

# Who Is More Useful? The Impact of Performance Incentives on Work and Personal Relationships

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**ABSTRACT**

Employees today report being too busy to talk to their friends and family, even though the number of hours they work has remained relatively constant over the last five decades. We highlight incentive systems as one underappreciated factor contributing to this phenomenon and explore the role of incentives in shaping how employees think about their different social relationships. Results from one archival dataset, one panel survey, and two experiments ( $n = 132,139$ ) show that when employees are paid for performance, they prioritize spending time socializing with work colleagues at the sacrifice of spending time with friends and family. We further document goal instrumentality as a mechanism for these results: employees who receive performance incentives perceive their work ties as highly instrumental in achieving their goals. These findings provide the first empirical evidence that incentives shape employees' social interactions within *and* outside of work, potentially providing a novel explanation for the dissolution of familial and personal ties in many developed countries.

*Keywords:* performance incentives; rewards; social connections; relationships; goal instrumentality

## **WHO IS MORE USEFUL? THE IMPACT OF PERFORMANCE INCENTIVES ON WORK AND PERSONAL RELATIONSHIPS**

Employees today report being too busy to spend time with their friends and family (Carroll, 2008). In a survey of more than thirty thousand American workers, 90% of respondents said that they were not spending enough time with their spouses and children (Duxbury, Higgins & Schroeder, 2009). In another survey, 40% of respondents reported feeling lonely on a regular basis—a figure that has doubled in the past thirty years (Wilson & Moulton, 2010). In fact, American workers spend less than 45 minutes of quality time with their family in a typical day (Paul, 2018). However, the number of hours that people work per day has remained relatively constant over the last five decades (Aguilar & Hurst, 2007; Bureau of Labor Statistics, 2016) and people do have more leisure time today than they did forty years ago (Robinson & Godbey, 1997). If employees have more free time today than in previous decades, why do they still report lacking sufficient time for friends and family? The current research attempts to find an answer to this question by examining how a common organizational structure – incentive systems – shapes the way employees allocate time and resources to their social relationships.

This topic of investigation fits with an emerging literature that seeks to understand how organizational practices affect work-life balance, which is one of the most pressing concerns that organizations face today (Allen, Herst, Bruck & Sutton, 2000; Goh, Pfeffer, & Zenios, 2015; Lockwood, 2003). Attesting to increased interest in this topic, practitioners have started to focus their attention on helping workplaces create more effective work-life balance initiatives (Aydin, 2016), and a great deal of academic research has examined how individual and contextual factors contribute to work-family conflict (Grzywacz & Carlson, 2007; Smithson & Stokoe, 2005). Despite the increasing attention placed on work and family issues, employees still report that the

pendulum swings more toward the side of ‘work’ than ‘life’ (Kelly et al., 2015): In one nationally representative poll, about 70% of employees reported feeling that their work responsibilities interfered with family and leisure activities (Schieman, Milkie, & Glavin, 2009).

This lack of work-life balance is particularly alarming in light of data suggesting that the quantity and quality of relationships with friends and family can have far reaching consequences for organizational performance (Allen, Herst, Bruck & Sutton, 2000). Employees who feel that they cannot keep up with the demands of work and life are less likely to be productive (Rao & Indla 2010, Shockley, Smith & Knudson, 2017). Specifically, employees who experience greater work-family conflict tend to indicate higher levels of stress, higher turnover intentions, and lower job satisfaction (Anderson, Coffey & Byerly, 2002; Ford, Heinen & Langkamer, 2007). In a study of 1,353 manufacturing companies, firms with a greater number of employees reporting higher levels of work-life balance had higher sales and raised more capital from their investors (Bloom, Kretschmer & Reenan, 2009). Moreover, positive relationships with friends and family tend to be associated with employees’ physical and psychological health (House, Landis & Umberson, 1988; Uchino, Cacioppo & Kiecolt-Glaser, 1996). The influence of social connections on mortality is comparable to established risk factors such as obesity and smoking (Holt-Lunstand, Smith & Layton, 2010), and spending time socializing with friends and family is the happiest part of most people’s day (see Mogilner, Whillans & Norton, 2018 for a review).

The current research proposes that one cause of this problem of work-life conflict might be found in a common organizational structure: performance incentives. Specifically, we suggest that what is missing from previous research might be an understanding of how organizational practices—such as the way that employees are paid at work— shape how employees think about their different social relationships and allocate resources to them.

## THEORETICAL BACKGROUND AND HYPOTHESES

### Performance Incentives

Financial incentives are a core feature of most workplaces. One of the most common incentive systems are performance-incentive systems, also referred to as pay-for-performance (Cadsby, Song, & Tapon, 2007; Deckop, Mangel, & Cirka, 1999) or merit-based pay (Castilla, 2008; Heilman & Stopeck, 1985). Performance incentives are typically defined as rewards that are provided to employees if they meet or exceed a specific standard in a targeted task (Shomstein & Johnson, 2013). Performance incentives are practically ubiquitous across diverse occupations and industries: sales agents receive a bonus for sales, call center employees earn more for each call, and CEOs receive stock options based on quarterly performance. In 2017, about 90% of top-performing companies in the U.S. used performance incentives to motivate their employees (Incentives Research Foundation; Jakobson, 2017).

Performance incentives are also thought of as a means to solve a problem called an ‘agency dilemma.’ Agency dilemmas tend to occur when employees (i.e., an agent) invest effort on behalf of an organization (i.e., a principal), because their personal interests are often misaligned with organizational interests (Eisenhardt, 1989; Grossman & Hart, 1983). For example, employees might want to do the least amount of work required whereas an organization would prefer that employees go above their normal job description and perform as optimally as possible. One solution to this dilemma is to reward employees for their performance (e.g., selling as many cars as possible) as opposed to rewarding them for their engagement in a task (e.g., being at work from nine to five; Laffont & Martimort, 2009). In sum, organizations use performance incentives to align employees’ interest to that of the organization and to motivate them to give their best effort (Lazear, 2000; Stroh, Brett, Baumann, & Reilly, 1996). It is

therefore unsurprising that most research on performance incentives has focused on two primary consequences: whether performance incentives improve productivity (Jenkins Jr, Mitra, Gupta, & Shaw, 1998) and whether the incentive system affects motivation (Cameron, Pierce, Banko & Gear, 2005). That is, prior work has examined how performance incentives shape employees' efforts and underlying attitudes toward the work they are asked to complete (e.g., Eisenberger, Rhoades, & Cameron, 1999; Harrison, Virick, & William, 1996; Miceli, Jung, Near, & Greenberger, 1991; Wageman & Baker, 1997).

Moving beyond these investigations, an emerging line of research suggests that exposure to performance incentives can have unintended and important consequences for employees' fundamental motives and goals (Castilla & Benard, 2010; Larkin, Pierce, & Gino, 2012). For example, exposure to performance incentives can increase the value that employees attach to money and affect their financial decision-making (DeVoe, Pfeffer & Lee, 2013; Hur & Nordgren, 2016). In one experiment, employees who received performance incentives developed an attentional fixation on monetary rewards and showed a stronger desire for money as compared to employees who received a fixed salary (Hur & Nordgren, 2016).

### **The Contrasting Effects on Work versus Personal Relationships**

Recent research also suggests that performance incentives might affect the value employees attach to social interactions. Payment systems that prompt employees to prioritize their own needs and goals over the needs and goals of others (Whillans & Dunn, 2015) can potentially undermine employees' willingness to socialize with other people. Indeed, focusing on the needs of others is a necessary condition for prosocial and social actions (Allen & Ferrand, 1999; Schwartz, 1977). Prior research looking specifically at performance incentives has documented similar results, demonstrating that exposure to performance incentives can decrease

extra-role and organizational citizenship behavior (Deckop et al. 1999; Wright et al. 1993). For example, employees who perceived a strong link between pay and performance were less willing to go above and beyond their required tasks and help colleagues in need (Deckop et al. 1999).

These lines of work, however, have focused primarily on the effect of monetary rewards on social motivation in general: how financial incentives shape the degree to which one is motivated to help or connect with others, regardless who these individuals are (Vohs, Mead, & Goode, 2006; Vohs, 2015). Moreover, when looking at a specific type of social relationship, research has mostly examined the effects of incentive systems on social connections with work-related ties *within* organizations (e.g., Dur & Sol, 2010). For example, team-based incentives, relative to individual incentives, tend to increase interactions and cooperation with one's colleagues at work (Berger, Herbertz & Sliwka, 2011).

Building on and extending this research, the current work examines the consequences of performance incentives on employees' social interactions both within and outside organizations. Specifically, we argue that the same incentive system can have dramatically different effects on social connections depending on the type of relationship: Being exposed to performance incentives at work could affect interactions, not only with employees' work ties, but also with their non-work related, personal ties. Individuals have a fixed number of hours and a limited amount of resources to allocate to different relationships. It is thus reasonable to assume that spending more time with one type of social tie might affect the time spent with other ties. That is, the increase in the time spent socializing with work colleagues might partially explain why employees report that they are not spending enough time with friends and family. In support of this proposition, a recent survey found that employees think that they spend too much time

socializing with their colleagues while not having enough time with friends and family (Jacobs & Gerson, 2004).

We predict that exposure to performance incentives will *increase* the amount of time and effort that people spend interacting with work colleagues because these relationships become more instrumental for their goals, while simultaneously *decreasing* the amount of time and effort that people spend interacting with personal connections, such as friends and family.

**HYPOTHESIS 1:** *Exposure to performance incentives at work will increase social interactions with work colleagues (i.e., work relationships) and decrease interactions with friends and family (i.e., non-work personal relationships).*

### **Goal Instrumentality of Social Relationships**

We argue that the contrasting effects of performance incentives on work versus non-work personal relationships will be driven by the increased goal instrumentality of work relationships. Previous research suggests that performance incentives tend to make a reward-seeking goal more cognitively salient (Beilock & Carr, 2005; Markman, Maddox, & Worthy, 2006). When sales people receive a commission every time they sell a car, each sale serves as a reminder of money (i.e., rewards) and further reinforces the broad goal of making money (i.e., a reward-seeking goal). Prior work on cognitive control provides support for this theorizing (Shah, Friedman, & Kruglanski, 2002), showing that frequent exposure to goal-related constructs increases the mental accessibility of the goal (Chartrand & Bargh, 1996). Once the goal becomes accessible, this accessibility further biases one's attention, perception, and behavioral systems in a goal-driven manner (Förster, Liberman, & Higgins, 2005; Hur, Koo, & Hofmann, 2015).

We argue that this reward-seeking goal, brought on by performance incentives, biases employees' social interactions in a goal-driven manner by increasing the instrumentality of their

work relationships. This prediction builds on the finding that goal instrumentality – the degree to which one perceives the other person to be helpful in achieving his or her goals – plays an important role in relationship formation (Gruenfeld, Inesi, Magee, & Galinsky, 2008). First, individuals perceive a specific other as *instrumental* when they believe the person makes it easier for them to make progress toward their goals. Individuals might perceive a person as “useful” for several different reasons: the other person might have access to resources (Shea et al., 2014), keep them away from temptations (Gallant, Spitze, & Prohaska, 2007), or provide emotional support to persist in goal pursuits (Brunstein, Dangelmayer, & Schultheiss, 1996). Once other people are perceived as “useful” for their goals, individuals evaluate them more positively (Fitzsimons & Shah, 2008), invest more resources in them (Gruenfeld et al., 2008), and spend more time socializing with them (Shea & Fitzsimons, 2016).

Drawing on this literature, we hypothesize that exposure to performance incentives will increase the perceived goal instrumentality of work relationships, because these relationships would help employees achieve their reward-seeking goals. The increased instrumentality brought on by performance incentives should increase social interactions with work ties while decreasing interactions with less ‘useful’ ties: non-work, personal ties.

**HYPOTHESIS 2:** *Exposure to performance incentives at work will increase the perceived goal instrumentality of one’s work relationships.*

**HYPOTHESIS 3:** *The effect of performance incentives on one’s prioritization of work relationships over personal relationships will be mediated by the increased perceived goal instrumentality of work relationships.*

Our predictions on the contrasting effects of work versus personal relationships is consistent with goal shielding (Briers, Pandelaere, Dewitte, & Warlop, 2006). This theory

maintains that individuals are able to inhibit various alternative goals in the presence of one most salient goal. This "shielding" of one focal goal is known to facilitate self-regulation and effective goal-pursuit (e.g., Shah et al., 2002) because the attentional bias created by the goal reduces the mental accessibility of other goals. That is, due to limited cognitive resources, the increased accessibility of relationship goals with work colleagues, brought on by performance incentives, might lead to the neglect of other relationship goals with friends and family.

A related line of research suggests that there is an increased tendency of working adults to think about work and family as two incompatible goals (Robinson & Godbey, 1997). For example, prior work shows that busyness – long hours of work and lack of leisure time – is associated with higher levels of productivity and social status (Belleza, Paharia, & Keinan, 2016) whereas non-work-related activities are viewed as “unproductive” (Drago et al., 2007). Therefore, when people have a more salient goal of maximizing monetary rewards, they may become more reluctant to engage in activities that do not fit to the instrumental and productive categories, such as spending time with friends and family.

Investigating this potentially hydraulic relationship between work and personal ties also contributes to the literature on work-life balance by introducing a novel pathway about how organizational structures may contribute to work-family conflict. Previous work has shown that this conflict can occur when employees carry their work home with them and spend their time working instead of socializing with friends and family (Gutek, Searle, & Klepa, 1991; Mazmanian, Orlikowski, & Yates, 2013). We suggest a subtler process where organizations implement practices that increase the amount of time employees spend socializing with work colleagues. The increase in time spent socializing with work ties might unintentionally contribute to work-family conflict by decreasing time spent with close, personal ties. Simply put, spending

more time socializing with colleagues inside and outside the workplace can take time that employees could otherwise spend with friends and family.

### **Peer Evaluation and Goal Instrumentality**

We also explore whether the degree of peer evaluation moderates the effect of performance incentives on social connections, thereby providing additional support for the proposed mechanism of goal instrumentality. One of the most common performance assessment tools is through peer evaluation where one's performance is quantified by colleagues' judgments of their performance and contribution to a specific task or project (Murphy & Cleveland, 1995). On one hand, peer evaluation can potentially be more insightful and nuanced than purely objective measures (London & Beatty, 1993), because peers have intimate knowledge of the work tasks and the people they are evaluating (Sias & Cahill, 1998; Sias, 2006). On the other hand, peer evaluations can be greatly affected by how much employees "get along" with their peers, given the previous research suggesting that personality similarity and liking tend to predict peer performance ratings (Bates, 2002; Strauss, Barrick, & Connerley, 2001).

We argue that the relational component of peer evaluation should strengthen the effect of performance incentives on motivation to socialize with work ties. In a performance-incentive system, employees should perceive work colleagues to be more instrumental when their performance is determined by what the colleagues think about themselves and their work, compared to when performance is determined only by objective measures (e.g., number of sales). We therefore hypothesize that the degree of peer evaluation in performance assessment will moderate the effects of performance incentives on perceived instrumentality of work relationships and subsequent prioritization of work relationships over non-work, personal relationships (see Figure 1 for our theoretical model).

**HYPOTHESIS 4:** *The effect of performance incentives on one's perceived goal instrumentality of work relationships will be moderated by the degree of peer evaluation, such that the effect of performance incentives on the instrumentality of work ties will be stronger when one's incentives are more strongly affected by peer evaluation.*

**HYPOTHESIS 5:** *The effect of performance incentives on one's prioritization of work relationships over personal relationships will be moderated by the degree of peer evaluation, such that the effect of performance incentives on the prioritization will be stronger when one's incentives are more strongly affected by peer evaluation.*

**HYPOTHESIS 6:** *The interaction effect between performance incentives and peer evaluation on one's prioritization of work relationships over personal relationships will be mediated by the increased instrumentality of work relationships.*

### **OVERVIEW OF STUDIES**

We tested our hypotheses with four studies across a variety of samples, measures, and contexts: one archival data ( $n = 129,809$ ), one panel survey ( $n = 997$ ), and two experimental studies ( $n = 1,333$ ). First, we examined the relationship between performance incentives and social interactions with work versus personal relationships (Hypothesis 1) in Study 1. To provide an initial test of this hypothesis, we employed a nationally representative sample of working Americans recruited from an archival data set (American Time Use Survey; ATUS). The ATUS records the amount of time that respondents have spent socializing with colleagues, friends, and family in the previous 24 hours. In Study 2, we experimentally manipulated the performance contingency of incentives and tested our proposed mechanism: whether performance incentives increased the perceived goal instrumentality of work relationships (Hypothesis 2) and whether instrumentality partially explained the observed effect of performance incentives on social

intentions (Hypothesis 3). We then conducted a panel survey to test our predictions with both employees and managers (Study 3). This study revealed a significant difference in results between the two samples, which was partially driven by different degrees of peer evaluation. Building on these results, we conducted an experimental study (Study 4) to formally test whether the effect of performance incentives on social intentions was moderated by the degree of peer evaluation (Hypotheses 4 and 5) and whether the interaction effect of performance incentives and peer evaluation was partially explained by an increase in goal instrumentality (Hypothesis 6). Together, our studies complement each other in terms of study design, participant populations, manipulations, and measures—we used a nationally representative survey of Americans, measured and manipulated incentive systems, and provided causal evidence for our hypotheses through the use of experiments.

### STUDY 1

The main purpose of Study 1 was to test the relationship between performance incentives and interactions with work versus personal relationships. We utilized large-scale, publicly available data to examine whether exposure to performance incentives had contrasting effects on each type of social relationships. We predicted that employees who were paid for their performance (vs. received fixed-incentives) would report engaging in *more* daily interactions with work colleagues, and *fewer* interactions with friends and family (Hypothesis 1).

#### Sample

To examine this question, we analyzed data from the 2010-2015 waves of the American Time Use Survey (ATUS; Hofferth, Flood & Sobek, 2013). The ATUS is administered by the US Census Bureau, which selects a large and diverse set of US households from the Current Population Survey (CPS) and approximates a nationally representative sample (U.S. Bureau of

Labor Statistics, 2014). The ATUS surveys a significant proportion of households with Hispanic and Black members, as well as households with children. It is also the only existing federal survey that provides data on a large range of non-economic activities, from hobbies to socialization with friends and family. Full information about the survey methodology is available at <http://bls.gov/tus/home.htm>. We used the 2010-2015 waves because these waves contain our key variables of interest: incentive systems, type of social relationships, and amount of time spent socializing with each type of relationships in the past 24 hours. Respondents were included in our analyses if they had data for all variables. The sample consisted of 129,809 respondents ( $M_{\text{age}} = 44$ , 56% female). Respondents came from diverse industries, such as professional (26%), sales (14%), service (9%), and production (7%).

## Method

***Incentive system.*** As part of this survey, respondents reported whether they received performance-contingent incentives (e.g., commissions, bonus) or received fixed salaries. Consistent with previous research on this topic (Hur & Nordgren, 2016), we dummy coded the incentive system (1 = performance-incentive; 0 = fixed-incentive) as the independent variable. Within our sample, 17,887 respondents were paid with performance incentives and 111,922 were not. Employees who received performance incentives were less likely to be female (41%) and live with a married spouse (52%) than employees who did not receive performance incentives. They also lived with fewer members in the household ( $M = 2.81$ ,  $SD = 1.47$ ) than employees who received fixed incentives ( $M = 2.91$ ,  $SD = 1.48$ ). We thus controlled for these variables in all subsequent analyses, as described in detail below.

***Social interactions.*** Our main variable of interest was the amount of time that respondents spent socializing with work ties versus the amount of time that they spent interacting

with personal ties—family members and friends. These data were collected during 15 to 20-minute telephone interviews. During these interviews, respondents were asked to reconstruct what they did on the previous day, episode by episode, as per the original day reconstruction method (DRM; Kahneman, Krueger, Schkade, Schwarz, & Stone, 2004). Respondents reconstructed a detailed account of all of their activities, starting at 4 a.m. the previous day and ending at 4 a.m. on the day of the interview. They described the activities in their own words, which were later coded by at least two independent coders based on a broad range of activity categories. These descriptions included how long respondents spent on each activity, who accompanied them, and where the activity took place. The open-ended nature of this technique is considered the ‘gold-standard’ of time-use data collection because it provides minimal opportunity for respondents to distort their activities in a particular light (e.g., reporting more hours of work to portray themselves as a hard worker) because the diary is a simple record of all of the activities that took place during the day. To distort one activity, respondents would also have to fabricate all other activities that precede and follow. Therefore, the ATUS is able to capture an accurate picture of people’s entire day by collecting self-reports in an open-ended fashion on an activity-by-activity basis. Complete sets of activities were recorded across the 1,440 minutes of the day. This technique also preserves the "zero-sum" property of time, allowing us to examine trade-offs between engaging in one activity vs. another (i.e., increases in one activity result in decreases in another activity).

For the purpose of this analysis, we focused on how much time respondents spent in the last 24 hours socializing with work colleagues versus how much time they spent socializing with friends and family (see <https://www.bls.gov/tus/lexiconwex2017.pdf> for the exact items). Thus, our main dependent variable was the number of minutes spent with work colleagues divided by

number of minutes spent with family and friends per day, multiplied by 100 to yield a percentage of time spent with work colleagues proportionate to the amount of time spent with friends and family. The time-use variables used in this study included a number of outliers, resulting in highly right-skewed distributions. To normalize the distributions, we took the square root of each variable (Cohen, Cohen, West & Aiken, 2013). This analysis decision is consistent with prior work on time-use decisions (Bianchi & Vohs, 2016; Whillans & Dunn, 2018).

We should note that the time spent socializing with work colleagues does not include the time spent *working* with the colleagues. We used the existing socialization variable in the ATUS on the time spent socializing with their work colleagues by engaging in the activities that are not obviously work-related. The variable includes activities such as playing golf with colleagues, attending sports events with supervisors, attending movies with colleagues, and eating and drinking with supervisors. Moreover, it is worth noting that the variables of time spent with each type of social ties (colleagues, friends, and family) were constructed by the ATUS, following the categorization that respondents themselves provided. That is, although there could technically be an overlap between the categories, respondents were asked to clearly define their work-related relationships (colleagues) and their non-work related, personal relationships (friends and family) and to categorize their ties into the two groups, allowing a clear test of our primary hypotheses.

***Control variables.*** First, we controlled for demographic and employment information including respondents' gender, age, relationship status, household size, and work hours. We included relationship status (married or unmarried) and household size in our analyses because these variables could affect the amount of time that respondents spent socializing with personal relationships (Whillans et al., 2016). We also controlled for the amount of time respondents worked in an average week due to the possibility that employees who were paid for their

performance might spend more time with their coworkers simply because they worked longer hours. Lastly, consistent with other research using this data set and examining social behaviors (Bianchi & Vohs, 2016), we included two dummy coded variables representing survey year and day of week that respondents completed the survey.

## Results

Table 1 presents descriptive statistics for the variables used in the analysis. The sample demographics and summary statistics of each study are described in Appendix A in details.

***Social interactions.*** Table 2 presents correlations for all of the variables used in our analyses. Examining the simple correlations in these data, performance-incentive employees spent proportionately more time interacting with work colleagues than socializing with family and friends ( $r = .03, p < .001$ ). After controlling for our critical set of demographic and employment information covariates, these key results held ( $r = .01, p < .001$ ).

We conducted an ordinary least squares (OLS) regression analysis with the incentive system as an independent variable and social interactions as a dependent variable. As shown in model 1 of Table 3, employees who were paid for performance spent proportionately more time socializing with work colleagues than socializing with their friends and family ( $b = 1.80, SE = .20, p < .001$ ). We then examined whether these results held controlling for our set of covariates. Again, as shown in model 2 of Table 3, the incentive systems significantly predicted the time that employees spent socializing with work ties instead of non-work personal ties ( $b = .85, SE = .18, p < .001$ ). That is, consistent with Hypothesis 1, respondents exposed to the performance-incentive system prioritized spending time with their work colleagues over socializing with friends and family as compared to respondents exposed to the fixed-incentive system.

Of course, there are other possibilities for these results. For example, employees who are paid for performance might socialize more with work colleagues due to the nature of their occupation. We conducted additional analyses to examine this possibility by including a variable that captures occupation types. This variable indicates whether respondents' main occupation was in service, sales, farming, construction, production, management or professional. Unsurprisingly, performance-incentive employees were more likely to work in service (17% vs. 13%), sales (25% vs. 22%), construction (11% vs. 6%) and production (16% vs. 10%). In contrast, fixed incentive employees were more likely to work in management or professional, or related professions (43% vs. 27%). We examined whether our results held controlling for dummy coded occupation variables, in addition to our set of covariates. Consistent with our main analysis, we found that respondents in a performance-incentive system spent proportionately more time socializing with colleagues than family and friends, compared to those in a fixed-incentive system ( $b = .44$ ,  $SE = .18$ ,  $p = .016$ ) as shown in model 3 of Table 3.

## **Discussion**

The findings of Study 1 support our primary prediction that performance incentives would shape employees' social interactions not only within, but also outside organizations. In a large-scale representative sample of American employees, those who were paid for their performance spent significantly more time interacting with work ties than non-work, personal ties as compared to employees who were not paid for their performance.

On an exploratory basis, we also examined the affective responses to each type of social interactions. On average, respondents in this data set reported lower levels of stress and higher levels of happiness when they interacted with friends and family as compared to when they interacted with work colleagues (see Appendix B for the detailed analysis). These results held for

both performance-incentive and fixed-incentive groups: Regardless of how employees were paid, the time spent with friends and family resulted in lower stress and higher happiness than the time spent with colleagues. These results suggest that performance incentives can undermine the happiness that employees experience in daily life by leading them to prioritize work relationships to non-work, personal relationships. We discuss this point further in General Discussion.

One potential limitation of Study 1 is that it is hard to draw strong causal conclusions from an archival data set. We attempted to address alternative explanations by controlling for the relevant variables (e.g., work hours, household size). However, due to the nature of archival data, we cannot completely rule out these alternative explanations. For example, it is possible that employees who spend less time with personal ties are more likely to self-select into organizations that offer performance incentives, because these employees are more motivated by work (than by socializing). In Study 2, we sought to address these limitations by examining the causal effect of performance incentives on social intentions. Specifically, we introduced a validated experimental manipulation of performance incentives and examined how this manipulation affected employees' social intentions. We made this methodological decision because random assignment allowed us to test the hypothesized causal relationship between performance incentives and social intentions as well as to rule out alternative explanations (Levine & Parkinson, 1994). Moreover, the design allowed us to ensure that the observed effects of the manipulations were independent from other individual or organizational characteristics that may correlate with perceived instrumentality and socialization motivation.

Another objective of Study 2 was to test the proposed mechanism for the effects that we documented in Study 1. Past research shows that perceived instrumentality of other individuals – the degree to which one finds others helpful in achieving one's goals – increases motivation to

socialize with these individuals (Gruenfeld et al., 2008, Shea & Fitzsimons, 2016). Drawing on this research, we predicted that individuals who were randomly assigned to the performance-incentive condition (vs. those in a control condition) would report higher motivation to socialize with work-ties, both within and outside of work, as compared to non-work, personal relationships, through higher perceived instrumentality of the work ties (Hypotheses 2 and 3).

## STUDY 2

### Participants

We recruited four hundred and forty-seven participants ( $M_{\text{age}} = 30$ , 40% female) online via Amazon.com's Mechanical Turk service (MTurk). MTurk is an online labor market where workers complete computer-based tasks. We chose to collect data through Mturk, because previous work suggests that survey data collected from MTurk is equally as reliable as data collected in laboratory settings, and because MTurk workers are more demographically diverse and have more work experience than participants in undergraduate subject pools (Buhrmester et al. 2011; Mason & Suri, 2011; Paolacci et al. 2010). Most participants worked in management or professional (38%), sales (27%), or services (20%).

We determined the sample size to provide adequate power ( $1 - \beta > .80$ ) to detect a medium effect ( $f^2 = 0.15$ ). We paid participants \$0.30 to complete the study (a typical rate for surveys of this length) and retained all participants for analysis. We pre-registered our sample size, study material, and analyses, using the Open Science Framework ([https://osf.io/5yj89/?view\\_only=3f9d7312371c4ebcb9a92a893e2e6cb5](https://osf.io/5yj89/?view_only=3f9d7312371c4ebcb9a92a893e2e6cb5)) to provide a transparent test of our hypotheses.

### Procedure

We randomly assigned participants to one of the two conditions (performance-incentive

versus fixed-incentive) in a between-subjects design. Following previously published and well-validated methodologies (e.g., Hur & Nordgren, 2016), we introduced the study as a survey on job experiences and preferences. Participants were first asked to imagine that they worked in a marketing consulting firm where they interacted with their team members and managers to develop and provide marketing strategies. At the end of each project, there was a performance assessment task where they would be evaluated on their performance. Participants were then told how the company would pay them. In the *performance-incentive* condition ( $n = 223$ ), participants would receive money based on the performance assessment on top of their base salary. In the *fixed-incentive* condition ( $n = 224$ ), they would receive a fixed amount of pay regardless of how well they performed on each project. The exact instructions, description, and items are described in Appendix C.

After reading about each incentive system, participants first rated the perceived instrumentality of work ties with five items on a 7-point scale (Cronbach's  $\alpha = .82$ ; e.g., "My colleagues would be useful for me to achieve my goals"; adapted from Gruenfeld et al., 2008, Shea & Fitzsimons, 2016). Participants also indicated their willingness to socialize with work ties and their willingness to prioritize work ties over non-work personal ties, with four items on a 7-point scale (Cronbach's  $\alpha = .86$ ; e.g., "On occasion, I would prioritize spending time with the colleagues over socializing with friends and family," "I would try not to miss opportunities to socialize with the colleagues outside of work"). We took the average of each scale to create a composite measure of perceived instrumentality and social intentions. Lastly, all participants provided demographic information including household income and education.

## Results

First, we analyzed participants' willingness to socialize with work ties instead of non-work personal ties. As predicted, a simple  $t$ -test on the socializing index yielded a main effect of the incentive-system manipulation; participants who were randomly assigned to the performance-incentive condition indicated higher willingness to socialize with work ties ( $M = 5.13$ ,  $SD = 1.09$ ) than those who were assigned to the fixed-incentive condition ( $M = 4.23$ ,  $SD = 1.32$ ;  $t_{437} = 7.76$ ,  $p < .001$ , 95% CI [0.67, 1.13],  $d = 0.74$ ). This result replicated the findings that we observed in the ATUS data, whereby performance incentives increased social activities with work ties, while decreasing motivation to socialize with personal ties (Hypothesis 1). It is also worth noting that the result held for the items indicating participants' preferences to socialize with work colleagues within ("I would try not to miss opportunities to socialize with the colleagues *at work*";  $t_{437} = 6.29$ ,  $p < .001$ ) and outside the workplace ("I would try not to miss opportunities to socialize with the colleagues *outside of work*";  $t_{437} = 6.42$ ,  $p < .001$ ). The result further emphasizes that the heightened feelings of need to socialize with colleagues, brought on by performance incentives, have consequences not only within, but outside work contexts.

Next, we analyzed participants' perceived instrumentality of work ties. A simple  $t$ -test on the instrumentality index yielded a main effect of the incentive-system manipulation; participants in the performance-incentive condition perceived work relationships as more instrumental ( $M = 6.13$ ,  $SD = 0.79$ ) than those in the fixed-incentive condition ( $M = 5.34$ ,  $SD = 0.99$ ;  $t_{439} = 9.18$ ,  $p < .001$ , 95% CI [0.61, 0.95],  $d = 0.88$ ). This result supports our prediction that performance incentives would increase the perceived instrumentality of work ties (Hypothesis 2).

Lastly, we conducted a mediation analysis utilizing the PROCESS Mediation Model 4 (Hayes 2013; Preacher and Hayes 2004). The mediation model used incentive systems as the independent variable (1 = performance-incentive; -1 = fixed-incentive), perceived instrumentality

as the mediating variable, and willingness to socialize with work ties as the dependent variable. The total effect of performance incentives on willingness to socialize with work ties was significant ( $t_{439} = 7.76, p < .001, 95\% \text{ CI} = .3353 \text{ to } .5627$ ). The mean indirect effects excluded zero for perceived instrumentality ( $b = .31; 95\% \text{ CI} = .1128 \text{ to } .5034$ ), and the direct effect of performance incentives on willingness to socialize with work ties was significantly weaker compared to the total effect ( $t_{439} = 3.88, p < .001, 95\% \text{ CI} = .1092 \text{ to } .3334$ ) suggesting that perceived instrumentality partially served as the mediator for the observed results (Figure 2).

## **Discussion**

Taken together, the results of Study 2 support our central predictions for an underlying mechanism: Exposure to performance incentives increased perceived instrumentality of work ties (Hypothesis 2) which in turn led participants to prioritize interacting with work ties over non-work personal ties (Hypothesis 3). As the study design was fully experimental, these results also provide initial evidence for the causal relationship between performance incentives and motivation to socialize with work ties (vs. friends and family) in that manipulating incentive systems seemingly *caused* the effects on instrumentality and social intentions.

While Studies 1 and 2 showed similar patterns of results using different methods (archival data analysis and an experiment), one potential limitation of these two studies is that our sample predominantly consisted of relatively lower-level employees. We attempted to address this concern in Study 3 by conducting a panel study with a balanced sample of managers and employees. That is, in addition to examining the overall effect of performance incentives, we examined whether the results varied by organizational level.

## **STUDY 3**

### **Participants**

We recruited participants through Qualtrics Panel, which is a subdivision of Qualtrics, a private research software company specialized in web-based data collection. Qualtrics Panel is a probability-based panel designed to be statistically representative of the U.S. population. Our sample comprised of 997 respondents ( $M_{\text{age}} = 40$ , 73% female). Respondents came from diverse industries, such as management or professional (41%), services (22%), and sales (18%). We also attained a balanced sample of manager (45%) and employees (55%) through Qualtrics Panel by using a screening question that asks whether respondents categorize themselves as managers or not. This question was identical with the organizational-level item in the main part of the survey.

### **Procedure**

***Incentive system.*** All participants indicated the extent to which their pay was contingent on performance (fixed salary only; base salary + bonus/commission; bonus/commission only). To be consistent with our previous studies, we dummy coded the incentives system (1 = performance-incentive; 0 = fixed-incentive) as our key independent variable of interest. The results were identical in direction and significance when we conducted the same analyses with the original categorical variable.

***Social interactions.*** Similar to Study 1, our main variable of interest was the amount of time that respondents spent socializing with their family, friends, and colleagues. Participants indicated the percentage of time they had spent with each group over the past month, not including the time they had spent sleeping. We then created ratio variables by subtracting the amount of time spent with family and friends from the amount of time spent with colleagues as our key dependent variable. This decision is consistent with our approach in Study 1 and previous research examining time-use and social interactions (Whillans et al., 2016, Whillans &

Dunn, 2018). We took the square root of each outcome to normalize the distributions of our variables as in Study 1.

**Organizational level.** As a part of our screener questions, participants answered whether they were managers or not. Participants were classified as managers if they answered yes to the following question (Koudstaal, Sloof, & van Praag, 2014): "Do you have at least two people at your workplace who regularly (1) are assigned tasks from you (2) reports to you, and (3) is evaluated by you?" We used this measure because it is possible that employees might supervise one person even when they are not officially in a managerial role (e.g. team members training a new hire). However, if one is supervising two or more people, it is more likely to have a managerial role. We dummy coded this variable (1 = manager; 0 = employee) as another independent variable.

**Peer evaluation.** Participants also indicated whether they received any evaluation from their peers or not ("Do you receive peer or supervisor evaluation at work?"). We dummy coded this variable (1 = peer evaluation; 0 = no evaluation) as one of our key independent variables.

**Control variable.** Lastly, participants reported demographic and employment information: gender, age, ethnicity, marital status, income, industry, and work hours. The exact items are described in Appendix D.

## Results

In the overall sample of managers and employees, we found a negative relationship between performance incentives and socialization with colleagues instead of friends and family ( $b = -.73$ ,  $SE = .24$ ,  $p = .002$ ), which is not consistent with our previous studies. This result held controlling for our set of covariates ( $b = -.63$ ,  $SE = .25$ ,  $p = .011$ ). We further examined whether this inconsistency was due to the difference in the sample (managers vs. employees) and found a

significant interaction between performance incentives and organizational level on the amount of time that employees spent interacting with their colleagues over family and friends ( $b = -1.24$ ,  $SE = .52$ ,  $p = .018$ ). Controlling for our covariates, the result held ( $b = -1.17$ ,  $SE = .54$ ,  $p = .026$ ).

Specifically, when *employees* received performance incentives, they spent more time with their colleagues over family and friends ( $M = -5.14$ ,  $SD = 3.60$ ) than those who received fixed incentives ( $M = -5.47$ ,  $SD = 3.69$ ), but the difference did not reach statistical significance ( $F_{1,431} = .52$ ,  $p = .474$ ). The result was consistent, controlling for the covariates ( $F_{8,416} = .29$ ,  $p = .594$ ). However, when *managers* received performance incentives, they spent significantly less time with their colleagues than with family and friends ( $M = -6.90$ ,  $SD = 3.03$ ), as compared to managers who received fixed incentives ( $M = -5.99$ ,  $SD = 3.15$ ;  $F_{1,517} = 10.73$ ,  $p = .001$ ). The result was consistent holding the covariates constant ( $F_{8,494} = 7.14$ ,  $p = .008$ ).

One potential explanation for the difference between managers and employees arises from the possibility that managers are less affected by peer evaluation than employees are (Tourish & Robson, 2004). The results indicate that employees in our sample were indeed more likely to receive peer evaluations ( $M = 0.82$ ,  $SD = 0.47$ ) than managers ( $M = 0.69$ ,  $SD = 0.39$ ;  $t_{775} = -2.14$ ,  $p = .032$ ). Therefore, we examined whether peer evaluation drives the differences in the socializing patterns between managers and employees. We conducted a three-way interaction between performance incentives, organizational level, and peer evaluation to test both main and interaction effects of the three key predictor variables. The analysis yielded a significant three-way interaction analysis ( $b = -3.81$ ,  $SE = 1.25$ ,  $p = .002$ ). The result was consistent after controlling for the covariates ( $b = -3.60$ ,  $SE = 1.29$ ,  $p = .005$ ; Table 4).

**Organizational level.** First, when looking at the employee group *only*, the interaction between incentive system and peer evaluation on time spent with colleagues versus friends and

family was significant ( $b = 2.54, SE = 1.19, p = .033$ ). The result was in the predicted direction but did not reach statistical significance when controlling for the covariates ( $b = 1.82, SE = 1.22, p = .137$ ). Specifically, among employees who received performance incentives, those who received peer evaluations spent significantly more time with colleagues than friends and family ( $M = -4.59, SD = 3.41$ ), compared to those who did not receive any peer evaluation ( $M = -7.57, SD = 3.53; F_{1, 75} = 8.67, p = .004$ ). This difference is marginally significant when controlling for our covariates ( $F_{8, 67} = 2.87, p = .095$ ). In contrast, among employees who received fixed incentives, those who received peer evaluations did not differ in time with colleagues versus friends and family ( $M = -6.96, SD = 3.58$ ), compared to those who did not receive any peer evaluation ( $M = -6.58, SD = 2.79; F_{1, 353} = .77, p = .380$ ). The result held after controlling for the covariates ( $F_{8, 340} = .81, p = .369$ ; Figure 3).

When looking at the manager group only, we did not find a significant interaction between performance incentives and peer evaluation on time spent with colleagues versus friends and family ( $b = -.83, SE = .71, p = .241$ ). After controlling for our set of covariates, the result was consistent ( $b = -.91, SE = .72, p = .207$ ). Unlike employees, under performance incentives, managers who received peer evaluations were equally as likely to prioritize colleagues to friends and family ( $M = -6.96, SD = 3.08$ ), as those who did not receive any peer evaluation ( $M = -6.58, SD = 2.79; F_{1, 214} = .47, p = .496$ ). Again, the result held after including the covariates ( $F_{8, 204} = 0.14, p = .707$ ). Under fixed incentives, managers who received peer evaluations were again not any more likely to prioritize colleagues to friends and family ( $F_{1, 301} = 1.10, p = .296$ ); however, when controlling for the covariates, managers who received peer evaluations were slightly more likely to prioritize colleagues to friends and family ( $F_{8, 281} = 3.02, p = .083$ ).

***Incentive system.*** Another way to break down the three-way interaction is to compare the

two incentive groups. When looking at the performance-incentive group *only*, we found a significant interaction between organizational level and peer evaluation on time spent socializing with colleagues versus friends and family ( $b = -3.36$ ,  $SE = 1.09$ ,  $p = .002$ ). The result held after controlling for the covariates ( $b = -2.96$ ,  $SE = 1.11$ ,  $p = .008$ ). Specifically, among the group that was subjected to a performance-incentive system and received peer evaluations, employees spent significantly more time with colleagues than friends and family ( $M = -5.08$ ,  $SD = 3.59$ ), as compared to managers ( $M = -6.87$ ,  $SD = 3.05$ ;  $F_{1,241} = 26.02$ ,  $p < .001$ ). The result was consistent with the covariates ( $F_{8,231} = 15.83$ ,  $p < .001$ ). In contrast, among the group that was subjected to a performance-incentive system but did not receive peer evaluations, there was no difference between employees and managers ( $F_{1,48} = 1.10$ ,  $p < .300$ ). Again, the result held after controlling for our covariates ( $F_{8,40} = 0.33$ ,  $p = .572$ ).

However, when looking at the fixed-incentive group, we did not find a significant association between manager vs. employees and peer evaluation on time spent socializing with colleagues versus friends and family ( $b = .99$ ,  $SE = .95$ ,  $p = .300$ ). This was true with the covariates ( $b = .13$ ,  $SE = .69$ ,  $p = .853$ ). That is, employees who received peer evaluation were more likely to prioritize socializing with colleagues than interacting with friends and family ( $M = -5.36$ ,  $SD = 3.79$ ), as compared to managers ( $M = -5.86$ ,  $SD = 3.26$ ) but the difference did not reach statistical significance ( $F_{1,522} = 2.63$ ,  $p = .105$ ). We found the results to be marginally significant after including our set of covariates ( $F_{8,502} = 3.26$ ,  $p = .071$ ). The relationship was not significant for managers vs. employees when they did not receive any peer evaluation ( $F_{1,132} = .92$ ,  $p = .341$ ). This was true after controlling for the covariates ( $F_{8,119} = .60$ ,  $p = .439$ ).

## Discussions

Taken together, these results demonstrate significantly different patterns between

employees and managers. Among employees, as predicted, the relationship between performance incentives and social interactions was moderated by the degree of peer evaluation. However, managers were less likely to sacrifice time with friends and family when their incentives are tied to performances. They were also less likely to be affected by peer evaluations under a performance-incentive system.

We speculate that this pattern of results with managers might be partially due to the unit level of performance measurement. Managers are more likely to be evaluated for their department or organizational performance overall rather than their individual performance (Bushman, Indjeikian, & Smith, 1995), making it difficult for them to see the link between their everyday activities, including social interactions, and incentive outcomes. Managers might be also less affected by peer evaluations because they generally have higher status in organizations than regular employees. Indeed, previous research shows that individuals in high power positions tend to be less emotionally affected (Anderson & Berdahl, 2002) and less willing to change their behavior according to feedback and criticism by others (Finkelstein, Fishbach, & Tu, 2017). In Study 4, we focused on employees (vs. managers) given the results showing that performance incentives are more likely to influence the socializing behaviors of employees.

Another potential limitation of Study 3 is that we measured, instead of manipulating, the degree of performance contingency and peer evaluation. It is plausible that there were differences in performance evaluations that were not measured and controlled for. Thus, in Study 4, we conducted an experiment. We attempted to design the experiment in an ecologically valid manner (Brewer, 2000) and to mimic performance assessment tools commonly used in organizations (Wigert & Mann, 2017). To this end, we allowed the performance assessments to include both peer evaluation and objective measurements (i.e., consumer ratings) and

manipulated the degree of peer evaluation. Drawing on previous literature showing that peer evaluations increase employees' motivation to engage in impression management (Frink & Ferris, 1998), we hypothesized that employees who were randomly assigned to a performance-incentive condition would be more likely to see work ties as instrumental when the incentives were contingent on peer evaluation, as compared to when the incentives were tied to objective measures. That is, we predicted that the effects of performance incentives on instrumentality and social intentions would be directly moderated by the degree of peer evaluation (Hypotheses 4 and 5), and that the interaction effect of performance incentives and peer evaluation on social intentions would be mediated by perceived instrumentality (Hypothesis 6).

## STUDY 4

### Participants

We recruited participants ( $n = 886$ ,  $M_{\text{age}} = 37$ , 49% female) online via Amazon.com's Mechanical Turk service (MTurk). Most participants worked in management or professional (33%), services (23%), and sales (20%). We determined the sample size to provide adequate power ( $1 - \beta > .80$ ) to detect a medium effect ( $f^2 = 0.15$ ). We paid participants \$0.30 to complete the study and retained all participants for analysis. As in Study 2, we pre-registered our sample size, study material, and analyses of the experiment, using the Open Science Framework ([https://osf.io/5yj89/?view\\_only=3f9d7312371c4ebcb9a92a893e2e6cb5](https://osf.io/5yj89/?view_only=3f9d7312371c4ebcb9a92a893e2e6cb5)).

### Procedure

We randomly assigned participants to one of four conditions in a 2 (incentive-system: performance vs. fixed)  $\times$  2 (peer-evaluation: high vs. low) between-subjects factorial design. Using a similar paradigm from Study 2, we first asked participants to imagine working in a marketing consulting firm where they would receive a performance assessment about how well

they performed on each project. In the *high-peer-evaluation* condition ( $n = 435$ ), participants were told that 90% of this performance assessment would be based on the evaluation by their peers while 10% would be based on the consumer satisfaction ratings. In contrast, in the *low-peer-evaluation* condition ( $n = 451$ ), participants were told that 90% of their performance assessment would be based on the consumer satisfaction ratings while 10% would be based on peer evaluation. We then informed participants whether the pay would be contingent on this performance assessment or not. In the *performance-incentive* condition ( $n = 432$ ), we told participants they would receive financial incentives based on the assessment, which usually makes up 50% of their overall pay. In the *fixed-incentive* condition ( $n = 454$ ), we told participants that they would receive a fixed amount of pay regardless of the assessment.

After reading about each performance assessment and incentive system, participants first rated the perceived instrumentality of work ties with the five items (Cronbach's  $\alpha = .79$  e.g., "These colleagues will be useful for me to achieve my goals") and willingness to socialize with work ties instead of non-work personal ties with the four items used in Study 2 (Cronbach's  $\alpha = .85$ ; e.g., "On occasion, I would prioritize spending time with these colleagues over socializing with friends and family"). Participants then provided demographic information. The exact instruction, description, and items are described in Appendix E.

## Results and Discussion

***Social Intentions.*** First, we analyzed participants' willingness to socialize with work ties instead of non-work personal ties. Figure 4 shows that the results fit our predicted pattern: Being exposed to performance incentives increased employees' willingness to socialize with work ties instead of non-work personal ties more for employees who were assigned to the high-peer-evaluation condition. To analyze the significance of this pattern, we submitted the dependent

measure to a 2 (incentive-system)  $\times$  2 (peer-evaluation) ANOVA. Confirming our central hypothesis, the predicted interaction was significant, indicating that peer evaluation moderated the effect of incentive system on willingness to prioritize work ties over non-work personal ties ( $F_{1, 845} = 33.88$ ,  $MSE = 52.80$ ,  $p = .001$ ;  $\eta^2 = .04$ ). Specifically, among those whose evaluation was mostly determined by peer evaluations, participants in the performance-incentive condition ( $M = 5.14$ ,  $SD = 1.19$ ) were more likely to prioritize spending time with work ties over non-work personal ties compared to those in the fixed-incentive condition ( $M = 4.11$ ,  $SD = 1.26$ ;  $F_{1, 845} = 72.82$ ,  $p < .001$ ;  $\eta^2 = .03$ ). In contrast, among employees whose evaluation was mostly determined by objective measures, there was no difference between the two incentive systems ( $M_{PI} = 4.16$ ,  $SD_{PI} = 1.35$ ;  $M_{FI} = 4.13$ ,  $SD_{FI} = 1.19$ ;  $F_{1, 845} = 0.06$ ,  $p = .799$ ;  $\eta^2 = .03$ ). Analogous to Study 2, the results held for both items on socializing with work ties within ( $F_{1, 845} = 33.04$ ,  $p < .001$ ) and outside the workplace ( $F_{1, 845} = 21.32$ ,  $p < .001$ ). The results again indicate that the heightened motivation to socialize with colleagues, brought on by performance incentives and peer evaluation, applies to both within and outside work contexts.

Regarding the main effects, participants who were randomly assigned to the performance-incentive condition reported greater motivation to socialize with work ties instead of non-work personal ties ( $M = 4.65$ ,  $SD = 1.36$ ) as compared to employees who were randomly assigned to the fixed-incentive condition ( $M = 4.12$ ,  $SD = 1.22$ ;  $F_{1, 847} = 38.22$ ,  $p < .001$ ;  $\eta^2 = .04$ ). This result replicates the findings of Studies 1 and 2 by showing that performance incentives increased desire to socialize with work ties even when having to sacrifice time with non-work personal ties. Participants in the high-peer-evaluation condition reported wanting to socialize more with work ties over non-work personal ties ( $M = 4.62$ ,  $SD = 1.33$ ) than those in the fixed-incentive condition ( $M = 4.15$ ,  $SD = 1.27$ ;  $F_{1, 847} = 30.62$ ,  $p < .001$ ;  $\eta^2 = .03$ ).

**Perceived Instrumentality.** Next, we analyzed participants' perceived instrumentality of their work ties. A  $2 \times 2$  ANOVA revealed a significant interaction between the incentive system and the peer evaluation ( $F_{1, 845} = 63.09$ ,  $MSE = 52.33$ ,  $p = .001$ ;  $\eta^2 = .07$ ), indicating that peer evaluation moderated the effect of incentive system on perceived instrumentality of work ties. Specifically, among those whose evaluation was mostly determined by peer evaluations, participants in the performance-incentive condition ( $M = 6.11$ ,  $SD = .78$ ) indicated their work ties as more instrumental compared to those in the fixed-incentive condition ( $M = 5.31$ ,  $SD = .97$ ;  $F_{1, 848} = 81.24$ ,  $p < .001$ ;  $\eta^2 = .03$ ). In contrast, among those whose evaluation was mostly determined by objective measures, participants in the performance-incentive condition ( $M = 5.32$ ,  $SD = 1.05$ ) rated their work ties *less* instrumental compared to those in the fixed-incentive condition ( $M = 5.53$ ,  $SD = .85$ ;  $F_{1, 848} = 5.64$ ,  $p = .002$ ;  $\eta^2 = .03$ ).

Regarding the main effects, replicating our previous finding, participants in the performance-incentive condition perceived work ties as more instrumental for their goals ( $M = 5.72$ ,  $SD = 1.00$ ) than those in the fixed-incentive condition ( $M = 5.42$ ,  $SD = 0.92$ ;  $F_{1, 850} = 4.53$ ,  $p = .001$ ;  $\eta^2 = .02$ ). Also, participants in the high-peer-evaluation condition perceived work ties as more instrumental ( $M = 5.71$ ,  $SD = 0.97$ ) than participants in the low-peer-evaluation condition ( $M = 5.43$ ,  $SD = 0.96$ ;  $F_{1, 850} = 5.71$ ,  $p = .001$ ;  $\eta^2 = .02$ ).

**Moderated Mediation.** Lastly, we analyzed whether perceived instrumentality served as a mediator of the interactive effect of incentive system and peer evaluation on social interactions. To examine this question, we conducted a moderated mediation analysis utilizing the PROCESS Multiple Mediation Model 8 (Hayes, 2013). The regression model employed the three independent variables (incentive system, peer evaluation, and incentive system  $\times$  peer evaluation), perceived instrumentality as the mediating variable, and social intentions as the

dependent variable. Peer evaluation moderated the relationship between incentive system and perceived instrumentality ( $b = .32$ ,  $SE = .03$ ,  $p < .001$ ), and also the relationship between incentive system and willingness to socialize with work ties ( $b = .09$ ,  $SE = .04$ ,  $p < .001$ ). The mean indirect effects excluded zero for perceived instrumentality ( $b = .32$ ; 95% CI = .2331 to .4044), and the direct effect of incentive system on willingness to socialize with work ties was no longer significant for those with no peer evaluation ( $t_{849} = 1.54$ ,  $p < .125$ ), suggesting that the perceived instrumentality partially mediated the effect of the interaction (incentive system  $\times$  peer evaluation) on social intentions (Figure 5).

Taken together, Study 4 provides additional support for our perceived instrumentality account. We observed that the effect of performance incentives on perceived instrumentality was moderated by the degree to which pay was determined by peer evaluations. The increase in perceived instrumentality further led to prioritization of work ties over non-work personal ties.

### **GENERAL DISCUSSION**

Across four studies using different methods, sampling different populations, and administering different measures, we show that exposure to performance incentives can have contrasting effects on employees' social interactions with work versus personal relationships. Employees who were subjected to performance incentives tend to view their work colleagues as more instrumental and invest more resources to socialize with them while simultaneously investing less time and effort interacting with friends and family. The studies also suggest that the contrasting effects of performance incentives on social interactions were mediated by goal instrumentality and moderated by peer evaluation.

The fundamental implication of this research is that incentive systems – a crucial part of modern organizational structures – can shape how employees prioritize and build social

relationships. These findings contribute to the literature on loneliness and social contact by providing the first examination of whether and how being exposed to performance incentives affects day-to-day social interactions, including employees' interactions outside of work. With loneliness becoming an 'epidemic' in North America (Myers, 2007), we suggest one novel explanation for the decrease in social connections with familial and close ties: the rising value that people are assigning to their work relationships, brought on by performance incentives. Relatedly, our results contribute to the literature on work-life balance by demonstrating how one of the most common payment systems, performance incentives, might contribute to work-life conflict that employees chronically experience.

The present findings also complement previous research that examines how workplace experiences have "spill-over" effects on employees' daily activities (Amstad, Meier, Fasel, Elfering, & Semmer, 2011; Bakker, Demerouti, & Burke, 2009; Guzzo, Noonan, & Elron, 1994). For example, researchers have examined how being paid by the hour encourages employees to think about the economic value of their time and undermines their willingness to volunteer, engage in environmental behavior, and take paid-time off that when offered (DeVoe & Pfeffer, 2007; DeVoe & Pfeffer, 2010; Whillans & Dunn, 2015). Additionally, prior work showed that one's level of income affects daily social interactions such that wealthier individuals tend to socialize less with their families (Bianchi & Vohs, 2016). The current findings add to this growing body of literature, showing how incentive systems shape individuals' daily social interactions.

Moreover, our results contribute to the literature on relationship formation in the workplace. While past research has traditionally conceptualized relationship formation as a function of similarity and proximity (McPherson, Smith-Lovin, & Cook, 2001; Nahemow &

Lawton, 1975), an increasing body of research has examined the role of goal instrumentality (Fitzsimons & Shah, 2008, Gruenfeld et al., 2008). By measuring perceived instrumentality and testing it as a mechanism of the main effects, the current work provides initial evidence that instrumentality might serve a crucial function in employee decision-making on whom to connect and how to build relationships in organizations.

### **Limitations and Future Direction**

Our findings suggest several avenues for future research. First, the results hint at the possibility that incentive systems might impact the subjective value that people derive from various social interactions. The quality of social connections is critically important for psychological well-being (House et al., 1998; Uchino et al., 1998). People also report spending time with their friends and family as the happiest part of their day (Kahneman et al., 2004). Drawing on these findings, future research should examine the downstream consequences of performance incentives on employee well-being. For example, performance-incentive employees might not only invest time and effort to interact with their work relationships, but also derive a higher level of satisfaction from these relationships, compared to fixed-incentive employees. However, there is also a possibility that this form of ‘strategic’ socializing and networking can be dysfunctional for well-being (Casciaro, Gino, & Kouchaki, 2014) unless people have a genuine liking towards their work colleagues (Aaker, Rudd, & Mogilner, 2012). In initial exploratory analyses conducted using the ATUS data, we found support for the latter argument. Employees who were paid for their performance still derived significantly greater happiness from socializing with their friends and family than from socializing with their colleagues, despite spending *less* time engaged in these interactions in an average day. Building on prior literature and our initial

results, more research should examine how performance incentives influence the perceived quality of social relationships and subjective feelings of loneliness.

The present work examined peer evaluation as a key moderator and also found evidence that managerial status served as a boundary condition of the effects. Future research should investigate other potential moderators, including the effect of task dependence. If one is rewarded mostly by team performance, it might create the need to build collaborative and pleasant relationships with one's colleagues. In contrast, if one is rewarded solely based on performance for an individual task, the incentive system itself might not increase perceived instrumentality of work colleagues, therefore preventing an increase in socializing with them (vs. friends and family). On the other hand, it is also plausible that rewarding employees for individual performance increases the instrumentality of work ties because peers still provide tacit knowledge and resources to improve performance (Burt, 1992; Inkpen & Tsang, 2005; Zollo & Winter, 2002). Moreover, future studies should examine individual differences that might interact with the effect of performance incentives. For example, when exposed to performance incentives, employees with low materialism or low financial contingent self-worth (Richins & Dawson, 1992; Park, 2017) might show less of an increase in perceived instrumentality and interactions with work colleagues as these employees tend to be less motivated by the reward-seeking goal activated by the incentive system.

## **CONCLUSION**

Work-life conflicts have far-reaching consequences for employees and organizations, including profit loss, loneliness, and damaged social relationships. Having positive relationships with familial and close ties also greatly contributes to one's psychological and physical health. However, employees today feel that they are not spending enough quality time with their friends

and family. The current work reveals one important cause of the phenomenon: performance incentives. Specifically, our research suggests that exposure to performance incentives changes the way people think about and interact with different social ties, leading them to find their work relationships more instrumental and therefore investing resources to build connections with them, at the sacrifice of spending time with friends and family.

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**TABLE 1.** Study 1 Demographic Characteristics

Variable	Overall	Performance	Fixed
<i>Performance incentives</i>	13.8%	--	--
<i>Income</i>	10.53(4.12) <sup>1</sup>	11.73 (3.39)	11.65 (3.59)
<i>Age</i>	44.27(17.74)	38.48 (12.16)	39.89 (12.97)
<i>Female</i>	56.1%	40.7%	54.1%
<i>Married spouse present</i>	49.5%	53.1%	54.7%
<i>Household size</i>	2.77 (1.54)	2.81 (1.47)	2.91 (1.48)
<i>Work hours</i>	38.94 (12.71)	42.25 (10.52)	39.36 (11.24)

N = 129809.

<sup>1</sup>This category represents \$50,000-\$59,999 USD per year of household income.

**TABLE 2.** Study 1 Correlations

Variable	PI	C/FamFri	Age	Gen	Inc	Hrs	MS	HHS
<i>PI</i>	-							
<i>C/FamFri</i>	.03***	-						
<i>Age</i>	-.05***	.06**	-					
<i>Gen</i>	-.01***	-.06***	.01***	-				
<i>Inc</i>	-.01**	-.08***	.08***	-.07***	-			
<i>Hrs</i>	-.09***	.10***	.01***	-.22***	.18***	-		
<i>MS</i>	-.01**	-.25**	.09***	-.11***	.32***	.08***	-	
<i>HHS</i>	-.02***	-.24**	-.29***	-.03***	.19***	-.03***	.52***	-

N = 129809. \* $p < .05$  \*\* $p < .01$ , \*\*\* $p < .001$ . PI = performance incentives; C/FamFri = time spent with colleagues vs. family and friends; Age = age; Gen = gender; Inc = household income; Hrs = Work hours; MS = marital status; HHS = household size.

**TABLE 3.** Study 1 regression estimating time spent with work colleagues vs. friends and family

Variable	(1)	(2)	(3)
<i>Performance incentive</i>	1.80*** (.20)	.85*** (.18)	.44** (.18)
<i>Age (log)</i>		5.93*** (.52)	5.48*** (.52)
<i>Gender</i>		-1.96*** (.13)	-1.87*** (.14)
<i>Spouse Present</i>			
<i>Unmarried Spouse</i>		3.96*** (.31)	3.95*** (.31)
<i>Married Spouse</i>		-6.73*** (.17)	-6.50*** (.17)
<i>Household size (log)</i>		-13.46*** (.47)	-14.35*** (.48)
<i>Income (log)</i>		-4.35*** (.40)	-2.27*** (.42)
<i>Work hours (log)</i>		12.41*** (.42)	13.10*** (.42)
<i>Day of week dummy</i>		YES	YES
<i>Year dummy</i>		YES	YES
<i>Occupation dummy</i>			YES
F Statistic	$F(1,74698) = 80.28$	$F(20,62698) = 1539.60$	$F(25,62684) = 1250.94$
p-value	.001	.001	.001
R <sup>2</sup>	.001	.33	.33

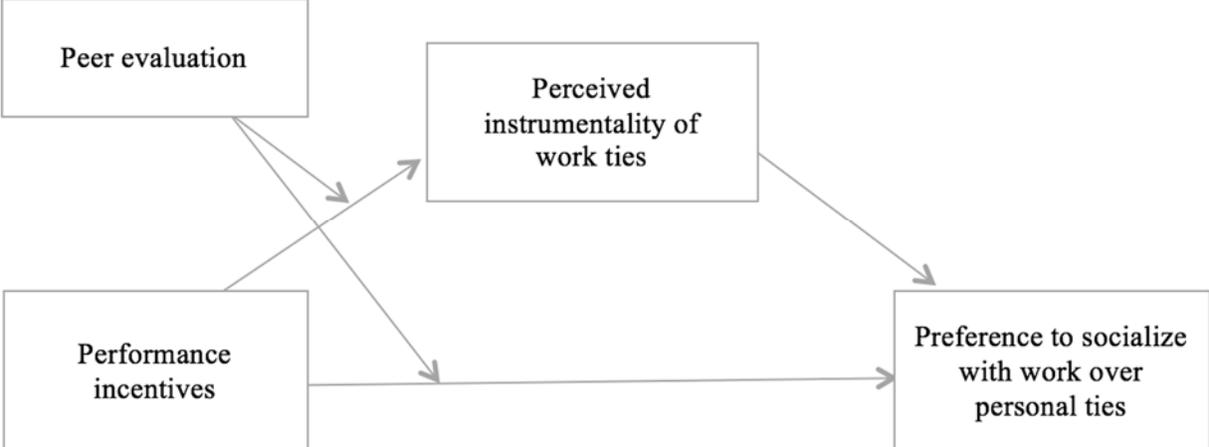
N = 129809. \* $p < .05$  \*\* $p < .01$ , \*\*\* $p < .001$ .

**TABLE 4.** Study 3 regression estimating time spent with work colleagues vs. friends and family

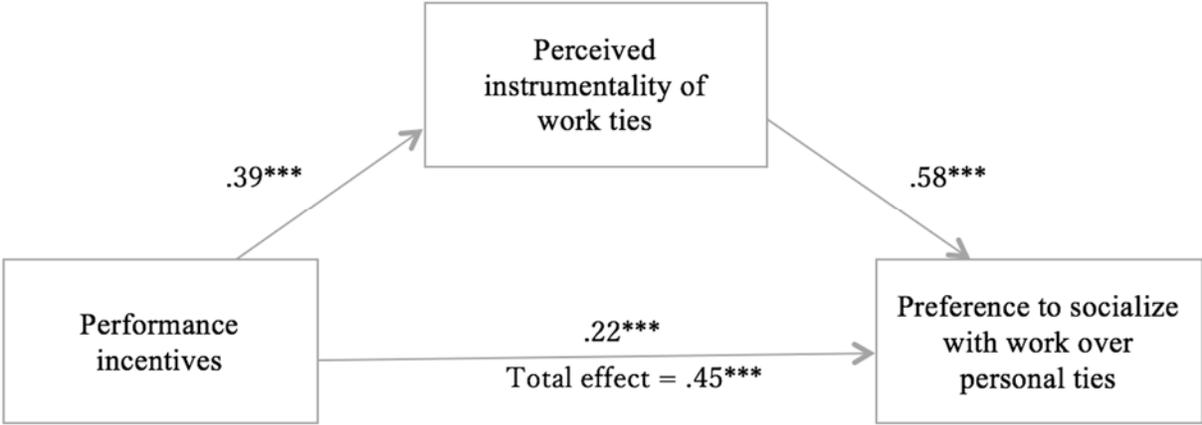
Variable	(1)	(2)	(3)
<i>PFP</i>	.33 (.42)	.34 (.43)	-1.90* (.95)
<i>Manager</i>	-.53* (.26)	-.64* (.27)	-1.13* (.46)
<i>PFP*Manager</i>	-1.24* (.52)	-1.17* (.53)	1.80 (1.18)
<i>PFP*Peer</i>			2.70** (1.03)
<i>Manager*Peer</i>			.65 (.47)
<i>PFP*Manager*Peer</i>			-3.60** (1.29)
<i>Income</i>		-.03 (.04)	-.03 (.04)
<i>Age</i>		-.03** (.01)	-.03** (.01)
<i>Female</i>		-.12 (.26)	-.14 (.26)
<i>Married Spouse</i>		-.63* (.25)	-.64** (.24)
<i>Education</i>		-.01 (.09)	-.02 (.09)
<i>Time working</i>		.03* (.01)	.03* (.01)
F Statistic	$F(3,948) = 9.64$	$F(3,948) = 9.64$	$F(12,915) = 5.22$
p-value	.001	.001	.001
R <sup>2</sup>	.03	.03	.06

N = 997. \* $p < .05$ , \*\* $p < .01$

**FIGURE 1.** Theoretical model

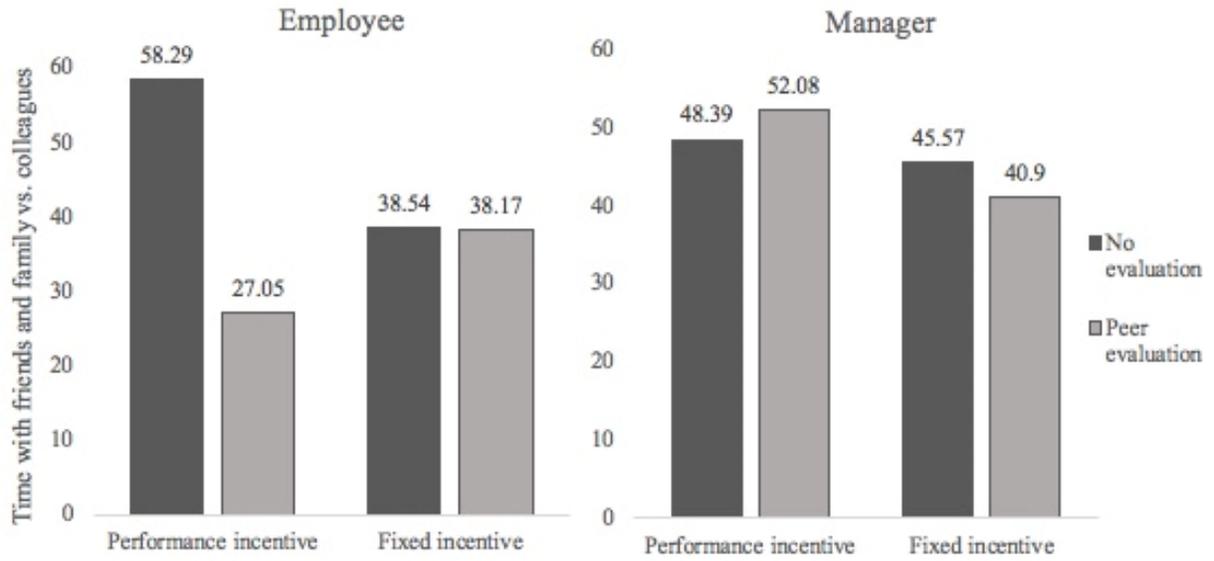


**FIGURE 2.** Study 2 mediation Analysis



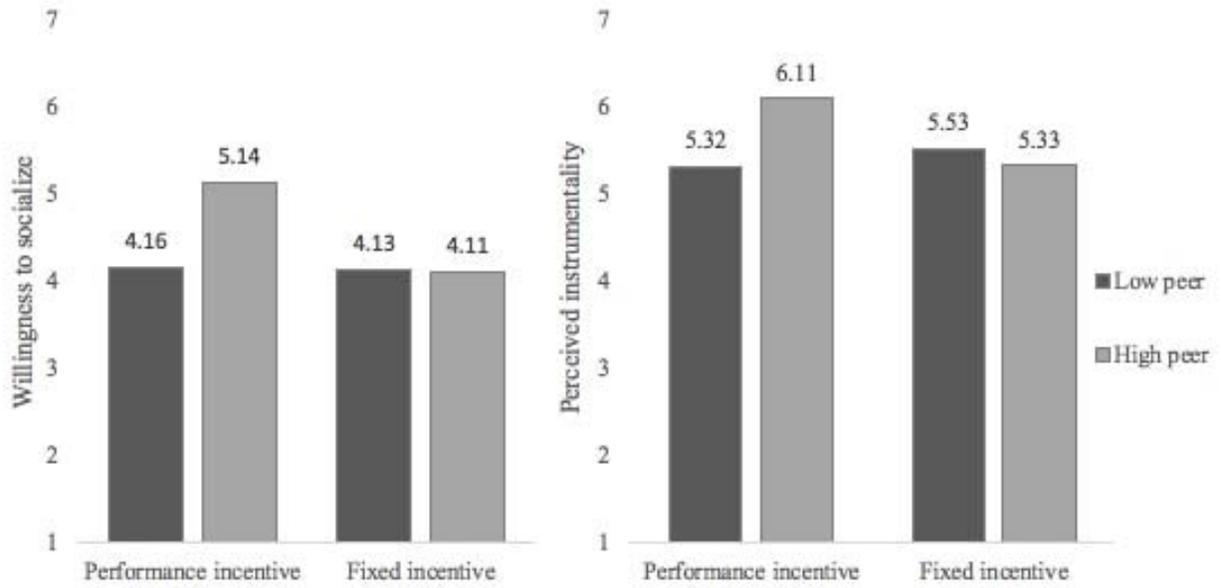
\*\*\* $p < .001$

**FIGURE 3.** Study 3 three-way interactions on time spent with family and friends vs. work colleagues

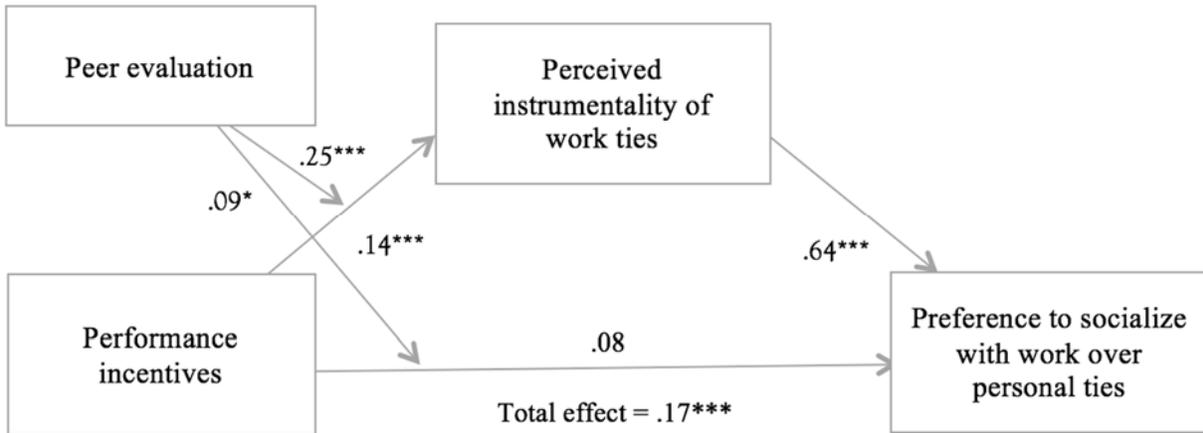


We report the raw values of time spent with friends and family (in percentage), subtracted by time spent with work ties (in percentage) to make the results easy to interpret.

**FIGURE 4.** Study 4 ANOVA on instrumentality and willingness to prioritize work relationships



**FIGURE 5.** Study 4 moderated mediation analysis



95% CI = .2331 to .4044,  $*p < .05$ ,  $**p < .01$ ,  $***p < .001$

## APPENDIX A. Summary Statistics

Variable	Study 1 ( <i>N</i> = 129809)		Study 2 ( <i>N</i> = 447)		Study 3 ( <i>N</i> = 997)		Study 4 ( <i>N</i> = 886)	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD
<i>% Performance incentives</i>	13.8%	-	49.9%	-	30.8%	-	48.8%	-
<i>Age</i>	44.27	17.74	29.84	1.17 <sup>1</sup>	39.93	12.38	36.73	11.41
<i>Gender (% Female)</i>	56.1%	-	60.0%	-	73.3%	-	49.1%	-
<i>% Married Spouse Present</i>	49.5%	-	-	-	60.7%	-	-	-
<i>Household size</i>	2.77	1.54	-	-	-	-	-	-
<i>Income</i>	10.53 <sup>2</sup>	4.12	4.54 <sup>3</sup>	1.77	17.10 <sup>4</sup>	3.04	4.51 <sup>5</sup>	1.75
<i>% Manager</i>	-	-	-	-	44.8%	-	-	-
<i>Work hours</i>	38.94	12.71	-	-	40.76	7.95	-	-

\*\*\* $p < .001$

<sup>1</sup>The age was measured with a bracket, using a 9-point scale (1 = "under 18", 9 = "85 or older"), and the mean age was calculated based on the mean value (3.69). We reported the standard deviation from the 9-point scale.

<sup>2</sup>This category represents \$50,000-\$59,999 USD per year of household income.

<sup>3</sup>This category represents \$50,000-\$74,999 USD per year of household income.

<sup>4</sup>This category represents \$60,000-\$69,999 USD per year of household income.

<sup>5</sup>This category represents \$35,000-\$49,999 USD per year of household income.

## APPENDIX B. Study 1 Supplementary Analyses

**Independent variable.** We conducted the exploratory analysis on the effect of social interactions with work versus non-work personal ties on the affective responses to these interactions. The ATUS dataset contains a category variable indicating whom respondents were interacting with for each activity they reported (e.g., friends, family, work colleagues). We dummy coded the relationship type (1 = work colleagues; 0 = friends or family) as the main independent variable of interest.

**Dependent variable.** The ATUS dataset also contains the measures of stress and happiness respondents experienced from three randomly selected activities. Specifically, a computerized system randomly chose three time-intervals from the respondents' reconstruction day and first reminded them of the activity they were engaging during the time ("Between [*start time of episode*] and [*stop time of episode*] yesterday, you were doing [*activity*]). Respondents then rated how stressed, and how happy, they felt engaging in the particular activity on a 7-point scale report (see <https://www.bls.gov/tus/wbmquestionnaire.pdf>). We excluded the stress and happiness responses for non-social activities and only included the responses for social activities as our dependent variable to test the effect of relationship type on stress and happiness.

**Results.** We first tested the main effect of relationship type (work versus non-work, personal) on one's level of stress. A simple *t*-test revealed that respondents experienced significantly lower levels of stress when they were interacting with their family and friends ( $M = 1.15$ ,  $SD = 1.65$ ) compared to when they were interacting with work colleagues ( $M = 1.97$ ,  $SD = 1.92$ ,  $t_{42013} = -32.42$ ,  $p < .001$ ).

As a next step, we conducted an OLS regression analysis with the relationship type (work versus non-work, personal) as the independent variable and stress as the dependent variable, controlling for the same set of covariates in Study 1 (gender, age, relationship status, household size, work hours, dummy coded day of week, dummy coded survey year, dummy coded occupation). We found that relationship type significantly predicted the level of stress ( $b = .82$ ,  $SE = .03$ ,  $p < .001$ ), suggesting that respondents found interacting with work colleagues more stressful than interacting with friends and family. The result held after controlling for the set of covariates ( $b = .82$ ,  $SE = .03$ ,  $p < .001$ ).

We further examined whether the pattern of results held for both performance-incentive and fixed-incentive groups. We conducted the same regression analysis including the incentive system (1 = performance incentives; 0 = fixed incentives) and the interaction term between relationship type and incentive system. Again, we found that relationship type predicted the level of stress ( $b = .85$ ,  $SE = .03$ ,  $p < .001$ ). There was no significant interaction between relationship type and incentive system ( $b = .07$ ,  $SE = .08$ ,  $p = .371$ ), suggesting that respondents found the interactions with work colleagues more stressful than the interactions with friends and family regardless of which incentive system they are subjected to.

Next, we tested the main effect of relationship type (work versus non-work personal) on happiness. A simple *t*-test revealed that respondents reported higher levels of happiness when they were interacting with their family and friends ( $M = 4.60$ ,  $SD = 1.54$ ) compared to when they were interacting with work colleagues ( $M = 4.11$ ,  $SD = 1.61$ ,  $t_{42013} = 20.97$ ,  $p < .001$ ). The OLS regression analysis yielded the similar results: Respondents found interacting with work colleagues less happy than interacting with friends and family ( $b = -.24$ ,  $SE = .07$ ,  $p < .001$ ). The result held after controlling for the set of covariates ( $b = -.09$ ,  $SE = .03$ ,  $p = .009$ ).

Again, we further examined whether the results held for both incentive groups by conducting the same regression analysis including the incentive system and the interaction term between relationship type and incentive system. We found the relationship type again predicted the level of happiness ( $b = -.50$ ,  $SE = .03$ ,  $p < .001$ ). However, unlike stress, there was a significant interaction between relationship type and incentive system ( $b = -.28$ ,  $SE = .07$ ,  $p < .001$ ); the effect of relationship type on happiness is significantly weaker among those who receive performance incentives, than those who receive fixed incentives. The result indicates a possibility that employees in a performance-incentive system not only spend less time socializing with their friends and family but also experience less happiness from their time with friends and family.

**APPENDIX C. Study 2 Instructions and Items***Instructions:*

Imagine you work in a marketing consulting firm. In this company, whenever you start a new project, you work with different team members and leaders (managers). The team then works together to develop marketing strategies for its clients. A project usually takes one to two months to finish. At the end of a project, the manager, clients, and other team members all evaluate your performance and contribution: how well you performed and how much you contributed to the team.

*Performance incentive condition:*

This peer evaluation by managers, clients, and team members has a HUGE impact on your pay. You receive a big bonus for a good peer evaluation, on top of your base salary. This bonus usually makes up 50% of your pay.

*Fixed incentive condition:*

This peer evaluation by managers, clients, and team members, however, has NO impact on your pay. You do not receive any bonus for a good peer evaluation. You receive a fixed amount of salary every month.

*Items:**Instrumentality of work ties:*

"In this situation, how important would it be to have good relationships with your colleagues?"

"Considering all the relationships in your life, how important would the relationships with your colleagues be?"

"The relationships with colleagues would be important to me, because they would help me accomplish my goals."

"The colleagues would be useful for me to achieve my goals."

"My relationships with colleagues would be based on how productive our relationship is rather than how much I enjoy our relationship."

*Socializing with work ties:*

"I would feel a strong need to spend time with the colleagues."

"I would try not to miss opportunities to socialize with the colleagues at work."

"I would try not to miss opportunities to socialize with the colleagues outside of work."

"On occasion, I would prioritize spending time with the colleagues over socializing with friends and family."

**APPENDIX D. Study 3 Instruction and Items***Performance incentive:*

"Think about your main job—that is the job that you spend the most hours working at each week. Which of the following payment method best fits your payment situation?"

(1 = base salary only; 2 = bonus/commission only; 3 = base salary + bonus/commission)

*Peer evaluation:*

"Do you receive peer or supervisor evaluation at work?" (1 = Yes; 2 = No)

*Other items:*

"Do you engage in any group or team work at your job?"

"Does the peer or supervisor evaluation affect your pay (how much you get paid)?"

"Does your bonus and/or commission come from your own individual workplace performance?"

"Does your bonus and/or commission come from your group's workplace performance (e.g., team, department performance)?"

"Does part of your bonus/commission come from organizational performance (e.g., profit sharing)?"

"Describe, in your own words, how your pay is determined and whether it is linked to your performance. For example, if there is performance-related pay, how is performance measured? How does your income change based on the performance?"

"Please indicate your occupation."

"How many hours per week do you usually work at your main job?"

"What is your gender?"

"What year were you born?"

"Are you currently married or in a marriage-like relationship?"

"What is your current pre-tax annual household income?"

"What is your ethnicity?"

"Please select the highest level of education you have completed."

"Is there anything you would like to let us know about our study?"

## APPENDIX E. Study 4 Instructions and Items

### *High peer evaluation condition:*

Imagine you work in a marketing consulting firm. In this company, whenever you start a new project, you work with different team members and leaders (managers). The team then works together to develop marketing strategies for its clients. A project usually takes one to two months to finish. At the end of a project, the team members and managers evaluate your performance and contribution: how well you performed and how much you contributed to the team. 90% of the project evaluation comes from this peer evaluation, while only 10% comes from consumer satisfaction.

#### *Performance incentive condition (High + Performance incentive):*

This peer evaluation by managers and team members has a HUGE impact on your pay. You receive a big bonus for a good peer evaluation, on top of your base salary. This bonus usually makes up 50% of your pay for the project. Your bonus comes largely from the peer evaluation. For example, 90% of the evaluation comes from peer and only 10% is based on others, such as consumer satisfaction ratings.

#### *Fixed incentive condition (High + Fixed incentive):*

This peer evaluation by managers and team members, however, has NO impact on your pay. You do not receive any bonus for a good peer evaluation. You receive a fixed amount of salary at the end of the project.

### *Low peer evaluation:*

Imagine you work in a marketing consulting firm. In this company, whenever you start a new project, you work with different team members and leaders (managers). The team then works together to develop marketing strategies for its clients. A project usually takes one to two months to finish. At the end of a project, the firm evaluates the team's performance mostly based on consumer satisfaction ratings. 90% of the project evaluation comes from consumer satisfaction, while only 10% comes from peer evaluation by managers or team members.

#### *Performance incentive condition (Low + Performance incentive):*

This evaluation based on consumer satisfaction ratings has a HUGE impact on your pay. You receive a big bonus for a high consumer rating, on top of your base salary. This bonus usually makes up 50% of your pay for the project. Your bonus comes largely from the consumer satisfaction. For example, 90% of the evaluation comes from the consumer ratings, while only 10% is based on others, such as peer evaluation.

#### *Fixed incentive condition (Low + Fixed incentive):*

This evaluation based on consumer satisfaction ratings, however, has NO impact on your pay. You do not receive any bonus for a high consumer rating. You receive a fixed amount of salary at the end of the project.

### *Items:*

#### *Instrumentality of work ties:*

"In this situation, how important would it be to have good relationships with your colleagues?"

"Considering all the relationships in your life, how important would the relationships with your colleagues be?"

"The relationships with colleagues would be important to me, because they would help me accomplish my goals."

"The colleagues would be useful for me to achieve my goals."

"My relationships with colleagues would be based on how productive our relationship is rather than how much I enjoy our relationship."

#### *Socializing with work ties:*

"I would feel a strong need to spend time with the colleagues."

"I would try not to miss opportunities to socialize with the colleagues at work."

"I would try not to miss opportunities to socialize with the colleagues outside of work."

"On occasion, I would prioritize spending time with the colleagues over socializing with friends and family."