

**An integrative SDT-based investigation of the relation between financial incentives,
motivation, and performance.**

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Abstract

To this day, researchers are debating about the adequacy of using financial incentives to bolster performance in work settings. Our goal was to contribute to our current understanding by considering the moderating role of distributive justice in the relation between financial incentives, motivation, and performance. Based on self-determination theory, we hypothesized that when bonuses are fairly distributed, using financial incentives makes employees feel more competent and autonomous, which in turn fosters greater autonomous motivation and lower controlled motivation, and better work performance. Results from path analyses in three samples supported our hypotheses, suggesting that the effect of financial incentives is contextual, and that compensation plans using financial incentives and bonuses can be effective when properly managed.

Keywords: financial incentives, psychological needs, motivation, distributive justice, self-determination theory.

Introduction

During the last decade, there have been many calls for research on compensation, an unduly neglected topic in management research according to several authors (e.g., Dulebohn & Werling, 2007; Gagné & Forest, 2008; Gerhart & Fang, 2015; Shaw & Gupta, 2015). Indeed, compensation issues were addressed in less than 6% of the articles published in the top management journals between 1996 and 2002 (Werner & Ward, 2004), in less than 2% of the articles published in *Personnel Psychology* and in *Journal of Applied Psychology* between 2003 and 2007, and in less than 1% of the presentations during the 2012 conference of the Academy of Management and the 2013 conference of the Society of Industrial and Organizational Psychology (Gupta & Shaw, 2014).

Furthermore, in terms of the currently existing literature, a major debate has emerged as two dominant lines of research offer conflicting evidence about pay-for-performance plans (Cerasoli, Nicklin, & Ford, 2014; Deci & Ryan, 1985; Fang & Gerhart, 2012; Frey & Jergen, 2001; Gagné & Deci, 2005; Rynes, Gerhart, & Parks, 2005). On one hand, research mainly stemming from self-determination theory (SDT; Ryan & Deci, 2000) advises against using money to motivate employees to perform (e.g., Deci 1971; Deci, Koestner, & Ryan, 1999), while on the other hand, another line of research advocates for the motivational power of money (e.g., Gerhart & Fang, 2014; Jenkins, Gupta, Mitra, & Shaw, 1998; Lawler, 1987, 2000). It thus becomes imperative to reconcile the theoretical and empirical work conducted so far in order to gain a deeper and nuanced understanding of the effect of financial incentives in the workplace. Hence, in the present research, we test a model in which the effect of financial incentives on employee motivation and performance varies according to the way they are distributed. In addition, we

build on the SDT literature and investigate the underlying role of two specific psychological needs, namely competence and autonomy, in this relation.

In the next sections, we provide an overview of past research conducted on financial incentives. We begin our review with main postulates of SDT and evidence suggesting that financial incentives have a deleterious effect on motivation. Then we present the recent shifts in focus in SDT that portray financial incentives less negatively and that have contributed to the elaboration of our integrative model.

Self-determination theory

SDT is a motivational theory that has been refined and tested for the past forty years, in a variety of life contexts such as health (e.g., Ryan, Patrick, Deci, & Williams, 2008), sports (e.g., Hagger & Chatzisarantis, 2007), education (e.g., Niemiec & Ryan, 2009), parenting (e.g., Joussemet, Landry, & Koestner, 2008), and work (Gagné & Deci, 2005). According to this theory, motivation to engage in a specific activity ranges from being controlled to autonomous (Ryan & Deci, 2000). Individuals are said to have autonomous motivation when they feel that the activity they are pursuing is genuinely interesting or that it is congruent with their personal goals and identity (Deci & Ryan, 2002), whereas they are said to have controlled motivation when their participation is externally driven and instrumental in avoiding punishment, obtaining rewards, alleviating feelings of guilt, or satisfying their ego (Deci, Vallerand, Pelletier & Ryan, 1991).

In line with this conceptualization, autonomous motivation is typically positively associated with performance as individuals find the activity meaningful and enjoy performing it (Stone, Deci & Ryan, 2009). For example, Ntoumanis (2005) found that autonomous motivation positively predicted individuals' current task engagement and effort, and many studies from

different contexts, including in the workplace, corroborate these findings (e.g., Standage, Duda, & Ntoumanis, 2005; Williams & Deci, 1996).

On the other hand, controlled motivation appears less sustainable and beneficial for performance since it relies on external sources (Deci & Ryan, 2002). Indeed, individuals who experience controlled motivation for a given task tend to be less personally invested in it and subsequent performance tends to suffer from this lack of personal investment (Ryan & Deci, 2000). In the work context, studies have shown that employees who have controlled motivation exhibit lower work engagement and performance (e.g., Fernet, Austin, & Vallerand, 2012; Guay, Chanal, Ratell, Marsh, Larose & Boivin, 2010).

On this basis, the first step for our research was to build on this literature; therefore, we integrated the following hypotheses to our model:

H1a: Autonomous motivation is positively related to performance.

H1b: Controlled motivation is negatively related to performance.

SDT and financial incentives

With regards to financial incentives, much research has found that offering money hinders the quantity and quality of motivation (Deci, 1971; 1972; Ryan, Mims & Koestner, 1983). For instance, cueing individuals with money leads them to work in isolation, without asking or providing help to their colleagues (Vohs, Mead, & Goode, 2008), and subsequent withdrawal of such cues leads them to be less motivated in their work (Murayama, Matsumoto, Izuma, Matsumoto, 2010). It thus appears that using money as incentive can backfire and bring unwanted consequences, such as diminished autonomous motivation, as individuals come to believe that their main source of motivation is money (Fehr & List, 2004; Frey & Jergen, 2001; Kasser & Ahuvia, 2002; Kasser, Ryan, Couchman, Sheldon, 2004; Kuvaas, Buch, Gagné,

Dysvik, & Forest, 2016). Their motivation appears to shift from being autonomous and driven by internal factors like authentic enjoyment, to being controlled and driven by external factors like financial incentives (Krug & Braver, 2014; Ryan & Deci, 2000). Studies indeed show that individuals experience not only lower autonomous motivation to pursue a task, but also greater controlled motivation when promised money in exchange for their performance (e.g., Deci, Koestner, & Ryan, 1999; Hennig-Thurau & Paul, 2007; Weibel, Rost, & Osterloh, 2010). Many proponents of SDT have thus emphasized the potential risk of using financial incentives to motivate individuals to perform in any given context (e.g., Vansteenkiste, Neyrinck, Niemiec, Soenens, Witte, & Broeck, 2007).

From the laboratory to the work context

Despite this evidence, other researchers argue that financial incentives hold more importance in the workplace than in laboratory experiments, and have pointed out critical differences between these contexts, including the individuals involved (children vs adults), the tasks used (simple, repetitive, game-like tasks vs complex, challenging, ambiguous tasks), the duration of the task (a few minutes vs hundreds of hours), the degree of personal involvement (minimal vs maximal), and the amount of the financial incentives (a few dollars vs hundreds of dollars) (e.g., Bartol & Locke, 2000; Fang & Gerhart, 2012; Rynes et al., 2005; Shaw & Gupta, 2015). Their main argument is that offering small financial incentives may not be sufficient to prompt students to improve their performance on repetitive tasks, whereas promising three to five-digit financial incentives to adults, who dedicate hundreds of hours to their organization, may be a powerful tool to sustain their motivation and performance. Some evidence supports their claim as intervention-based research showed that introducing financial incentives in the workplace led to increased performance level not only during the intervention, but also post-intervention

(Stajkovic & Luthans, 2001). Recent research also indicates that across three international work samples in the service industry, perceiving financial incentives as contingent on performance enhanced, rather than undermined, employees' customer service (Grande, Chi, & Diamond, 2013).

Mindful of the discrepancies in their findings, SDT proponents brought attention to rather neglected postulates of the theory concerning financial incentives (Gagné & Forest, 2008; Moller & Deci, 2014). Accordingly, in the next sections, we first introduce the concept of the basic psychological needs, and provide evidence of their relation with types of motivation. Then, we present the neglected postulates that explain the circumstances under which financial incentives could have a beneficial effect on employee motivation and performance.

Psychological needs according to SDT

SDT posits that individuals have three basic psychological needs that are essential for their optimal functioning in every life domain (Ryan & Deci, 2000; 2008; Sheldon & Bettencourt, 2002). Individuals have the need for competence, that is, to feel that they can overcome challenges using their skills and influence their environment in a desired way (Deci & Ryan, 2000; White, 1959). Individuals also have the need for autonomy, or the need to experience a sense of choice and volition when engaging in activities (Ryan & Deci, 2006). Finally, individuals have the need for relatedness, which is to feel connected to others in personally meaningful ways (Baumeister & Leary, 1995; Deci & Ryan, 2000). Individuals are said to benefit greatly when these psychological needs are fulfilled, and evidence from the workplace has shown that psychological need satisfaction is associated with better functioning, such as greater autonomous motivation and lower controlled motivation, as well as greater task

performance, enjoyment, and vigor (e.g., De Cooman, Stynen, Van den Broeck, Sels, & De Witte, 2013; Gillet, Fouquereau, Forest, Brault, & Colombat, 2012).

Hence, our second step was to integrate the concept of psychological need satisfaction as an explanatory mechanism through which financial incentives have an effect on employee motivation. We chose to focus on competence and autonomy need satisfaction as many researchers have argued that these two psychological needs matter the most with regards to compensation (e.g., Gerhart & Fang, 2015; Moller & Deci, 2014; Stone et al., 2009). In the next section, we provide more details on the theoretical foundations underlying this choice. For now, we hypothesize the following:

H2a: Competence need satisfaction is positively related to autonomous motivation.

H2b: Competence need satisfaction is negatively related to controlled motivation.

H3a: Autonomy need satisfaction is positively related to autonomous motivation.

H3b: Autonomy need satisfaction is negatively related to controlled motivation.

Financial incentives and psychological needs

More and more, SDT researchers propose that financial incentives may have a beneficial effect on employees' competence and autonomy needs (e.g., Del Vecchio & Wagner, 2011; Gagné & Forest, 2008; Moller & Deci, 2014; Stone et al., 2009). These ideas stem from earlier work in SDT suggesting that depending on the context, external elements in individuals' surroundings can either support their autonomy and promote choice, or control their behavior (Deci, Connell, & Ryan, 1989; Deci & Ryan, 1987; Deci et al., 1999). Hence, the way in which external elements, like financial incentives, are presented prior to the task and administered upon task completion determines the functional meaning of the incentive.

Accordingly, when financial incentives are used in the workplace to prompt employees to meet expected performance levels and specific deadlines, employees are more likely to perceive them as controlling means of evaluation and surveillance, thus leading to lower feelings of autonomy and competence need satisfaction. On the other hand, when financial incentives are awarded as a token of appreciation for their work, employees are more likely to perceive them as providing a source of positive feedback. This may positively contribute to their feeling of competence, as the bonus may represent an acknowledgment of their substantial work efforts, as well as of autonomy, as the bonus may represent employees' volitional choice to invest such efforts in their work. For instance, a recent study in the work context shows that financial incentives are positively associated with performance when employees experience higher levels of autonomy (Young, & Beckman, & Baker, 2012).

The moderating role of distributive justice

However, using financial incentives in and of itself may not be a sufficient condition to fulfill employees' competence and autonomy needs. Indeed, according to the reflection theory (Thierry, 2001), employees may react differently to compensation and financial incentives depending on the meaning they perceive money to hold. One of the meanings money can take on is the notion of relative position, that is, the meaning employees derive from the compensation they receive in relation to their colleagues'. From this perspective, when employees perceive their financial incentives as a form of feedback on their performance and effort in comparison to their coworkers' achievement, financial incentives leads them to experience greater need satisfaction and consequently show greater motivation. The notion of relative positive can further be conceptualized as distributive justice, that is, employees' perceptions of the fairness of their outcomes in relation to their efforts compared to referent others (Colquitt, 2001). Many empirical

studies support the claim that distributive justice plays an important role in determining employees' work outcomes, and a recent meta-analysis revealed that financial incentives have the greatest impact on employees' performance when they were fairly distributed (Garbers & Konradt, 2014).

In light of such evidence, distributive justice appears to be a necessary condition for financial incentives to have a positive impact on employees' competence and autonomy need satisfaction, and subsequent motivation and performance. That is, using financial incentives will enhance employees' work motivation through their need satisfaction provided that they perceive that increased efforts will lead to better compensation. In a workplace where performance and efforts are fairly compensated and financial incentives are emphasized, employees are more likely to value their skills and abilities, thus satisfying their competence need, and to choose to invest them in their work, thus satisfying their autonomy need. Conversely, when employees perceive financial rewards as unfairly distributed, they are more likely to associate them to reasons that are external to their control such as chance or favouritism, rather than to their efforts and skills (Schaubroeck, Shaw, Duffy, & Mitra, 2008), which leads them to experience less competence and autonomy and competence need satisfaction. Based on this, our hypotheses are as follows:

H4a: Distributive justice moderates the relation between financial incentives and competence need satisfaction, such that the relation is stronger when distributive justice is high.

H4b: Distributive justice moderates the relation between financial incentives and autonomy need satisfaction, such that the relation is stronger when distributive justice is high.

The present research

The goal of our hypothesized model (see figure 1) was two-fold. The first aim was to address the heated debate about the effectiveness of financial incentives in the workplace and to provide researchers and practitioners with an integrative framework to better understand the relation between financial incentives and employee performance. In doing so, we put forth the roles of distributive justice and of the psychological needs, specifically competence and autonomy, in our understanding of the impact of financial incentives on employees.

The second aim of this research was to demonstrate the validity of our integrative model across a range of methodology. Hence, we used three different samples, namely two from Canada and one from Greece, from various industries, including the manufacturing and banking sectors, and employed distinct measures in each study to go beyond specific operationalization of competence and autonomy needs, autonomous and controlled motivation, and performance. Using Motowidlo, Borman, and Schmidt's definition of performance (1997), we used a multi-dimensional approach and focused on behaviours, skills, and knowledge demonstrated by employees that positively contribute to the overall effectiveness of their organizations. We measured performance through self-ratings in Studies 1 and 2, with the former looking at overall work efforts, and the latter focusing on in-depth role orientation as it diminishes risks of social desirability and constitutes a reliable predictor of performance (Berry & Broadbent, 1984; Griffin, Neal, & Parker, 2007; Motowidlo et al., 1997). Finally, we moved from self-reported to other-reported performance ratings in Study 3, using customer service quality ratings by financial advisors' direct supervisors.

Study 1

Using a cross-sectional design with a heterogeneous Greek worker sample, Study 1 investigated the moderating role of distributive justice in the relation between financial

incentives and competence and autonomy need satisfaction. Study 1 also tested the impact of these two needs on motivation and self-rated performance.

Methodology

Participants and Procedure

The sample consisted of 130 part-time and full-time workers (61.5% women and 38.5% men) in Greece. Sixty percent were between 25 and 35 years old, 26.2 % were between 36 and 45 years old, and 13.8% were between 46 and 55 years old. In this sample, 92.3 % were non-unionized, 76.9 % had a full-time position, and 56.9% worked for the private sector. Positions were distributed as follows: 46.2 % professionals, 32.2 % clerical officers, 10 % managers, 6.9 % directors, and 4.6 % technicians. Average job tenure was 4.47 years ($SD = 5.43$) while average organizational tenure was 7.06 years ($SD = 7.46$). Average annual salary was € 18 259 ($SD = € 17,831$) while average annual bonus represented 6.36% of employees' annual salary ($SD = 16.06\%$). Questionnaires were distributed by email through a consultation firm's contact list and data were collected through a secure website. Respondents participated in the study on a voluntary and anonymous basis, and received no compensation for their participation.

Measures

All the scales were translated in Greek using a standard back-to-back procedure (Vallerand, 1989) and all the items in the questionnaire were evaluated on a 7-point Likert scale ranging from 1 "Strongly disagree" to 7 "Strongly agree". Reliability coefficients for the measures are presented along the diagonal in Table 1.

Distributive justice. Employees' perceptions of the distributive fairness of their financial rewards were assessed using three items adapted from the Organizational Justice Scale (e.g., "The rewards I get at work are appropriate for the work I have completed"; Colquitt, 2001).

Financial incentives. Employees' perceptions of the financial incentives used at their workplace were assessed using the twelve items of the work-adapted version of the Contingent Reward Scale (e.g., "In my workplace, there are several cues and reminders indicating to me that I need to meet the standards set by organization if I want to get a bonus"; Houliort, Koestner, Joussemet, Nantel-Vivier, & Lekes, 2002).

Competence need satisfaction. Competence need satisfaction was assessed using three items from the Work-Related Basic Needs Scale (e.g., "I feel competent at my job"; Van den Broeck, Vansteenkiste, De Witte, Soenens, & Lens, 2010).

Autonomy need satisfaction. Autonomy need satisfaction was assessed using three items from the Work-Related Basic Needs Scale (e.g., "I feel free to do my job the way I think it could best be done"; Van den Broeck et al., 2010).

Controlled motivation. Controlled motivation was measured using the Motivation at Work Scale (Gagné, Forest, Gilbert, Aubé, Morin, & Malorni, 2010). Introjected and extrinsic motivations were assessed with three items each, for a total of six items, and an overall index was created (e.g., "Because I have to prove myself that I can"; "Because I risk losing my job if I provide insufficient efforts").

Autonomous motivation. Autonomous motivation was measured using the Motivation at Work Scale (Gagné et al., 2010). Identified and intrinsic motivations were assessed with three items each, for a total of six items, and an overall index was created (e.g., "Because putting efforts in this job has a personal significance to me"; "Because I have fun doing my job").

Performance. Employees' ratings of their performance were assessed using three items from the Work Effort Scale by De Cooman, De Gieter, Pepermans, Jegers, and Van Acker (2009; e.g., "I really do my best to achieve the company's objectives").

Results and Discussion

Descriptive statistics and inter-correlations for the seven variables under study are presented in Table 1. Preliminary analysis of the correlation matrix revealed that autonomy need satisfaction was positively correlated with both distributive justice and financial incentives, while competence need satisfaction was negatively correlated with financial incentives and unrelated to distributive justice. As expected, autonomous motivation was positively correlated with both competence and autonomy need satisfaction, while controlled motivation was negatively correlated with competence need satisfaction and not significantly correlated with autonomy need satisfaction. Autonomous motivation was also positively correlated with performance, whereas controlled motivation was negatively correlated with performance, thus offering preliminary support for our hypotheses. For the main analyses, distributive justice and financial incentives scores were mean-centered before integrating their interaction term into the model.

The suggested model with the eight hypothesized paths was tested through path analysis using *Mplus* version 7.31. Bootstrap analyses were conducted with 1000 iterations to obtain path estimates. Competence and autonomy need satisfaction were allowed to covary, as were autonomous and controlled motivation. Four goodness-of-fit indices were used: the Comparative Fit Index (CFI), Tucker Lewis Index (TLI), Root Mean Square Error of Approximation (RMSEA), and Standardized Root Mean Square Residual (SRMR). Generally, values above .90 for the CFI and the TLI indicate a satisfactory fit (Hoyle, 1995; Schumacher & Lomax, 1996), and values below .08 for the RMSEA as well as for the SRMR suggest an adequate fit (Browne & Cudeck, 1993; Hu & Bentler, 1999). The Sample-size Adjusted BIC (SABIC) was further used to compare our hypothesized model to alternative models, with lower values indicating better fit. The hypothesized model provided a satisfactory fit to the data, $\chi^2(11) = 22.13, p <$

0.05, CFI = 0.92, TLI = 0.82, RMSEA = 0.08, 90% CI (0.03-0.14), SRMR = 0.06, and SABIC = 2863.81 (see Figure 2).

Three alternative models were also tested. The first alternative model tested the interaction between financial incentives and distributive justice to competence and autonomy need satisfaction, and from competence and autonomy need satisfaction to controlled and autonomous motivation, with a direct path from the interaction between financial incentives and distributive justice to performance. Bootstrapped path analysis for this alternative model revealed an inferior fit to the data than the original hypothesized model, $\chi^2(8) = 21.31, p < 0.05$, CFI = 0.89, TLI = 0.68, RMSEA = 0.11, 90% CI (0.06-0.17), SRMR = 0.06 and SABIC = 2868.11. A second alternative model tested the interaction between financial incentives and distributive justice to performance, without any path from the interaction term to competence and autonomy need satisfaction, and from competence and autonomy need satisfaction to controlled and autonomous motivation, and then to performance. Bootstrapped path analysis for this alternative model also indicated an inferior fit to the data than our hypothesized model, $\chi^2(8) = 21.31, p < 0.05$, CFI = 0.82, TLI = 0.60, RMSEA = 0.11, 90% CI (0.06-0.17), SRMR = 0.06 and SABIC = 2868.11. Finally, the third alternative model testing the interaction between financial incentives and distributive justice to competence and autonomy need satisfaction as well as to controlled and autonomous motivation, and from controlled and autonomous motivation to performance, showed the worse fit to the data, $\chi^2(7) = 48.86, p < 0.05$, CFI = 0.69, TLI = -0.15, RMSEA = 0.21, 90% CI (0.16-0.27), SRMR = 0.09 and SABIC = 2897.37.

Results supported all but one of our hypotheses (see Figure 2). Autonomous motivation was positively associated with performance, $\beta = .17, p < .05$, while controlled motivation was negatively associated with it, $\beta = -.22, p < .05$, thus supporting H1a and H1b. Providing support

to H2a and H2b, competence need satisfaction was positively associated with autonomous motivation, $\beta = .18, p < .05$, and negatively to controlled motivation $\beta = -.29, p < .05$. Autonomy need satisfaction, in turn, was positively associated to autonomous motivation, $\beta = .51, p < .05$, as predicted in H3a, but not significantly to controlled motivation, $\beta = -.07, p = .46$, contrary to H3b. Finally, the interaction between perceptions of financial incentives and distributive justice predicted competence need satisfaction, $\beta = .21, p < .05$, and autonomy need satisfaction, $\beta = .18, p < .05$, supporting H4a and H4b. The unstandardized simple slope coefficients under low and high distributive justice were respectively $B = -.21, p < .05$ and $B = -.53, p < .05$ for competence (see Figure 3), and $B = .36, p < .05$ and $B = .71, p < .05$ for autonomy (see Figure 4). As shown, it appears that when employees hold strong perceptions of financial incentives in their workplace, strong perceptions of distributive justice buffers against lower competence need satisfaction, and enhances autonomy need satisfaction.

Although results of this first study supported our argument that perceptions of distributive justice are essential for financial incentives to have a positive effect on employee's psychological needs and subsequent motivation and performance, the cross-sectional nature of the study limited the interpretation of our findings. It appeared important to replicate our findings with a more robust methodology by using a sample from a different country and work field, by introducing a time lag between our measurements of the variables, and by using a more indirect and less socially desirable measure of performance.

Study 2

Conducted with a Canadian sample of high-tech workers, this study used a correlational time-lagged design. First, employees' perceptions of financial incentives and of distributive justice, as well as their competence and autonomy need satisfaction, were measured. Fifteen

months later, we assessed their autonomous and controlled motivation as well as their self-rated role knowledge as an indicator of performance.

Method

Participants and Procedure

The sample consisted of 144 full-time employees from a Canadian technology company (72.9% men, 3.5% women, and 23.6% unidentified). In this sample, 43.1% spoke English as their first language, 29.9% spoke French as their first language, and 27.1% did not disclose their first language. Average annual salary was CAN \$70,497 (SD = CAN \$16,087) while average annual bonus represented 3.95% of employees' annual salary (SD = 3.34%). Questionnaires were distributed by email and were collected through a secured website at Time 1. Fifteen months later, at Time 2, employees received the second questionnaire by email and responded online. They participated on a voluntary basis and received no compensation. Responses from T1 and T2 were matched using respondents' full names, which were later deleted from the dataset by a research assistant before proceeding to data analysis. All responses remained confidential.

Measures

The same items as in Study 1, adapted to the specificities of the organization, were used (see Table 2 for reliability coefficients), with the exception of the scale for performance. Performance was assessed at T2 using the fifteen-item subscale "Role orientation: Importance of production knowledge" by Parker, Wall and Jackson (1997). Participants were asked to rate on a 7-point Likert scale ranging from 1 "Strongly disagree" to 7 "Strongly agree" the extent to which each item was important for them to do their job effectively (e.g., "Knowing the overall objectives of the company").

Results and Discussion

Descriptive statistics, reliability coefficients, and inter-correlations for the seven variables under study are presented in Table 2. Similarly to Study 1, autonomy need satisfaction was positively correlated with distributive justice and with financial incentives, yet competence need satisfaction appeared unrelated to either. As expected, autonomous motivation was positively correlated with both competence and autonomy need satisfaction, and with performance. Surprisingly, controlled motivation was not significantly correlated with any of the variables in the study.

As in Study 1, for the main analyses, distributive justice and financial incentives scores were mean-centered before integrating their interaction term into the model, and the hypothesized model was tested through bootstrapped path analysis with 1000 iterations. Competence and autonomy need satisfaction were allowed to covary as were autonomous and controlled motivation. The hypothesized model yielded a very good fit to the data, $\chi^2(11) = 11.55, p = 0.39$, CFI = .99, TLI = .97, RMSEA = .02 90% CI (.00-.09), SRMR = .05, and SABIC = 2149.48 (see Figure 5).

The same three alternative models proposed in Study 1 were tested through bootstrapped path analysis. Results for the first alternative model yielded a less satisfactory fit than our hypothesized model, $\chi^2(8) = 7.63, p = 0.47$, CFI = 1.00, TLI = 1.02, RMSEA = 0.00, 90% CI (0.0-0.10), SRMR = 0.04 and SABIC = 2150.92. So did the second alternative model, $\chi^2(8) = 7.63, p = 0.47$, CFI = 1.00, TLI = 1.04, RMSEA = 0.00, 90% CI (0.0-0.10), SRMR = 0.04 and SABIC = 2150.92, and the third alternative model, $\chi^2(7) = 10.51, p = 0.16$, CFI = .93, TLI = .77, RMSEA = 0.06, 90% CI (0.0-0.13), SRMR = 0.08 and SABIC = 2155.58.

Results from this study replicated most findings from Study 1 (see Figure 5). Autonomous motivation was positively associated with performance, $\beta = .40, p < .05$, while controlled

motivation was not significantly associated with it, $\beta = -.04, p = .70$, thus providing support for H1a, but not H1b. Competence need satisfaction was in turn positively associated with autonomous motivation, $\beta = .31, p < .05$, as suggested by H2a, but not to controlled motivation, $\beta = .03, p = .91$, as suggested by H3a. The same pattern for autonomy need satisfaction was found for autonomous motivation, $\beta = .28, p < .05$, and for controlled motivation, $\beta = .19, p = .15$, which only supported H2b, not H3b. Finally, the interaction between employees' perceptions of financial incentives and of distributive justice predicted their competence need satisfaction, $\beta = .27, p < .05$, and autonomy need satisfaction, $\beta = .21, p < .05$, supporting H4a and H4b. The unstandardized simple slope coefficients under low and high distributive justice were respectively $B = .30, p < .05$ and $B = .62, p < .05$ for competence (see Figure 6), and $B = .32, p < .05$ and $B = .62, p < .05$ for autonomy (see Figure 7). As in Study 1, when employees hold strong perceptions of financial incentives in their workplace, strong perceptions of distributive justice enhances autonomy need satisfaction. However, unlike Study 1 where distributive justice appeared to have a buffering effect, in this study, it appears to enhance competence need satisfaction.

Along with results of Study 1, the findings in Study 2 suggest that controlled motivation may play a less significant role in explaining the impact of financial incentives on employees' motivation. Financial incentives, when fairly distributed, seem to have a greater impact on employees' autonomous motivation by increasing their competence and autonomy need satisfaction. Nevertheless, results from the first two studies were still limitative in that performance was self-assessed by employees, at the same time as their motivation. To address these issues, Study 3 introduced a second time lag and used supervisor-rated performance measures.

Study 3

Conducted with a Canadian sample of financial advisors, this study used a correlational design with three measurement points. On the basis of the findings in Studies 1 and 2, controlled motivation was not included in this study. We first measured employees' perceptions of financial incentives and of distributive justice at Time 1. Then we assessed their competence and autonomy need satisfaction, and their autonomous motivation three months later, at Time 2. Finally, supervisors rated employees' customer service performance three months later, at Time 3.

Method

Participants and Procedure

The sample consisted of 142 full-time employees from a French Canadian organization in the financial sector. All the participants were financial advisors, 69 % had a bachelor's or master's degree, and average job tenure was 10.85 years ($SD = 9.43$). Average annual salary was CAN \$51, 175 ($SD = CAN \$18, 047$) while average annual bonus represented 7.14% of employees' annual salary ($SD = 7.5\%$). Questionnaires were distributed by email at three-month intervals and data were collected through a secured website. Respondents participated on a voluntary basis and received no compensation. As in Study 2, responses from T1, T2, and T3 were matched using participants' full names, which were later deleted from the dataset by a research assistant before proceeding to data analysis. Data remained confidential at all times.

Measures

In this study, all the scales were translated in French according to the same procedure as in Study 1 (Vallerand, 1989), and all the items were evaluated on a 5-point Likert scale ranging

from 1 “Strongly disagree” to 5 “Strongly agree”. Reliability coefficients are presented along the diagonal in Table 3.

Distributive justice. The same items as in Studies 1 and 2 were used to measure employees’ perceptions of the distributive fairness of their financial rewards at T1 (Colquitt, 2001).

Financial incentives. Seven items adapted from Pearce and Perry (1983) were used at T1 to measure employees’ perceptions of the financial incentives used at their workplace (e.g., “If many of my customers are satisfied by my services, I will probably get a bonus”).

Competence need satisfaction. The three-item Competence subscale of the Empowerment Scale was used at T2 to measure employees’ competence need satisfaction (e.g., “I believe in my abilities to do my work”; Spreitzer, 1995).

Autonomy need satisfaction. The three-item Autonomy subscale of the Empowerment Scale was used at T2 to measure employees’ autonomy need satisfaction (e.g., “I feel enough autonomy to do my work as I please”; Spreitzer, 1995).

Autonomous motivation. Three items adapted from Amabile (1985) and from Tierney, Farmer, and Graen (1999) were used at T2 to measure employees’ current autonomous motivation at work (e.g., “I am motivated at work because my job is fun”).

Performance. Employees’ performance was measured at T3 by their immediate supervisors using seven items adapted from the Customer Orientation Scale (e.g., “Tries to achieve the company’s objectives by satisfying customers”; Saxe & Weitz, 1982). Supervisors rated the extent to which employees demonstrated each behavior using a 5-point scale with 1 corresponding to “Never” and 5 corresponding to “Always”.

Results and Discussion

Descriptive statistics and inter-correlations for the six variables in this study are presented in Table 3. Similarly to Studies 1 and 2, autonomy need satisfaction was positively correlated with distributive justice and unrelated to financial incentives, while competence need satisfaction appeared unrelated to either. Autonomous motivation was positively correlated with both competence and autonomy need satisfaction, and with performance.

As in Studies 1 and 2, distributive justice and financial incentives scores were mean-centered before integrating their interaction term into the model. The hypothesized model was tested through bootstrapped path analysis with 1000 iterations and showed a very good fit to the data, $\chi^2(8) = 9.64, p = .29, CFI = .97, TLI = .93, RMSEA = .03$ 90% (.00-.07), SRMR = 0.03, and SABIC = 3918.52 (see Figure 8). Again, the three alternative models (without controlled motivation) were tested through bootstrapped path analysis with 1000 iterations. All three models indicated a less satisfactory fit to the data compared to our hypothesized models, with alternative model 1, $\chi^2(5) = 7.95, p < 0.05, CFI = 0.94, TLI = 0.79, RMSEA = 0.04, 90\% CI (0.00-0.10), SRMR = 0.03$ and SABIC = 3924.53; alternative model 2 $\chi^2(5) = 7.95, p < 0.05, CFI = 0.89, TLI = 0.77, RMSEA = 0.04, 90\% CI (0.00-0.10), SRMR = 0.03$ and SABIC = 3924.53; and alternative model 3, $\chi^2(5) = 22.73, p < 0.05, CFI = 0.65, TLI = -0.26, RMSEA = 0.11, 90\% CI (0.07-0.15), SRMR = 0.06$ and SABIC = 3939.31.

Results of this study replicated the findings from Studies 1 and 2 (see Figure 8), with the exception of H4a proposing that the interaction between employees' perceptions of financial incentives and of distributive justice significantly predicts employees' competence need satisfaction three months later, $\beta = .05, p = .44$. However, the interaction between employees' perceptions of distributive justice and financial incentives did significantly predict their autonomy need satisfaction three months later, $\beta = .28, p < .05$, thus supporting H4b. The

unstandardized simple slope coefficients under low and high distributive justice were respectively $B = -1.30, p < .05$ and $B = -.55, p < .05$ for autonomy (see Figure 7). These results corroborate those of Studies 1 and 2, and indicate that when employees hold strong perceptions of financial incentives in their workplace, strong perceptions of distributive justice enhance autonomy need satisfaction, and even buffers against lower feelings of autonomy need. Finally, both competence and autonomy need satisfaction positively predicted employees' autonomous motivation, respectively $\beta = .32, p < .05$, and $\beta = .13, p < .05$, hence supporting H2a and H3a, and employee's autonomous motivation positively predicted their performance as rated by their supervisors three months later, $\beta = .33, p < .05$, supporting H1a.

General Discussion

Three field studies of employees were conducted to examine how perceptions of distributive justice of financial incentives relate to the satisfaction of autonomy and competence needs, and influence employees' motivation and performance. Across different samples of professionals, workers, and financial advisors, the three studies offer considerable support to our original hypothesized model. Although the results were not as clear for the competence need as for the autonomy need, they indicate that stronger perceptions of distributive justice enhance employees' autonomy need satisfaction, whereas it buffers against diminished competence need satisfaction. Additional research is needed to investigate these buffering and enhancing effects; nevertheless, both trends demonstrate that when fairly distributed, financial incentives can be positively associated with employees' autonomy and competence need satisfaction. Satisfaction of these needs then leads to valuable organizational outcomes such as increased autonomous motivation and work performance, as reported by employees and supervisors.

From a broader perspective, the empirical evidence found for our model, in collaboration

with other research (e.g., Kuvaas, 2008), provides insight into the relation between compensation and motivation from a SDT perspective. As such, it nuances and reconciles conflicting findings in the literature by showing that financial incentives are not detrimental in themselves, but that specific conditions must be set in place for them to have the desired beneficial impact on employees. It highlights the importance of neglected postulates in early SDT claiming that external elements such as financial incentives take on different functional meanings according to the way they are administered. Our research is a preliminary step suggesting that emphasizing financial incentives in the workplace can be perceived as controlling for employees, but that when they are fairly allocated, employees experience them as less controlling and more informational, and this positively contributes to their competence and autonomy needs. From this perspective, money in itself may not be a sufficient motivator to ensure the prescribed performance levels, but it can be an influential lever to arouse employees' autonomous motivation through their need satisfaction when the incentives are fairly distributed.

Interestingly, we only found evidence for the negative relations between competence need satisfaction and controlled motivation, and between controlled motivation and performance in Study 1. Although this runs contrary to our initial hypotheses, this resonates with recent developments in SDT arguing that need satisfaction may be a better predictor of positive outcomes such as autonomous motivation, while need frustration (i.e., the active thwarting rather than the mere dissatisfaction of one's psychological needs), may be a better predictor of negative outcomes such as controlled motivation (Bartholomew, Ntoumanis, Ryan, Bosch, & Thøgersen-Ntoumani, 2011; Vansteenkiste & Ryan, 2013). Recent empirical work in SDT indeed shows that need frustration is strongly associated with controlled motivation (e.g., Trépanier, Forest, Fernet, & Austin, 2015).

In this light, more research is needed to investigate the possibility of financial incentives being associated with controlled motivation through need frustration. For example, if used in a controlling manner or unfairly distributed, relying on financial incentives could lead either to autonomy need frustration by enhancing employees' feelings that their employer is imposing performance standards and pressuring them into meeting those expectations, or to competence need frustration by leading employees to feel either incompetent or that their employer does not value competency. In this light, financial incentives would serve as impediments that thwart employees' feelings of competence and autonomy, and foster controlled motivation.

Limitations

While our research offers new perspectives on the study of compensation and motivation, some limitations must be taken into consideration when interpreting our findings. Despite the time-lagged designs, our results are based on correlational data and do not allow to draw any causal inferences. Without repeated measurements, it is impossible to control for values of our variables at a previous time point; hence, the estimates found in our studies must be interpreted with caution. Moreover, our findings are based on three relatively limited samples in terms of size, origin, and activity sector, which raise the issue of the generalizability of the results. Finally, we relied on self-reported data, with the exception of supervisors' ratings of employee performance in Study 3. Although self-reports are said to be appropriate for ratings concerning strong subjective or non-behavioural components such as perceptions of distributive justice and of need satisfaction (Chan, 2009; Podsakoff, MacKenzie, & Podsakoff, 2012), relying exclusively on them increases the risk for individual rating biases and common method bias. Common method bias is said to be less problematic in complex estimation involving multiple independent variables and in interaction effects as it cannot spuriously create them, but only

deflate existing ones (Siemsen, Roth, & Oliveira, 2010). Nevertheless, future studies should aim to use other data sources, such as other-reported and objective measures, especially for performance and compensation, given that most companies have readily accessible data on their performance objectives, pay structures, reward contingencies, and financial incentives.

Future research

Notwithstanding its limitations, the present research supports the claim that distributive justice influences the way employees respond to financial incentives, thus contributing to the overall effectiveness of pay-for-performance plans. To this day, very little research has been conducted specifically on either distributive or procedural justice, financial incentives and psychological needs. Integrating all three variables into one comprehensive model is a relatively recent development, despite the more common literature linking either distributive or procedural justice to either compensation (e.g., Folger & Konovsky, 1989; William, McDaniel, & Nguyen, 2006) or psychological needs (e.g., Mayer, Bardes, & Piccolo, 2008). In this vein, additional research is needed to better understand the unique effect of distributive justice, as well as of procedural justice, in compensation plans on employees' psychological needs.

Future research should also use longitudinal designs to compare compensation practices and identify those that lead to greater psychological need satisfaction. As Gerhart and Fang suggest (2015), comparing the long-term effect of pay structures on employees' psychological needs may help understand how and when they lead to optimal employee functioning. For instance, well-designed, equitable collective bonus plans could help fulfill employees' psychological needs by providing them the choice to put their competence to contribution towards a meaningful, collective effort, thus sustaining their autonomous motivation and engagement in the long-run. On the other hand, individual all-commission-based pay plans may thwart their psychological

needs by unduly forcing employees to adopt an isolated mindset, overly preoccupied by the results they need to deliver, and constantly evaluating their ratio of effort to financial outcome.

With this in mind, our findings support a trending idea that aspects pertaining specifically to compensation management and pay administration should be further investigated (e.g., Gagné & Forest, 2008; Gerhart & Fang, 2015). Both practitioners and researchers should aim to devise optimal pay structures to manage and distribute bonuses in a way that effectively fosters employee need satisfaction and autonomous motivation without increasing their need frustration and controlled motivation. For example, when presenting financial incentive opportunities, employers could emphasize the meaning of these incentives so as to foster a healthy, collective, positively-competitive mindset, that energizes teams and inspires them to achieve greater levels, instead of over-emphasizing the contingencies between meeting the objectives and getting the financial reward to the point that it feels like a threat, and using the financial incentives as a means to closely monitor employees' performance. Furthermore, upon allocation of the financial rewards, employers could provide positive feedback that specifically highlights the quality of the employees' work and acknowledges the level of effort the employees chose to invest in their work. By expressing their appreciation of employees' volitional engagement in the work process, employers would positively contribute to employees' competence and autonomy need satisfaction.

Finally, a lot of research so far has focused on technical aspects such as the amount to give and the frequency at which to allocate bonuses (Garbers & Konradt, 2014; Gupta, Conroy, & Delery, 2012; Kuvaas, 2008). This study suggests that it may be time to turn away from these technical aspects and delve into more subjective aspects such as the meaning of financial rewards and the salience of their informational or controlling aspect (e.g., Ryan et al., 1983), the meaning

of pay disparities and employees' sensitivity to pay inequities (e.g., Luna-Arocas & Tang, 2014), and the meaning of money and employees' underlying motives for earning money (e.g., Thibault Landry, Kindlein, Trépanier, Forest, Zigarmi, Houson, & Brodbeck, 2016). As recent empirical studies reveal (e.g., Dunn, Aknin, & Norton, 2014; Hill & Howell, 2014; Howell, Kurai, & Tam, 2013; Kushlev, Dunn, & Lucas, 2015; Matz, Gladstone, & Stillwell, 2016), money in itself is not purely good or evil, but is more likely a symbol that takes on different meanings, serves multiple purposes, and is pursued for a variety of reasons, and these questions should be investigated as they have implications for individuals both at work and outside of work.

Conclusion

The goal of our research was to provide researchers and practitioners with an integrative framework that nuanced previous findings in the literature and allowed for a deeper understanding of the impact of financial incentives, such as bonuses, on employee motivation and performance. Across three studies using different methodologies, we found that when fairly distributed, financial incentives can have a positive effect on employee motivation and subsequent performance by increasing employees' competence and autonomy need satisfaction.

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