp	2.92	3.98	6.86	2.64	1.18
	Gr 3 with inc comp	2.80	4.28	7.28	2.67	1.18
	Gr 3 without inc comp	2.78	4.10	7.06	2.58	1.51
	Gr 4 with inc comp	2.90	4.33	7.54	2.77	1.10
	Gr 4 without inc comp	2.88	3.98**	6.84*	2.49	1.29

* *p < .05, two –tailed tests*
** *p < .01, two-tailed tests*

TABLE 4
Descriptive Statistics and Correlations

Variables	Mean	s.d.	1	2	3	4	5	6	7	8	10	11
Compensation												
1 Transparency	3.47	1.25										
2 Fairness	2.91	1.00	0.11*									
3 Controllability	1.68	1.00	0.06	0.22**								
Promotions												
4 Transparency	2.84	1.17	0.11*	0.18**	-0.05							
5 Fairness	2.85	0.89	0.10	0.30**	0.17**	0.07						
6 Controllability	3.10	1.17	-0.10*	0.30**	0.17**	0.31**	0.20**					
Motivation												
7 Extrinsic	2.79	0.68	0.03	0.65**	0.20**	0.36**	0.31**	0.44**				
8 Intrinsic	4.20	0.61	0.09	0.09	-0.03	0.22**	-0.01	0.08	0.22**			
Indicators of mot.												
9 Work satisfaction	7.00	1.25	0.02	0.37**	0.15**	0.20**	0.17**	0.26**	0.41**	0.43**		
10 Turnover intent	2.67	1.16	-0.01	-0.29**	-0.08	-0.17**	-0.14**	-0.22**	-0.40**	-0.29**	-0.39**	
11 Sick leave	1.34	0.78	0.01	0.04	0.00	0.05	0.01	0.01	-0.02	-0.14**	-0.09	0.00

[a] *N = 375*
* *p < .05, two –tailed tests*
** *p < .01, two-tailed tests*

TABLE 5
Regression Results Extrinsic & Intrinsic Motivation[2]

	Dependent Variable			
	Extrinsic Motivation		Intrinsic Motivation	
Independent Variable	***b***	***t***	***b***	***t***
Characteristics of mon. compensation				
Transparency	-0.01	-0.35	-0.01	-0.39
Fairness	0.34**	13.07	0.03	1.53
Controllability	0.03	1.33	-0.01	-0.64
Characteristics of promotion				
Transparency	0.09**	3.95	0.05*	2.40
Fairness	0.11**	4.11	0.04†	1.66
Controllability	0.14**	6.49	0.03	1.56
Control variables				
Age < 35	0.00	0.31	-0.02*	-2.28
Age > 45	0.01	0.84	0.01	1.37
Education	-0.01	-1.26	0.00	-0.20
Gender	0.02*	2.40	0.01	1.27
Gr 1 with inc comp	0.02	0.79	0.04†	1.73
Gr 1 without inc comp	0.01	0.81	0.05**	4.99
Gr 2 with inc comp	0.00	0.23	0.05**	2.62
Gr 2 without inc comp	0.00	0.20	0.01	0.24
Gr 3 with inc comp	0.00	0.14	0.03†	1.66
Gr 3 without inc comp	-0.01	-0.36	0.02*	2.00
Gr 4 with inc comp	0.03	1.02	0.03	1.09
Management dummy	-0.01	-0.60	0.01	0.90
Parttime	0.00	-0.23	-0.01	-0.76
Target dummy	-0.01	-0.35	0.00	0.12
Task tenure < 1	0.02	1.54	0.01	0.93
Task tenure > 4	-0.02*	-1.98	0.00	-0.34
Tenure < 5	0.02	1.61	0.00	-0.17
Tenure > 10	0.01	1.08	-0.01	-1.01
(Constant)	0.12†	5.22	0.54**	26.74
R^2	.580		.158	
adjusted R^2	.555		.108	
N	428		428	

† *p < .10, two-tailed tests*
* *p < .05, two–tailed tests*
** *p < .01, two-tailed tests*

[2] Gr1 refers to editorial staff, Gr2 refers to the sales department, Gr3 refers to the marketing department and Gr4 refers to support staff. All these departments were divided into a group receiving incentive compensation and a group without incentive compensation.

TABLE 6
Regression Results Indicators of Motivation[3]

	Dependent Variable					
	Work Satisfaction		Turnover Intent		Sick Leave	
Independent Variable	**b**	**z**	**b**	**z**	**b**	**z**
Characteristics of mon. compensation						
Transparency	-0.56†	-1.83	-0.10	-0.34	0.16	0.38
Fairness	2.20**	5.77	-1.32**	-3.53	0.14	0.28
Controllability	-0.03	-0.11	-0.25	-0.83	0.09	0.22
Characteristics of promotion						
Transparency	0.89**	2.89	-0.56†	-1.82	0.54	1.27
Fairness	0.30	0.82	-0.34	-0.94	0.17	0.35
Controllability	0.64*	2.01	-0.52	-1.63	0.27	0.62
Control variables						
Age < 35	-0.17	-1.08	0.07	0.47	-0.13	-0.61
Age > 45	0.25	1.53	-0.18	-1.09	-0.28	-1.31
Education	-0.25†	-1.83	0.51**	3.74	0.19	1.07
Gender	0.25†	1.72	-0.01	-0.05	0.08	0.43
Gr 1 with inc comp	0.79*	2.13	0.10	0.26	1.02†	1.86
Gr 1 without inc comp	0.51**	3.18	0.05	0.31	-0.32	-1.49
Gr 2 with inc comp	0.98**	3.12	-0.51	-1.64	0.78†	1.76
Gr 2 without inc comp	-0.10	-0.28	0.51	1.38	-0.71	-1.15
Gr 3 with inc comp	0.65†	1.92	-0.59†	-1.77	1.02†	1.87
Gr 3 without inc comp	0.41*	2.01	0.01	0.06	0.24	0.92
Gr 4 with inc comp	0.58	1.37	-0.41	-0.98	0.45	0.62
Management dummy	0.17	0.77	0.41†	1.92	-1.11**	-3.15
Parttime	0.01	0.09	-0.39*	-2.55	0.34†	1.73
Target dummy	-0.15	-0.70	0.13	0.60	-0.36	-1.06
Task tenure < 1	-0.07	-0.41	-0.19	-1.07	0.01	0.04
Task tenure > 4	-0.23	-1.57	0.11	0.74	0.40*	1.98
Tenure < 5	0.26	1.52	-0.36*	-2.09	-0.39†	-1.70
Tenure > 10	-0.13	-0.67	-0.17	-0.88	-0.14	-0.56
Intercept						
Intercept 1	-1.36		-2.34		1.23	
Intercept 2	-1.15		-1.26		1.85	
Intercept 3	-0.82		-0.33		2.10	
Intercept 4	-0.38		0.38			
Intercept 5	0.31					
Intercept 6	0.98					
Intercept 7	2.08					
Intercept 8	3.74					
Intercept 9	4.93					
Intercept 10						
Intercept 11						
Intercept 12						
Pseudo R^2	0.097		0.085		0.068	
N	375		375		375	

† *p < .10, two-tailed tests*
* *p < .05, two –tailed tests*
** *p < .01, two-tailed tests*

[3] Gr1 refers to editorial staff, Gr2 refers to the sales department, Gr3 refers to the marketing department and Gr4 refers to support staff. All these departments were divided into a group receiving incentive compensation and a group without incentive compensation.