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It's (Not) All About the Jacksons: Testing Different Types of Short-Term Bonuses in the Field

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The use of short-term bonuses to motivate employees has become an organizational regularity, but a thorough understanding of the relationship between these incentives and actual performance is lacking. We aim to advance this understanding by examining how three types of bonuses (cash, family meal voucher, and verbal reward) affect employees' productivity in a field experiment conducted in a high-tech manufacturing factory. While all types of bonuses increased performance by over 5%, nonmonetary short-term bonuses had a slight advantage over monetary bonuses. In addition, the removal of the bonuses led to decreased productivity for monetary bonuses but not for the verbal reward. However, this negative effect of monetary short-term bonuses diminishes when a cash bonus is chosen by employees rather than granted by default. Theoretical implications about the effect of short-term bonuses on intrinsic motivation and reciprocity, as well as practical applications of short-term bonus plans that stem from our findings, are discussed.

Keywords: *recognition; nonmonetary; productivity; motivation*

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Ample research suggests that human resource management (HRM) practices contribute immensely to the efficiency and productivity of organizations (Arthur, 1994; Huselid, 1995; Huselid, Jackson, & Schuler, 1997; Pfeffer, 1998; Wright & Boswell, 2002). It has been shown that HRM practices—including employee recruitment procedures, incentive compensation, and extensive training—positively affect employee motivation, productivity, and turnover rates and that such practices can also result in increased organizational performance (e.g., Gerhart & Milkovich, 1990; Huselid, 1995; Jones & Wright, 1992). The current paper deals with one commonly used HRM practice: the performance-based incentive bonus (Durham & Bartol, 2000; Gerhart, Rynes, & Fulmer, 2009), an extra payment on top of base salary for the achievement of prespecified goals.

While performance-based incentives come in many shapes and flavors (e.g., gain sharing, profit sharing, lump-sum bonus, and sales commission), we focus here on short-term bonuses. In general, short-term bonuses are performance-based incentives where the measurement period of performance is short—usually anytime between 1 day and a full year (Grigoriadis & Bussin, 2007). The primary purpose of such bonuses is to reward or recognize performance that has an impact on the success of the company.

Recently, short-term bonuses have become a widely used class of incentive. According to a recent WorldatWork survey (2014a, 2014b, 2014c) conducted with over 700 workers from nonprofit/government, privately held, and publicly traded organizations in North America, over 80% of companies use short-term bonuses to recognize notable performance in lower-level employees. In addition, in a survey aimed at understanding the best ways to reward top performers in the workplace, short-term bonuses were ranked among the top two choices by both employers and top-performing employees and as the most preferred award by professional/technical employees (Menefee & Murphy, 2004). Still, despite their popularity among companies and employees, empirical evidence on the efficacy of short-term bonuses is lacking (Grigoriadis & Bussin, 2007). To that end, we report a field experiment that examines the effectiveness of different types of short-term bonuses as well as their effect on productivity after their administration. To directly examine the effect of short-term bonuses, and since distributing low-magnitude bonuses can enable organizations to motivate employees at a minimal fiscal burden (Mohrman & Worley, 2009), in the current paper we focus on the implementation of low-magnitude short-term bonuses.

The idea of rewarding employees for high-quality performance is backed by several psychological and economic theories (e.g., agency theory; Eisenhardt, 1989; expectancy theory; Vroom, 1964; goal-setting theory; Locke & Latham, 1990; reinforcement theory; Hamner, 1975; Luthans & Stajkovic, 1999; see Gerhart & Rynes, 2003, for a review). In general, performance-based bonuses are assumed to affect employees' performance through two complementary, yet different, mechanisms: incentive and sorting effects (Gerhart et al., 2009; Gerhart & Milkovich, 1992; Gerhart & Rynes, 2003; Lazear, 1999, 2000).

In terms of the incentive-based mechanism, the central assumption is that performance depends on motivation (Ambrose & Kulik, 1999; Moorhead & Griffin, 1998). Since performance-based bonuses motivate employees to invest more effort in a task, they are assumed to have a direct effect on productivity (Gneezy & Rustichini, 2000). In line with this suggestion, strong empirical evidence supports the incentive effect of performance-based bonuses (e.g., Baker, Jensen, & Murphy, 1988; Cameron, Banko, & Pierce, 2001; Gupta & Shaw, 1998; Guzzo, Jette, & Katzell, 1985; Jenkins, 1986; Jenkins, Mitra, Gupta, & Shaw, 1998;

Locke, Feren, McCaleb, Shaw, & Denny, 1980; Prendergast, 1999; Stajkovic & Luthans, 2001). The data supporting the incentive effect is particularly compelling, as it is based on ample reviews and meta-analyses of field experiments (Gerhart et al., 2009). For example, Guzzo et al.'s (1985) meta-analysis showed that incentives increase employees' productivity by nearly one half standard deviation. Similarly, in a more recent meta-analysis of 39 empirical studies, Jenkins et al. (1998) demonstrate a positive average effect of incentives on employees' performance, particularly in experimental simulations and field studies.

In terms of the sorting-based mechanism, the basic assumption is that performance-based bonuses may also affect performance through a self-selection process that influences the composition of the workforce. According to the sorting effect, performance-based payment schemes both attract and retain high-performing employees who choose work environments with performance-based compensation. In like manner to the incentive effect, ample empirical evidence supports the sorting effect (Bandiera, Barankay, & Rasul, 2007; Cadsby, Song, & Tapon, 2007; Gerhart et al., 2009; Gerhart & Milkovich, 1992; Harrison, Virick, & William, 1996; Lazear, 2000; Shearer, 2004; Trank, Rynes, & Bretz, 2002). For instance, Lazear (2000) examined the productivity of windshield washer installers, defined in terms of units installed each day per worker. The data showed an increase of 44% following the transition from fixed salaries to a piece-rate incentive plan, with about 50% of this improvement due to an incentive effect. The remaining 50% was attributed to a sorting effect according to which less productive employees were replaced over time by more productive employees who were attracted to and benefited from performance-based incentives. Corroborating evidence was found by Shearer (2004) among tree planters in Canada, and other research has found that high performers find performance-based incentives more attractive than low performers do (e.g., Bretz, Ash, & Dreher, 1989; Trank et al., 2002; for a comprehensive review, see Gerhart et al., 2009).

These two approaches provide compelling evidence that performance-based incentives improve performance by increasing motivation and attracting employees who are more likely to be high performers. Based on these approaches, we predict the following:

Hypothesis 1: Productivity will increase when short-term bonuses are introduced.

Despite the advantages of performance-based bonuses, the effectiveness of low-magnitude short-term bonuses is particularly interesting and potentially counterproductive. Theoretically, money serves as an incentive due to its fungibility with other desirable outcomes, such as consumer goods and services (Komaki, Coombs, & Schepman, 1996; Peterson & Luthans, 2006; Zhou & Gao, 2008). However, recent empirical evidence in economics and psychology suggests that paying small amounts of money may actually result in a decline of motivation and effort (Frey & Jegen, 2001; Gneezy & Rustichini, 2000; Heyman & Ariely, 2004). For example, Gneezy and Rustichini (2000) showed that participants answered more questions from an IQ test correctly when they received either 1 New Israeli Shekel (NIS) or 3 NIS per correct answer (at the time of the experiment US\$1 = 3.5 NIS) relatively to when they received only 0.1 NIS per answer. Interestingly, participants who were offered no monetary incentive at all provided more accurate answers than those who were offered 0.1 NIS per answer (but still less than those in the 1 NIS and 3 NIS groups). Similarly, when a group of participants were asked to perform a simple computerized task, those who were asked to

conduct the task without any monetary incentive invested more effort than those who received a small monetary payment (Heyman & Ariely, 2004). These studies suggest that in settings that involve social relationships (such as the workplace), small amounts of money can be poor motivators, and zero payment can be more motivating than rewards that are perceived as too low.

In addition, small-magnitude short-term bonuses makes it possible to provide them in many different ways, ranging from pure cash to cash substitutes (e.g., gift cards, vouchers) to nonfinancial incentives (e.g., verbal rewards, praise)—a range that offers the potential to affect both the desirability and effectiveness of short-term bonuses. Opponents of performance-based bonus programs argue that extrinsic rewards may undermine intrinsic motivation, thus having no effect on (or even decreasing) productivity (e.g., Ashton, 1990; Bonner, Hastie, Sprinkle, & Young, 2000; Bonner & Sprinkle, 2002; Deci, Koestner, & Ryan, 1999; Deci & Ryan, 1985; Herzberg, 1968; Kohn, 1993b; Skaggs, Dickinson, & O'Connor, 1992; Smith & Walker, 1993; Young & Lewis, 1995). For example, cognitive evaluation theory (CET; Deci & Ryan, 1985) and the more recent self-determination theory (SDT; Ryan & Deci, 2000) postulate that financial rewards can be perceived as controlling or manipulative motivators. As a result, these bonuses reduce employees' interest in the work itself and fail to motivate workers to increase their productivity—particularly after the reward has been removed (Gneezy, Meier, & Rey-Biel, 2011). Moreover, according to organismic integration theory (OIT; Deci & Ryan, 1985), a subtheory of CET, different types of rewards may tap into different types of motivation. In general, OIT suggests that incentives that are contingent on performance include a strong controlling factor. Still, performance-based incentives that can be perceived as enhancing competency or more satisfying and enjoyable are more likely to have a positive effect on performance.

The question of intrinsic motivation should be of special relevance to short-term bonuses for two main reasons. First, short-term bonuses could be introduced for only short periods before they are removed (cf. Taylor, 2004). This implementation might magnify the manipulative and controlling nature of these rewards, which (according to OIT) should increase the negative effect on motivation. Second, most of the empirical evidence supporting CET and its subtheories comes from nonwork settings and laboratory experiments (Fang & Gerhart, 2012). Similar to low-magnitude short-term bonus programs, these settings include small short-term monetary rewards that are administered contiguous to the performance itself. Thus, it seems that the pitfalls of performance-based bonuses that are criticized by CET might be particularly relevant for these kinds of short-term bonuses. To better understand the effect of short-term bonuses on employees' productivity, and to examine under which conditions such low-magnitude bonuses may hinder intrinsic motivation, we examine different types of short-term bonuses in our study. Once we gain such an understanding, we can use these findings to develop better practices for incentive administration that will aid HRM to bring the best out of their most important asset: their employees (Pfeffer, 1998).

In line with the assertions of OIT (Deci & Ryan, 1985), recent studies show that distancing money from its pure representation in dollars and cents, and associating it with more tangible resources (e.g., a prepaid credit card, gift card, or voucher; rewards that serve as a symbolic representation of money), can have profound effects on motivation and behavior (Hochman, Ayal, & Ariely, in press; Mazar, Amir, & Ariely, 2008; Spiller, 2011). For example, Hochman et al. (in press) show that people are more engaged and motivated to perform

in prepaid tasks when the prepayment is distanced from its pure representation as money. These results suggest that employees might be more motivated to meet organizational goals when bonuses are presented in ways that are perceived as more distant from their physical form in raw currency, especially if these representations are more closely related to satisfaction and enjoyment (e.g., a family vacation or meal voucher; see, e.g., Luthans, Paul, & Baker, 1981). Moreover, prospect theory (Kahneman & Tversky, 1979), one of the most influential economic models, suggests that individuals overvalue losses compared to equivalent gains. Recent evidence suggests that distant representations of money are more likely to be perceived as losses relative to cash (Hochman et al., in press), suggesting that the incentive effect of short-term bonuses should become stronger as these small bonuses are more distanced from their pure representation in dollars and cents.

Perhaps an even more promising form of low-magnitude short-term bonuses is verbal reward. Several lines of research suggest that this type of external reward can serve as a powerful (intrinsic) motivator in the workplace. For example, Deci (1971) showed in two laboratory and one field experiment that verbal rewards can increase intrinsic motivation (see also Deci et al., 1999; Kerr, 1999; Luthans & Stajkovic, 1999; Peterson & Luthans, 2006). Similarly, Markham, Scott, and McKee (2002) ran a recognition program over a year in four factories to reward work attendance that successfully reduced absenteeism by almost 40% and was highly popular among the workers. Thus, as suggested by Luthans and Stajkovic (1999) and Peterson and Luthans (2006), the empirical evidence demonstrates verbal rewards to be effective and relatively easy to implement as bonuses. Given that zero monetary incentive might be more motivating than the offer of small incentives (Gneezy & Rustichini, 2000; Heyman & Ariely, 2004), and given that verbal rewards are free of charge, verbal rewards might be a particularly effective and convenient form of short-term bonus.

Based on the rationale developed above, we predict the following:

Hypothesis 2: The effectiveness of short-term bonuses should increase as bonuses become less fungible. Specifically, verbal rewards should have the strongest effect on productivity and cash should have the weakest effect.

A final consideration concerning short-term bonuses is the effect of their implementation on employees' performance in the days following their administration. As we note previously, short-term bonuses have the potential to make the bonus seem more pronounced, manipulative, or controlling, which could affect how employees perceive the reward system. Moreover, CET and SDT suggest that bonuses might hinder intrinsic motivation to perform (Deci & Ryan, 1985; Ryan & Deci, 2000), an effect that would be especially apparent immediately after the bonus is administered; at that point, the short-term bonus is most salient, the mindset created by the bonus remains, and the external incentive is no longer in action (Gneezy et al., 2011).¹

Examining performance immediately after the allocation of short-term bonuses enables us to also examine a potential reciprocity effect of short-term bonuses. A large body of empirical evidence shows that individuals are highly sensitive to how fairly they are treated (Falk & Fischbacher, 2006; Fehr & Falk, 2002; Rabin, 1993) and are motivated to respond in kind. In fact, reciprocity is such a strong motivational drive that individuals not only reward fair treatments but also punish unfair treatments—even when that retaliation is costly for them (e.g., Berg, Dickhaut, & McCabe, 1995; Charness & Rabin, 2002; Clark & Sefton, 2001; Fehr &

Gächter, 2000). In the workplace, too, it has been shown that employees who feel that they receive fair treatment (e.g., fair wages) reciprocate with higher effort and increased productivity (Akerlof, 1982; Barr & Serneels, 2009; Dur, Non, & Roelfsema, 2010; Fehr & Gächter, 1998; Fehr, Gächter, & Kirchsteiger, 1997; Fehr, Kirchler, Weichbold, & Gächter, 1998; Kube, Mafechal, & Puppe, 2012). For example, Kube et al. (2012) found that employees reciprocate with increased productivity to gifts that they receive from their employer. However, reciprocity was elicited with a nonmonetary incentive (thermos bottle), but not with a monetary incentive (20% wage increase), suggesting that when it comes to reciprocity, employees place more weight on social value (such as the thoughts and effort invested in the incentive) than its monetary counterpart. Interestingly, when employees were given a direct choice between monetary or nonmonetary incentives, the monetary incentive had the same effect of reciprocity as the nonmonetary incentive. In line with these findings, Dur et al. (2010) show that workers are reciprocal to the attention they receive from their supervisors much more than to external incentives. Since low-magnitude short-term bonuses can be provided to employees by their immediate supervisor, they might be particularly helpful in facilitating the norms of reciprocity in the workplace. To examine how employees respond to short-term bonuses, we measured employees' productivity after the bonuses were administered, which enabled us to not only examine whether short-term bonuses elicit reciprocity but also shed light on which types of short-term bonuses facilitate higher reciprocity than others.

While both the incentive effect account and SDT (Ryan & Deci, 2000) predict decreased productivity once the short-term bonuses are awarded (when performance is no longer incentivized), the norms of reciprocity suggest that if employees appreciate the short-term bonuses (or at least the attempt of the organization to reward good performance), they should reciprocate with increased effort even after the incentive is removed. This assertion leads us to formulate two contradicting hypotheses:

Hypothesis 3a: Once the bonuses are administered (and performance is no longer incentivized), productivity will decrease.

Hypothesis 3b: Even after the bonuses are administered, productivity will remain high.

Still, CET and DST (e.g., Chirkov, Ryan, Kim, & Kaplan, 2003; Deci et al., 1999) and the norms of reciprocity in the workplace (e.g., Fehr et al., 1997, 1998; Kube et al., 2012) suggest that nonmonetary bonuses have a special role. In particular, CET and DST highlight the importance of the symbolic value of external rewards, which suggests that verbal rewards and choices should have a weaker negative effect on intrinsic motivation than monetary rewards (Deci & Ryan, 1985). In a similar manner, the finding that employees are more sensitive to the time and effort invested in the reward than the reward itself suggests that verbal rewards and the ability to choose the bonus type should be more strongly associated with reciprocity (Kube et al., 2012). These assertions lend credence to the following hypothesis:

Hypothesis 4: Monetary short-term bonuses will have a negative effect on productivity after the bonuses have been administered. This negative effect is expected to be mitigated for verbal rewards and when employees have control over the type of bonus that they receive.

Finally, in addition to measuring productivity, we examined how the short-term bonus program affects absenteeism. Attendance at work is very important for the workplace (Kehoe

& Wright, 2013) and represents commitment to the company, satisfaction, and job involvement (Hammer, Landau, & Stern, 1981; Harrison & Martocchio, 1998). While the data we used for this experiment did not allow us to examine the effect of different types of short-term bonuses on absenteeism, it did allow us to examine whether the possibility of obtaining a low-magnitude short-term bonus in itself affects attendance. Moreover, since absenteeism is linked to organizational performance beyond the individual employee level, we used this withdrawal behavior to examine whether short-term bonuses might lead employees to be more committed and more involved in their job even after the bonuses are no longer active. Thus, we formulated the following prediction with regard to absenteeism:

Hypothesis 5: Absenteeism will decrease during the initiation of the short-term bonuses program. This positive effect of the bonuses on employees' withdrawal behavior will persist after the incentive plan ends.

The Current Experiment

To test our research questions, we gathered data in a field experiment executed with a semiconductor factory at a large global technological company. By using actual incentives used by the company HRM, our experiment examines the extent to which a standard short-term bonus plan influences productivity and absenteeism in a real workplace. We tested the effects of three types of short-term bonuses under four conditions: monetary reward (cash), a family pizza meal voucher (equivalent in value to the monetary reward but distanced from cash), and a verbal reward (positive feedback). Additionally, we added a fourth condition where workers were allowed to choose between the cash and voucher bonus. Based on Kube et al. (2012), we wanted to examine whether offering workers a choice between a monetary or nonmonetary incentive eliminates the difference between monetary and nonmonetary bonuses.

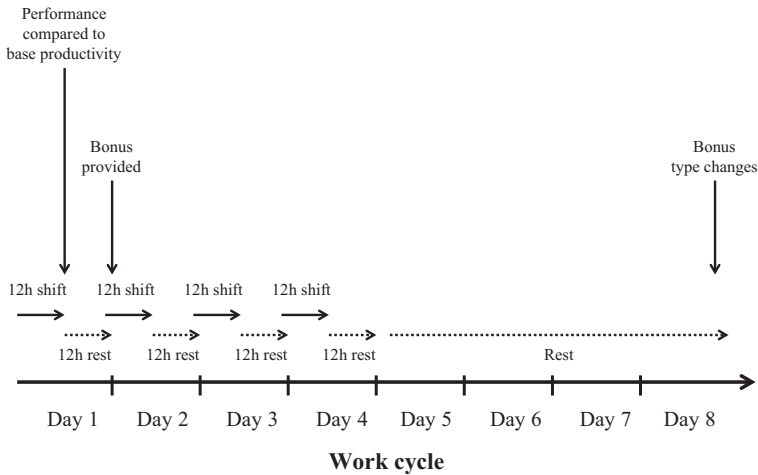
The factory was selected as the test bed for this experiment for three main reasons. First, the nature of the work (producing computer chips) provides a clear articulation of the desired outcomes expected from the employees in each shift and at each work station (machine). Second, the types of short-term bonuses we examined are commonly used in HRM practices in the factory. Third, the short-term bonuses are directly linked to the employees' performance, which is constantly and reliably measured in the factory. Since all three factors are deemed fundamental to examining the effect of incentive bonuses (Deci et al., 1999; Kerr, 1999; Luthans & Stajkovic, 1999), the current factory provided optimal conditions for a systematic examination of our research questions. During the field experiment, employees engaged in their routine jobs using their standard work schedules. Based on their performance relative to a predefined goal, the three types of bonuses were provided to employees on top of their base salary.

Method

Participants

Participants were 156 technicians (118 male) at a global high-tech semiconductor company working at a fabrication plant in Israel. Age ranged from 24 to 57 years with a mean age

Figure 1
Outline of the Work Cycle and the Experimental Procedure



of 35.3 ($SD = 6.5$). Tenure varied from 1 month to 20.5 years ($M = 3.9$ years, $SD = 4.1$). The technicians were selected for the study because their productivity depends solely on personal performance, without the complication of external uncontrolled factors. Throughout the experiment, participants engaged in their routine jobs at standard work shifts that are composed of four 12-hour shifts, followed by 4 days off (see Figure 1). Thus, a complete work “week” is 8 days long.

Experimental Design and Procedure

The experiment was conducted over a 5-week period (i.e., four work cycles) in April and May of 2012. Prior to the initiation of the incentive bonus plan, all the employees in the department were informed of a special incentive program aimed to reach challenging manufacturing goals. In addition, we observed the productivity of the target employees 3 weeks before the initiation of the plan and 2 weeks after the plan had ended.

Three types of bonuses were administered in four within-subjects conditions. In the cash condition, the bonus was a monetary prize (100 NIS, the equivalent of US\$25 at the time); in the pizza meal condition, the bonus was a family pizza meal voucher (also worth about US\$25); in the verbal reward condition, the bonus was an acknowledgment for a job well done. All employees who received a verbal reward got the same message that was sent from and signed by their senior manager (i.e., “Dear [Name of employee], Thank you for your hard work and great achievements in yesterday’s shift, I appreciate your effort very much”). Finally, in the choice condition, employees could choose between cash and the pizza meal voucher for their bonus. Employees were randomly assigned to four groups (39 employees in each), and each group was offered all four types of bonuses on different weeks in a random

order. Thus, all employees had the chance to receive all types of bonuses, and the criterion for the bonus was the same in all conditions.

At the beginning of each work cycle, employees were informed by their supervisor that they would receive an incentive bonus the next day if their performance level exceeded a predefined productivity criterion (base productivity), which was set as the average “outs per shift” for each machine in the 14 shifts prior to the beginning (and announcement) of the experiment. Specifically, at the start of Day 1 of each work cycle, employees in each group were told,

Good morning, if you reach or exceed the average performance in the previous 14 work shifts on your specific work station today, then tomorrow morning you will receive [100 NIS in cash/a family pizza meal voucher/a special “thank you” note from the department manager/the option to choose between 100 NIS and a family pizza meal voucher, depending on the experimental condition for that week]. Good luck.

In actuality, bonuses were delivered to all employees who exceeded their base productivity by their direct manager on the next morning. The experimental design is outlined in Figure 1.

In the current factory, the criterion used to evaluate employees' performance is called “outs per shift per system,” and it reflects the percentage of units (wafers full of computer chips) produced on each machine per shift, given the (a) percentage of time the machine was available for production during the shift and (b) number of wafers that could have been produced in the machine during the shift. Since meeting the criterion requires thinking and planning to make sure the machine is utilized in the most optimal way to produce as many chips as possible, it represents both quality and quantity of work. Thus, we could not separate quantity from quality because the two measures go hand in hand. However, outs per shift per system is a natural performance criterion that the employees are well acquainted with, and it reflects how well each employee performs relative to the optimal performance of the machine. Since employees are usually assigned to a specific machine in which they specialize, and each machine has a different level of output rate, a within-subjects comparison of the productivity of each employee working on a specific machine to their own base productivity on that specific machine was conducted.

Importantly, bonuses were provided at the beginning of Day 2 of the work cycle and were based only on the productivity level of Day 1. Although most real-life performance-based incentive plans do not have a 1-day lifespan, the current design enables a within-subjects comparison of the effect of the different types of bonuses once they are offered and after they are removed. Thus, we were able to examine not only how the different types of short-term bonuses incentivized employees to increase productivity but also how employees performed on the days after bonuses had been administered.

Finally, to examine the effect of the short-term bonus plan on absenteeism, we also observed attendance data. Attendance in the factory is a self-reported measure that is based both on medically approved absences and discretionary absences. Therefore, it represents not only absenteeism due to illness but also absenteeism that results from various withdrawal motivations. Thus, this measure enables us to examine whether short-term bonuses affect another desirable behavior: showing up to work. Since attendance in the factory is measured in terms of work hours rather than work days, we examined the reported illness hours at the factory attendance system before, during, and after the initiation of the plan. Importantly,

attendance was measured during the entire work cycle (and not only on the day that the bonus was administered), and employees were not aware of the fact that attendance was being measured for the purpose of this project.

Results

Bonus Administration

Throughout the experiment, 207 bonuses were administered across all conditions. Fifty-four percent of the employees received a cash bonus, 51% received a pizza meal voucher, 55% received a verbal reward, and 47% got to choose between cash and a pizza meal voucher. Overall, 94.7% of the employees who participated in all conditions ($n = 76$) exceeded their base productivity at least once and thus received at least one type of bonus. Nineteen employees received only one type of bonus, 27 received two types of bonuses, 19 received three types, and 7 employees received all four. This pattern of results suggests that employees were indeed engaged in the incentive plan and motivated to receive a bonus. In the next set of analyses, we examine the effect of the different types of bonuses on productivity.

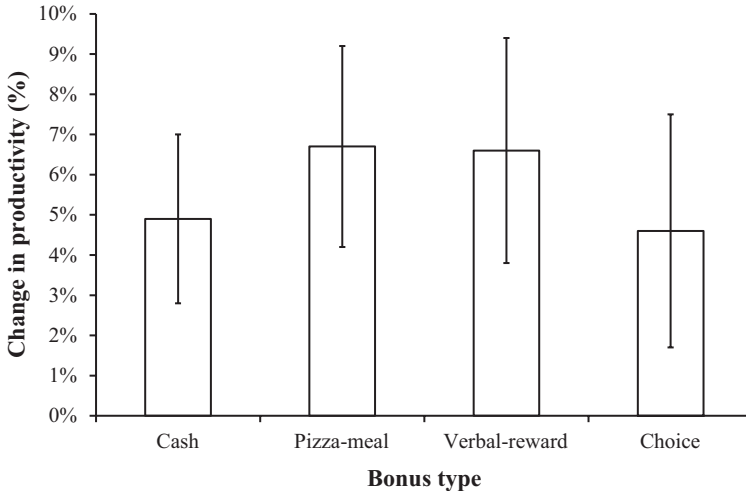
Productivity

To examine the effect of short-term bonuses on productivity, we standardized the percentage difference between actual and base productivity for each employee (such that zero points reflects base productivity). This was done to enable a comparison between productivity under the three types of bonuses given the differences in base productivity at the different workstations. In addition, since the three types of bonuses had virtually the same effect whether they were administered at the beginning, middle, or the end of the bonus plan, $F(3, 165) = 1.844, p = .14$, statistical analyses were conducted across order.

Hypothesis 1 suggests that short-term bonuses will have a general positive effect on productivity. Since bonuses were based only on the performance of Day 1 of the work cycle, we examined average productivity across all three types of bonuses (in the four conditions) on that day, relative to base productivity. Our base productivity measure was based on average productivity in the 3 weeks preceding the experiment and the 2 weeks after the experiment ended. As both periods (i.e., the shifts before the employees knew that there will be an experiment and their performance will be measured, and after the experiment) represent regular performance levels, and since there was no statistical difference in the performance during these two periods, $F(1, 70) = 1.645, p = .21$, we collapsed these two productivity rates to form our base productivity measure. The analysis showed that on Day 1 (the day in which productivity was measured for the bonus), productivity was 5.7% ($SD = 14.9$) higher than base productivity during the initiation of the bonus plan. Repeated-measures analysis of variance (ANOVA) revealed that this increase was significant, $F(1, 63) = 9.313, p < .005$.

This pattern of results supports Hypothesis 1 and suggests that the short-term bonuses motivated people to work harder and thus increased their productivity. In line with the incentive effect of performance-based rewards (Baker et al., 1988; Cameron et al., 2001; Jenkins et al., 1998), we found that when bonuses were contingent on performance, employees increased their productivity by about 6%.

Figure 2
Change in Productivity on Day 1 (the Day of the Bonus), Relative to Base Productivity, as a Function of the Type of Bonus



Note: Vertical lines depict standard errors.

To test Hypothesis 2, which predicts a different effect on productivity for the various types of short-term bonuses, we looked at each bonus type individually (see Figure 2 and the left-most column of Table 1). On the day that productivity was measured for a bonus, employees performed 4.9% ($SD = 16.4$) higher than base productivity in the cash condition, 6.7% ($SD = 19.9$) higher in the pizza meal condition, 6.6% ($SD = 22.4$) higher in the verbal reward condition, and 4.6% ($SD = 23.1$) higher in the choice condition. Repeated-measures ANOVAs revealed that the increase in productivity was significant in the cash, $F(1, 63) = 5.762, p < .02$; pizza meal, $F(1, 63) = 7.279, p < .01$; and verbal reward conditions, $F(1, 63) = 5.49, p < .03$; but not in the choice condition, $F(1, 63) = 2.531, p = .12$. This pattern of results further suggests that short-term bonuses have a strong incentive effect.

However, a repeated-measures ANOVA with bonus type as the independent measure and productivity as the dependent measure showed no main effect for the type of bonus, $F(3, 189) = 0.286, p = .84$. Planned contrasts further revealed that the difference between productivity in the cash condition and productivity in the pizza meal and verbal reward conditions is not significant ($p = .51$ and $p = .57$, respectively). This pattern of results does not confirm Hypothesis 2. Although we expected verbal rewards to have the strongest effect on productivity, we found virtually no difference between the verbal reward and the pizza meal conditions, and no significant difference was found between nonmonetary and monetary bonuses (for similar findings in goal-setting context, see Latham, Mitchell, & Dossett, 1978). Still, the results highlight the value of nonmonetary short-term bonuses, as they can yield a similar positive effect on performance without involving any additional expenses to an organization.

Table 1
Change in Productivity on Each Day of the Work Cycle Relative to Base Productivity,
as a Function of the Type of Bonus

Short-Term bonus	For Bonus		After Bonus Removal		
	Day 1	Day 2	Day 3	Day 4	Average
Cash	4.9% (16.4)	-13.2% (29.3)	-6.2% (15.7)	-2.9% (14.4)	-6.5% (14.0)
Pizza meal	6.7% (19.9)	-5.7% (17.2)	-7.2% (20.1)	2.3% (15.0)	-2.1% (12.2)
Verbal reward	6.6% (22.4)	4.2% (17.1)	3.4% (15.7)	-3.2% (15.6)	0.64% (11.6)
Choice	4.6% (23.1)	3.6% (19.1)	-4.4% (17.3)	1.4% (14.2)	0.2% (10.1)

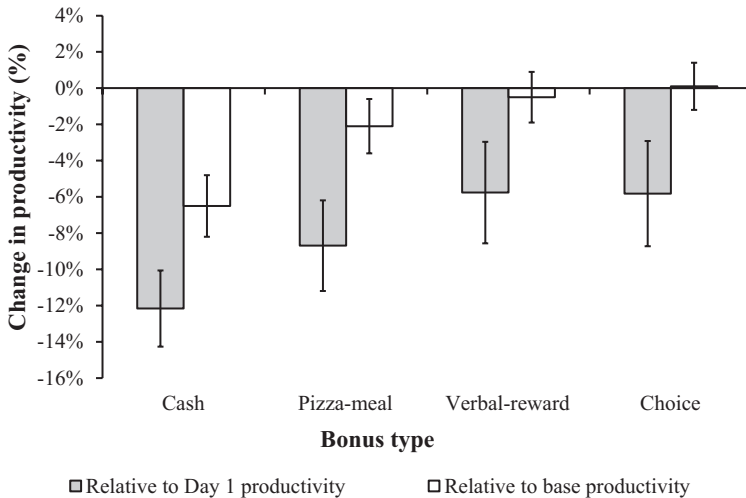
Note: Standard deviations appear in parentheses.

To further examine the effect of short-term bonuses, we next tested Hypotheses 3a and 3b, which postulate different effects after the administration of the bonuses. To that end, we measured productivity in Days 2 to 4 of the work cycles (the days of the work cycle in which the bonuses were removed) and compared it to both productivity in Day 1 and base productivity. Across all bonus types, productivity in the days in which the short-term bonuses were removed decreased by 8.1% ($SD = 9.1$) relative to the day in which the bonuses were offered (Day 1). A repeated-measures ANOVA revealed that this decrease was significant, $F(1, 61) = 15.423, p < .0001$. Similarly, productivity significantly decreased by 2.2% ($SD = 9.0$) relative to base productivity in these days, $F(1, 68) = 4.248, p < .05$.

These results thus support Hypothesis 3a but not Hypothesis 3b. In line with the incentive effect, the results suggest that once the extrinsic motivation to perform (the bonus) is removed, employees are no longer motivated to exert more effort to increase productivity. An alternative interpretation of these results is that employees care so much about the external reward that they decrease their effort in order to preserve energy until Day 1 of the following week of the program, in which their performance will again be incentivized. This type of intentional "resting effect" implies that employees are not only motivated by the incentive but that they are also thinking about the incentives and planning their actions accordingly. This reduction in performance is not predicted by the incentive effect but rather by DST. If employees compromise productivity to maximize their chance to get the external rewards, the short-term bonus plan seems to hinder the intrinsic motivation to perform. To further explore this possibility, we tested Hypothesis 4, which predicts different effects for the various bonus types.

To test Hypothesis 4, we examined productivity in Days 2 to 4 of the work cycles for each bonus type individually and compared it to productivity in Day 1 (see gray bars in Figure 3). As shown, once the short-term bonuses were removed, productivity was lower than the productivity on Day 1 by 12.2% ($SD = 23.4$) in the cash condition, by 8.7% ($SD = 21.9$) in the pizza meal condition, by 5.9% ($SD = 24.3$) in the verbal reward condition, and by 5.9% ($SD = 23.1$) in the choice condition. Repeated-measures ANOVAs revealed that this decrease in productivity was significant for the monetary bonuses, $F(1, 61) = 16.819, p < .0001$, in the cash condition and $F(1, 62) = 9.838, p < .005$, in the pizza meal condition, but only marginally significant in the verbal reward, $F(1, 62) = 3.79, p = .06$, and choice, $F(1, 63) = 2.531, p = .12$, conditions. In line with this pattern, a repeated-measures ANOVA with the type of

Figure 3
Change in Productivity on Days 2 to 4 (the Days in Which the Short-Term Bonus Was Not Offered), Relative to Day 1 (Gray Bars) and Base Productivity (White Bars) as a Function of the Type of Bonus



Note: Vertical lines depict standard errors.

bonus as an independent measure and productivity as the dependent measure showed no main effect for the type of bonus, $F(3, 183) = 1.421, p = .24$. Planned contrasts revealed that the difference between productivity in the cash condition was significantly different from productivity in the verbal reward and choice condition ($p = .08$ and $p < .05$, respectively).

This pattern of results further supports Hypotheses 1 and 3a and demonstrates that the motivating effect of performance-based bonuses stems from their reinforcing nature (Luthans & Stajkovic, 1999). But more importantly, the results support Hypothesis 4. In line with CET and DST, these results suggest that monetary incentives might hinder intrinsic motivation to perform when the (external) reinforcing value of the short-term bonuses is no longer available. By contrast, this decrease in motivation was not apparent with the nonmonetary bonus.

We next compared productivity in Days 2 to 4 to base productivity for each bonus type individually (see white bars in Figure 3 and right-hand columns in Table 1). As shown, productivity after the bonus was lower than base productivity by 6.5% ($SD = 14.0$) in the cash condition and by 2.1% ($SD = 12.2$) in the pizza meal condition. In contrast, virtually no difference was found in the verbal reward or the choice condition. Repeated-measures ANOVAs revealed that the decrease in productivity was significant only in the cash condition, $F(1, 68) = 14.852, p < .0001$, but not in the pizza meal condition, $F(1, 69) = 2.389, p = .13$. Moreover, as can be seen in Table 1, these effects were most pronounced immediately after the bonus was awarded: The reduction in productivity in the monetary condition and the increase in productivity for the verbal reward and choice conditions were most apparent in Day 2, the day in which the short-term bonuses were removed.

Interestingly, in the choice condition, we found that 72% of the employees preferred a cash bonus over a pizza meal voucher. This preference was significantly higher than the 50% indifference level, $t(35) = 2.935, p < .01$. However, although most workers in the choice condition received a cash bonus, this did not lead to the same 6.5% reduction in productivity that was observed when employees received the same cash bonus outside of their control. While our results suggest that monetary bonuses (but not nonmonetary bonuses) can hinder intrinsic motivation, this latter finding demonstrates that money does not necessarily reduce intrinsic motivation. Rather, as suggested by SDT (Ryan & Deci, 2000), when money is used to incentivize employees, companies get “nothing but people chasing money” (Slater, 1980: 127), with employees who are only externally motivated to perform better. However, when cash is *chosen* as an incentive, it is perceived as an autonomous rather than controlling motivator and is thus less likely to reduce intrinsic motivation (Ryan & Deci, 2000).

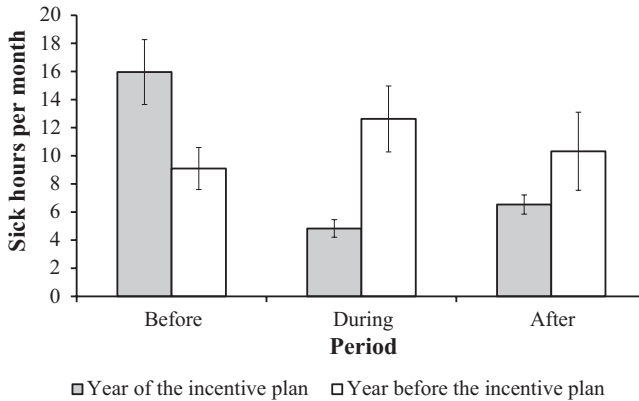
Absenteeism

In the factory where the experiment took place, absenteeism is measured by the hours missed rather than days. Therefore, to test Hypothesis 5, which postulates that employees will reciprocate with reduced absenteeism, we calculated the average number of sick hours that workers reported during the initiation of the plan and compared it to the time before the experiment started and after the experiment ended. In addition, since illness hours might also be affected by seasonal factors (e.g., people might be sick more often during the winter), we also compared the reported sick hours in the year of the experiment to the reported sick hours during the equivalent period the prior year. Due to limitations of the sick hours monitoring system, which provided reported sick hours per month rather than per week, we were unable to examine sick hours separately for each bonus type. Note that this limitation also makes it impossible to separately examine the effects of the short-term bonuses on absenteeism on the day when the bonuses were awarded compared to the time after their delivery.

Figure 4 presents the absenteeism results. The average number of sick hours reported before the initiation of the bonus plan was 15.96 sick hours per month, reduced to 4.83 during the implementation of the plan, and remained low at 6.54 sick hours per month after the incentive plan concluded. By comparison, in the equivalent periods of the previous year (2011), the average sick hours reported were 9.09 sick hours per month, 12.62 sick hours, and 10.38 sick hours, respectively. Thus, the results demonstrate that absenteeism was reduced during the bonus plan, and this trend persisted even after the plan ended. Moreover, the difference between reported sick hours in the year of the plan and the previous year suggests that this pattern of results is not characteristic of the time of year in which the bonus plan was carried out.

A 2×3 repeated-measures ANOVA was conducted to examine the effect of year and period on reported sick hours. This analysis revealed no main effect of year, $F(1, 75) = 0.19, p = .67$, or period, $F(2, 150) = 0.861, p = .45$. However, a significant interaction between period and year was found, $F(2, 150) = 3.495, p < .05$, such that the decrease in sick hours reported during the initiation of the plan was significant and employees reported (on average) about 10 fewer sick hours per month during the bonus plan period. Since work attendance can directly influence the benefits the employees might obtain during very short-term bonus plans (such as the one in the current experiment), the decreased absenteeism during the experiment might be directly attributed to the incentive effect of the bonuses. However, the

Figure 4
Number of Sick Hours per Month Reported Before, During, and After the Initiation of the Incentives Bonus Plan and in the Equivalent Periods the Year Before



fact that this form of withdrawal behavior decreased even after the end of the bonus plan suggests that the short-term bonuses (or at least the attempt of the management and human resources to explore ways to better motivate the employees) might have a more general ability to increase commitment and engagement to the workplace (Hammer et al., 1981). Since absenteeism can result in organizational losses of millions of dollars a year (Mason & Griffin, 2003), our results suggest that short-term bonus plans can be used to increase productivity by reducing absenteeism.

Discussion

The vast majority of organizations use some sort of performance-based incentive plan to motivate their employees to perform better (WorldatWork, 2013; Jeffrey, Dickinson, & Einarsson, 2013). In the current paper, we used a field experiment to examine short-term bonuses, a performance-based incentive plan that has gained popularity in recent years (WorldatWork, 2014b). While the use of short-term bonuses to motivate employees is commonplace, a clear understanding of the actual effects of short-term bonuses in real work environments, and of the conditions under which such incentives are most likely to improve (or hinder) productivity, is still lacking (Grigoriadis & Bussin, 2007). As the most valuable assets of organizations in the 21st century are their knowledge workers and their productivity (Drucker, 1999), such an understanding is crucial for both organizations and managers (Beer & Cannon, 2004). Using this field experiment, we provide a small advancement in this direction by drawing on empirical evidence from an Israeli high-tech manufacturing factory.

In general, while field experiments have their limitations, our results provide some valuable theoretical insights and point to ways in which short-term bonuses can be used to achieve real-life organizational goals. First, in line with Hypotheses 1 and 3a and consistent with the extant performance-based incentives literature (Gerhart et al., 2009), we found that both

monetary and nonmonetary short-term bonuses increase performance. In conflict with Hypothesis 2, however, we found no difference between the different types of bonuses (Latham et al., 1978). Although nonmonetary bonuses had a slightly stronger effect on performance than small monetary bonuses, this difference was not significant. While some laboratory experiments have shown that small-magnitude rewards can hinder performance (Gneezy & Rustichini, 2000; Heyman & Ariely, 2004), our results demonstrate that within a real workplace, such rewards can improve productivity. At the same time, when the bonuses were no longer active and performance was not incentivized, overall productivity decreased, and for monetary rewards, this reduction reached far below the level of base productivity. From a practical perspective, these results provide some guidance for organizations trying to motivate their employees, showing that incentives of small magnitude (e.g., a small monetary reward, a simple “thank you” note) can motivate employees to perform better at a low or insignificant cost. This could be of great importance for management research, as it suggests that lab-based results cannot always be generalized to the complexity of the work environment.

Another contribution of our study is the examination of the link between short-term bonuses and the intrinsic motivation theories offered by Deci and colleagues (Deci et al., 1999; Deci & Ryan, 1985; Ryan & Deci, 2000), which postulate that providing external rewards might hinder the intrinsic motivation to perform. While our results clearly demonstrate that even small monetary incentives can motivate employees to perform better, they also suggest that these theories can capture some of the perils of short-term bonus plans. Specifically, as suggested by SDT (Ryan & Deci, 2000), the alienating and controlling nature of monetary bonuses, which becomes particularly apparent when the bonuses are removed, hinders employees’ intrinsic motivation to perform. By contrast, symbolic rewards (e.g., verbal rewards), which might be perceived as more autonomous and encouraging, should have no negative effect on performance even after the external motivator is removed. In line with this assertion and with Hypothesis 4, we found that the removal of the cash bonus reduced performance by 6.5% relative to base productivity, and the removal of the verbal reward had no negative effect on productivity. Interestingly, when money was chosen as a preferred form of incentive rather than provided as a default, it did not lead to decreased performance. Kohn (1993a: 192) argues that “managers need to take affirmative steps to make sure employees have real choices,” suggesting that choice is an important factor in motivation (see also Kube et al., 2012). Similarly, SDT argues that the symbolic value of external rewards should increase with choice (Deci et al., 1999). In line with these views, we found that simply allowing employees to choose their preferred form of incentive can neutralize the possible negative effect of cash bonuses on intrinsic motivation.

This pattern of results also sheds light on the norms of reciprocity in the workplace. In particular, given the small monetary magnitude of our short-term bonuses, it might be the case that instead of being unmotivated to work once the monetary rewards are removed, employees’ feelings might be hurt because their increased effort is not rewarded enough. As a result, they react to this small bonus with negative reciprocity (which is expressed in the days that follow the administration of the bonus). This explanation is consistent with the finding that productivity decreased the most immediately after the administration of the monetary bonuses (on Day 2). By contrast, performance increased immediately after the administration of the monetary bonus in the choice condition. Since employees chose the small

amount themselves in this condition, it seems plausible that this “illusion of control” will hinder the negative feelings associated with the small amount. Hence, the same short-term bonus led in this condition to positive and not negative reciprocity. Moreover, the fact that productivity increased in the verbal reward and choice conditions following the administration of the bonus suggests that nonmonetary rewards have a stronger effect on reciprocity than monetary rewards (Kube et al., 2012). In addition, these results support the claim that positive reciprocity might stem from the attention employees receive from their supervisors and not from the external incentive per se (Dur et al., 2010).

Finally, work attendance increased during the application of the incentive bonus plan (as predicted by Hypothesis 5) and remained higher than average in the few weeks after the plan ended. This strong evidence suggests that like other types of incentive bonuses (Peterson & Luthans, 2006), even small and short-term rewards can have a strong effect not only on individual productivity but also on performance at the organizational level and might also increase organizational commitment (Hammer et al., 1981). One interpretation of these results is that people wanted to take part in the plan and were thus less prone to be absent from work. However, this effect could also stem from something other than an incentive effect (as it did not occur exclusively when bonuses were offered) and could be partially attributed to a sorting effect wherein the performance-based incentives attracted high-performing employees and motivated them to be absent less from work to increase their chance of obtaining the bonuses (Lazear, 2000). Unfortunately, the current data do not allow us to explore this possibility. But more importantly, positive reciprocity (see a related idea in Pereira, Silva, & Silva, 2006) may provide a more compelling account for these results. Presumably, employees perceived the short-term bonus plan as a sign of appreciation of their effort and hard work. Thus, they rewarded the organization by showing up to work more. The fact that sick hours remained low after the incentive plan ended lends some credence to this latter interpretation. Since the data limited us to exploring absenteeism across all types of bonuses collapsed, future studies may explore the impact of short-term bonuses on reciprocity and absenteeism for different types of bonuses separately.

To our knowledge, this is the first field experiment to examine the effect of low-magnitude short-term bonuses, and it is one of the first steps in understanding the effect of such bonuses on employees' productivity. One limitation of the current experiment is the extremely short-term implementation of the incentive program (i.e., awarding bonuses based on the performance of a single day). While organizations might sometimes use bonuses to reward performance in a very short time period (WorlDatWork, 2014a), short-term bonuses are often provided for longer performance periods. Another limitation is our use of low-magnitude bonuses. In certain situations, short-term bonuses could be low in magnitude, but short-term bonuses could also be more substantial (WorlDatWork, 2014a). Thus, the generalizability of our findings to different applications of short-term bonus programs, as well as to other types of performance-based incentives, should be tested in future research.

Despite these limitations, our experiment points to several interesting implications and future directions in management research. Recent findings highlight the importance of providing reinforcements with high probability in order to promote desired behaviors (Hochman & Erev, 2013). As suggested from our results, this implies that verbal rewards could serve as a powerful managerial tool, as they are just as efficient as monetary bonuses (if not more), they bear no negative effect once they are removed, and they come at low or no cost. Thus, they

could be easily administered with a high probability of getting the most out of employees. In addition, another interesting question arises from the results of the choice condition. The fact that money had no detrimental effect on productivity after the administration of the short-term bonus demonstrates that tangible incentives are not inherently bad. Rather, when short-term bonuses are both tangible and lack the element of choice, employees seem to be motivated mainly by the money and not by commitment to the organization. If the bonus amount is not large enough, it might lead to disappointment or resentment, resulting in negative reciprocity or reduced intrinsic motivation. And yet, the mere act of choosing the tangible bonus eliminates this negative effect. Since previous research shows that monetary incentives (albeit larger in magnitude) can increase job satisfaction (e.g., Heywood & Wei, 2006; Pouliakas, 2010), our results suggest that bonuses that yield higher performance might not necessarily be the same as bonuses that yield greater job satisfaction. Thus, a managerial challenge for future research would also be to examine how different short-term bonuses can affect both productivity *and* job satisfaction (e.g., by combining verbal rewards and the occasional tangible bonus).

Note

1. In general, performance-based bonuses have been found to have a long-lasting effect (Park & Sturman, 2009), both for financial and nonfinancial incentives (Peterson & Luthans, 2006). However, here we are focusing not on the long-term effects of bonuses but on the immediate consequence of administering and removing short-term incentives.

References

- Akerlof, G. 1982. Labor contracts as a partial gift exchange. *Quarterly Journal of Economics*, 97: 543-569.
- Ambrose, M. L., & Kulik, C. T. 1999. Old friends, new faces: Motivation research in the 1990s. *Journal of Management*, 25: 231-292.
- Arthur, J. B. 1994. Effects of human resource systems on manufacturing performance and turnover. *Academy of Management Journal*, 37: 670-687.
- Ashton, R. H. 1990. Pressure and performance in accounting decision settings: Paradoxical effects of incentives, feedback, and justification. *Journal of Accounting Research*, 28: 148-180.
- Baker, G. R., Jensen, M. C., & Murphy, K. J. 1988. Compensation and incentives: Practice vs. theory. *Journal of Finance*, 43: 593-616.
- Bandiera, O., Barankay, I., & Rasul, I. 2007. Incentives for managers and inequality among workers: Evidence from a firm-level experiment. *Quarterly Journal of Economics*, 122: 729-773.
- Barr, A., & Serneels, P. 2009. Reciprocity in the workplace. *Experimental Economics*, 12: 99-112.
- Beer, M., & Cannon, M. D. 2004. Promise and peril in implementing pay-for-performance. *Human Resource Management*, 43: 29-31.
- Berg, J., Dickhaut, J., & McCabe, K. 1995. Trust, reciprocity, and social history. *Games and Economic Behavior*, 10: 122-142.
- Bonner, S. E., & Sprinkle, G. B. 2002. The effects of monetary incentives on effort and task performance: Theories, evidence, and a framework for research. *Accounting, Organizations and Society*, 27: 303-345.
- Bonner, S. E., Hastie, R., Sprinkle, G. B., & Young, S. M. 2000. A review of the effects of financial incentives on performance in laboratory tasks: Implications for management accounting. *Journal of Management Accounting Research*, 12: 19-64.
- Bretz, R. D., Ash, R. A., & Dreher, G. F. (1989). Do people make the place? An examination of the attraction-selection-attrition hypothesis. *Personnel Psychology*, 42: 561-581.
- Cadsby, C. B., Song, F., & Tapon, F. 2007. Sorting and incentive effects of pay-for-performance: An experimental investigation. *Academy of Management Journal*, 50: 387-405.
- Cameron, J., Banko, K. M., & Pierce, D. W. 2001. Pervasive negative effects of rewards on intrinsic motivation: The myth continues. *Behavior Analyst*, 24: 1-44.

- Charness, G., & Rabin, M. 2002. Understanding social preferences with simple tests. *Quarterly Journal of Economics*, 117: 817-869.
- Chirkov, V. I., Ryan, R. M., Kim, Y., & Kaplan, U. 2003. Differentiating autonomy from individualism and independence: A self-determination theory perspective on internalization of cultural orientations and well-being. *Journal of Personality and Social Psychology*, 84: 97-110.
- Clark, K. & Sefton, M. 2001. The sequential Prisoner's Dilemma: Evidence on reciprocation. *Economic Journal*, 111: 51-68.
- Deci, E. L. 1971. Effects of externally mediated rewards on intrinsic motivation. *Journal of Personality and Social Psychology*, 18: 105-115.
- Deci, E. L., Koestner, R., & Ryan, R. M. 1999. A meta-analytic review of experiments examining the effects of extrinsic rewards on intrinsic motivation. *Psychological Bulletin*, 125: 627-668.
- Deci, E. L., & Ryan, R. M. 1985. *Intrinsic motivation and self-determination in human behavior*. New York: Plenum.
- Drucker, P. F. 1999. Knowledge-worker productivity: The biggest challenge. *California Management Review*, 41: 79-94.
- Dur, R., Non, A., & Roelfsema, H. 2010. Reciprocity and incentive pay in the workplace. *Journal of Economic Psychology*, 31: 676-686.
- Durham, C. C., & Bartol, K. M. 2000. Pay for performance. In E. A. Locke (Ed.), *Principles of organizational behavior*: 150-165. Oxford, UK: Blackwell.
- Eisenhardt, K. M. 1989. Agency theory: An assessment and review. *Academy of Management Review*, 14: 57-74.
- Falk, A., & Fischbacher, U. 2006. A theory of reciprocity. *Games and Economic Behavior*, 54: 293-315.
- Fang, M., & Gerhart, B. 2012. Does pay for performance diminish intrinsic interest? *International Journal of Human Resource Management*, 23: 1176-1196.
- Fehr, E., & Falk, A. 2002. Psychological foundations of incentives. *European Economic Review*, 46: 687-724.
- Fehr, E., & Gächter, S. 1998. Reciprocity and economics: The economic implications of Homo Reciprocans. *European Economic Review*, 42: 845-859.
- Fehr, E., & Gächter, S. 2000. Cooperation and punishment in public goods experiments. *American Economic Review*, 90: 980-994.
- Fehr, E., Gächter, S., & Kirchsteiger, G. 1997. Reciprocity as a contract enforcement device: Experimental evidence. *Econometrica*, 65: 833-860.
- Fehr, E., Kirchler, E., Weichbold, A., & Gächter, S. 1998. When social norms overpower competition: Gift exchange in experimental labor markets. *Journal of Labor Economics*, 16: 324-351.
- Frey, B. S. & Jegen, R. 2001. Motivation crowding theory. *Journal of Economic Surveys*, 15: 589-611.
- Gerhart, B., & Milkovich, G. 1990. Organizational differences in managerial compensation and financial performance. *Academy of Management Journal*, 33: 663-691.
- Gerhart, B., & Milkovich, G. T. 1992. Employee compensation: Research and practice. In M. D. Dunnette & L. M. Hough (Eds.), *Handbook of industrial and organizational psychology*, vol. 3 (2nd ed.): 481-570. Palo Alto, CA: Consulting Psychologists Press.
- Gerhart, B., & Rynes, S. L. 2003. *Compensation: Theory, evidence, and strategic implications*. Thousand Oaks, CA: Sage.
- Gerhart, B., Rynes, S., & Fulmer, I. 2009. Pay and performance: Individuals, groups, and executives. *Academy of Management Annals*, 3: 251-315.
- Gneezy, U., Meier, S., & Rey-Biel, P. 2011. When and why incentives (don't) work to modify behavior. *Journal of Economic Perspectives*, 25: 191-210.
- Gneezy, U., & Rustichini, A. 2000. Pay enough or don't pay at all. *Quarterly Journal of Economics*, 115: 791-810.
- Grigoriadis, C., & Bussin, M. 2007. Current practice with regard to short-term incentive schemes for middle managers. *SA Journal of Human Resource Management*, 5: 45-53.
- Gupta, N., & Shaw, J. D. 1998. Let the evidence speak: Financial incentives are effective. *Compensations and Benefits Review*, 30: 27-32.
- Guzzo, R. A., Jette, R. D., & Katzell, R. A. 1985. The effects of psychologically based intervention programs on worker productivity: A meta-analysis. *Personnel Psychology*, 38: 275-291.
- Hammer, T. H., Landau, J. C., & Stern, R. N. 1981. Absenteeism when workers have a voice: The case of employee ownership. *Journal of Applied Psychology*, 66: 561-573.
- Hammer, C. W. 1975. Reinforcement theory and contingency management in organizational settings. In R. M. Steers & L. W. Porter (Eds.), *Motivation and work behavior*: 477-504. New York: McGraw-Hill.

- Harrison, D. A., & Martocchio, J. J. 1998. Time for absenteeism: A 20-year review of origins, offshoots, and outcomes. *Journal of Management*, 24, 305-350.
- Harrison, D. A., Virick, M., & William, S. 1996. Working without a net: Time, performance, and turnover under maximally contingent rewards. *Journal of Applied Psychology*, 81: 331-345.
- Herzberg, E. 1968. One more time: How do we motivate employees? *Harvard Business Review*, 46: 53-62.
- Heyman, J., & Ariely, D. 2004. Effort for payment: A tale of two markets. *Psychological Science*, 15: 787-793.
- Heywood, J. S., & Wei, X. 2006. Performance pay and job satisfaction. *Journal of Industrial Relations*, 48: 523-540.
- Hochman, G., Ayal, S., & Ariely, D. (in press). Keeping your gains close but your money closer: The effect of prepayment on choice and behavior. *Journal of Economic Behavior and Organization*. doi:http://dx.doi.org/10.1016/j.jebo.2014.01.014
- Hochman, G., & Erev, I. 2013. The partial reinforcement extinction effect and the contingent sampling hypothesis. *Psychonomic Bulletin and Review*, 20: 1336-1342.
- Huselid, M. A. 1995. The impact of human resource management practices on turnover, productivity, and corporate financial performance. *Academy of Management Journal*, 38: 635-872.
- Huselid, M. A., Jackson, S. E., & Schuler, R. S. 1997. Technical and strategic human resource management effectiveness as determinants of firm performance. *Academy of Management Journal*, 40: 171-188.
- Jeffrey, S. A., Dickinson, A. M., & Einarsson, Y. 2013. The use of incentives in organizations. *International Journal of Productivity and Performance Management*, 62: 606-615.
- Jenkins, G. D., Jr. 1986. Financial incentives. In E. A. Locke (Ed.), *Generalizing from laboratory to field settings*: 167-180. Lexington, MA: Lexington Books.
- Jenkins, G. D. Jr., Mitra, A., Gupta, N., & Shaw, J. D. 1998. Are financial incentives related to performance? A meta-analytic review of empirical research. *Journal of Applied Psychology*, 83: 777-787.
- Jones, G. R., & Wright, P.M. 1992. An economic approach to conceptualizing the utility of human resource management practices. In K. Rowland & G. Ferris (Eds.), *Research in personnel and human resources management*, vol. 10: 271-299. Greenwich, CT: JAI Press.
- Kahneman, D., & Tversky, A. 1979. Prospect theory: An analysis of decision under risk. *Econometrica*, 47: 263-291.
- Kehoe, R. R., & Wright, P. M. 2013. The impact of high-performance human resource practices on employees' attitudes and behaviors. *Journal of Management*, 39: 366-391.
- Kerr, S. 1999. Organizational rewards: Practical, cost-neutral alternatives that you may know, but don't practice. *Organizational Dynamics*, 28: 61-70.
- Kohn, A. 1993a. *Punished by rewards*. New York: Houghton Mifflin.
- Kohn, A. 1993b. Why incentive plans cannot work. *Harvard Business Review*, 71: 54-63.
- Komaki, J., Coombs, T., & Schepman, S. 1996. Motivational implications of reinforcement theory. In R. M. Steers, L. W. Porter, & G.A. Bigley (Eds.), *Motivation and leadership at work*: 34-52. New York: McGraw-Hill.
- Kube, S., Mañchal, M. A., & Puppe, C. 2012. The currency of reciprocity: Gift exchange in the workplace. *American Economic Review*, 102: 1644-1662.
- Latham, G. P., Mitchell, T. R., & Dossett, D. L. 1978. Importance of participative goal setting and anticipated rewards on goal difficulty and job performance. *Journal of Applied Psychology*, 63: 163-171.
- Lazear, E. P. 1999. Personnel economics: Past lessons and future directions: Presidential address to the Society of Labor Economists, San Francisco, May 1, 1998. *Journal of Labor Economics*, 17: 199-236.
- Lazear, E. P. 2000. Performance pay and productivity. *American Economic Review*, 90: 1346-1361.
- Locke, E. A., Feren, D. B., McCaleb, V. M. Shaw, K. N., & Denny, A. T. 1980. The relative effectiveness of four methods of motivating employee performance. In K. D. Duncan, M. M. Gruenberg, & D. Wallis (Eds.), *Changes in working life*: 363-388. New York: Wiley.
- Locke, E. A., & Latham, G. P. 1990. *A theory of goal setting and task performance*. Englewood Cliffs, NJ: Prentice Hall College Division.
- Luthans, F., Paul, R., & Baker, D. 1981. An experimental analysis of the impact of contingent reinforcement on salespersons' performance behavior. *Journal of Applied Psychology*, 66: 314-323.
- Luthans, F., & Stajkovic, A. D. 1999. Reinforce for performance: The need to go beyond pay and even rewards. *Academy of Management Executive*, 13: 49-57.
- Markham, S. E., Scott, D., & McKee, G. 2002. Recognizing good attendance: A longitudinal quasi-experimental field study. *Personnel Psychology*, 55: 639-660.
- Mason, C. M., & Griffin, M. A. 2003. Group absenteeism and positive affective tone: A longitudinal study. *Journal of Organizational Behavior*, 24: 667-687.

- Mazar, N., Amir, O., & Ariely, D. 2008. The dishonesty of honest people: A theory of self-concept maintenance. *Journal of Marketing Research*, 45: 633-644.
- Menefee, J. A., & Murphy, R. O. 2004. Rewarding and retaining the best: Compensation strategies for top performers. *Benefits Quarterly*, 20: 13-20.
- Mohrman, S. A., & Worley, C. G. 2009. Dealing with rough times: A capabilities development approach to surviving and thriving. *Human Resource Management*, 48: 433-445.
- Moorhead, G., & Griffin, R. W. 1998. *Organizational behavior: Managing people and organizations* (5th ed.). Boston: Houghton Mifflin.
- Park, S., & Sturman, M. C. 2009. *The relative effects of merit pay, bonuses, and long-term incentives on future job performance* (CRI 2009-009). Retrieved October 2013 from Cornell University, ILR School, Compensation Research Initiative site: <http://digitalcommons.ilr.cornell.edu/cri/7>
- Pereira, P. T., Silva, N., & Silva, J. A. E. 2006. Positive and negative reciprocity in the labor market. *Journal of Economic Behavior and Organization*, 59: 406-422.
- Peterson, S. J. & Luthans, F. 2006. The impact of financial and nonfinancial incentives on business-unit outcomes over time. *Journal of Applied Psychology*, 91: 156-165.
- Pfeffer, J. 1998. *The human equation: Building profit by putting people first*. Boston: Harvard Business School Press.
- Pouliakas, K. 2010. Pay enough, don't pay too much, or don't pay at all? The impact of bonus intensity on job satisfaction. *Kyklos*, 63: 597-626.
- Prendergast, C. 1999. The provision of incentives in firms. *Journal of Economic Literature*, 37: 7-63.
- Rabin, M. 1993. Incorporating fairness into game theory and economics. *American Economic Review*, 83: 1281-1302.
- Ryan, R. M., & Deci, E. L. 2000. Self-determination theory and the facilitation of intrinsic motivation, social development, and well-being. *American Psychologist*, 55: 68-78.
- Shearer, B. 2004. Piece rates, fixed wages and incentives: Evidence from a field experiment. *Review of Economic Studies*, 71: 513-534.
- Skaggs, K. J., Dickinson, A. M., & O'Connor, K. A. 1992. The use of concurrent schedules to evaluate the effects of extrinsic rewards on "intrinsic motivation": A replication. *Journal of Organizational Behavior Management*, 12: 45-83.
- Slater, P. 1980. *Wealth addiction*. New York: Dutton.
- Smith, V. L., & Walker, M. 1993. Monetary rewards and decision cost in experimental economics. *Economic Inquiry*, 31: 245-261.
- Spiller, S. A. 2011. Opportunity cost consideration. *Journal of Consumer Research*, 38: 595-610.
- Stajkovic, A. D., & Luthans, F. 2001. Differential effects of incentive motivators on work performance. *Academy of Management Journal*, 44: 580-590.
- Taylor, C. 2004. On-the-spot incentives. *HR Magazine*, 49(5).
- Trank, C. Q., Rynes, S. L., & Bretz, R. D., Jr. 2002. Attracting applicants in the war for talent: Differences in work preferences among high achievers. *Journal of Business and Psychology*, 16: 331-345.
- Vroom, V. H. 1964. *Work and motivation*. New York: Wiley.
- WorldatWork 2013. *Trends in employee recognition*. Retrieved from <http://www.worldatwork.org/waw/adimLink?id=72689>
- WorldatWork 2014a. *Incentive pay practices survey: Non-profit/government organizations*. Retrieved from <http://www.worldatwork.org/waw/adimLink?id=74764>
- WorldatWork 2014b. *Incentive pay practices survey: Private held companies*. Retrieved from <http://www.worldatwork.org/waw/adimLink?id=74765>
- WorldatWork 2014c. *Incentive pay practices survey: Publicly traded companies*. Retrieved from <http://www.worldatwork.org/waw/adimLink?id=74763>
- Wright, P. M., & Boswell, W. R. 2002. Desegregating HRM: A review and synthesis of micro and macro human resource management research. *Journal of Management*, 28: 247-276.
- Young, S. M., & Lewis, B. 1995. Experimental incentive contracting research in management accounting. In R. H. Ashton & A. H. Ashton (Eds.), *Judgment and decision making research in accounting and auditing*: 55-75. New York: Cambridge University Press.
- Zhou, X., & Gao, D. G. 2008. Social support and money as pain management mechanisms. *Psychological Inquiry*, 19: 127-144.