

THE EFFECTS OF PAY DIFFERENTIAL ON SOCIAL UNDERMINING AND
WORK EFFORT VIA ENVY

BY

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Dissertation

Submitted to Faculty of the
Graduate School of Vanderbilt University
in partial fulfillment of the requirements

for the degree of

DOCTOR OF PHILOSOPHY

in

Management

December, 2015

Nashville, Tennessee

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Dedicated to God for His Amazing and Everlasting Grace

ACKNOWLEDGEMENTS

I would like to express my sincere and special appreciation to my advisors, Ray Friedman and Tae-Youn Park. Professor Friedman and Professor Park always suggested different solutions when the progress of the dissertation got stuck. Without their guidance and continuous help, this dissertation would not have been accomplished. I would also like to show my sincere gratitude to the other committee members, Professor Tim Vogus and Professor Jason Shaw, for their insightful comments from the stage of the proposal defense.

I also want to extend my thanks to six important Professors during my undergraduate and master studies: Chang-I Chen, Yue-Loong Chang, Shu-Cheng Chi, Wei-Chi Tsai, Michelle Duffy, and Connie Wanberg. Without their mentoring, I cannot have any chance to reach the end of Ph.D. journey. Without them, I might even have no idea to know how to find the entrance of the life in the U.S.

I want to thank to my family for their endless love and support. It would have been impossible for me to go through the Ph.D. program without their spiritual support. I especially want to send my greatest longing to my dear Mom with her immense love. Although she cannot witness this accomplishment, I believe that she must be proud of me. Of course, I thank my sisters and Dad for their prayers and for being there to take care of everything in Taiwan. I also want to thank to several others who are like my family in Nashville: Andrew Siao, I-Wen, Carol Pang, David, Marina, H. C. A., and David's Dad & Mon.

I owe many thanks to my dear friends. I thank my friends in academic field: Chia Huei Wu, Meiyu Yang, Wu Liu, Hong Deng, Yang Gao, Fang Chi Lu, Chiungjung Huang, Bo Li, Shuwei Hsu, Nai-Wen Chi, Ting Li, Sehyung Oh, David Touve, Ying Chen, Matt Grimes, Tammy Chang, Pei-Chun Che, and Huei-Lin Shih. They are a great group of people. I also cannot forget my friends from all over the world: Zhi Wen Lee, Ching-Hao Chen, Yiching Lin, Shu Zhen Lin, Xing Ru Wu, Te-Yung Fang, Shih Xiu Ho, Carina Tai, Pamela Huang, Morgan, Menghun Goh, Yu-Ming Lu, Qiao Xu, Hong Ni, Bala Wang, Chiawei Hsu, Chien Hsun Chen, Tzuying Liu and Ji Wen Ding. I am greatly indebted to all of them for their support in all kind of facets. Those memorable moments we have created together will be precious memories for me forever.

Finally, I would like to thank to God for helping and guiding me during the Ph.D. journey. The Ph.D. life in Nashville is truly a meaningful experience for me. It taught me how to be a scholar, how to be a person, and how to keep a humble mind toward the next step. I expect myself to hold the passion of research, teaching and service. And, I hope I could

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CHAPTER I

INTRODUCTION

Pay differentials, defined as different pay levels allocated across employees and across jobs within organizations, is a strategic organizational decision that impacts both individuals and organizational outcomes (Pfeffer & Langton, 1993; Shaw, Gupta, & Delery, 2002). Compensation scholars have expended much effort to explore the different consequences of pay differentials such as productivity (Bloom, 1999; Pfeffer & Langton, 1993), turnover rates (Bloom & Michel, 2002; Shaw & Gupta, 2007), job satisfaction (Clark, Kristensen, & Westergård-Nielsen, 2009; Pfeffer & Langton, 1993), and equity perception (Trevor & Wazeter, 2006), even as they seek to clarify the underlying mechanism of association (Ensley, Pearson, & Sardeshmukh, 2007). One of the core research questions is whether compressed or dispersed pay differentials work better for employees and organizations.

Extant theories and research findings have presented conflicting propositions, regarding the effects of pay differentials (Park & Sung, 2014). Building on the framework of motivational perspectives, including the tournament theory, high pay differentials have been shown to produce constructive outcomes, such as improved job performance and productivity because they incentivize people to increase work effort for high levels of rewards (E. P. Lazear & Rosen, 1981). In contrast, from equity theory and other harmony and cooperation perspectives, high pay differentials may produce undesirable outcomes, such as decreased perceptions of equity, low harmony, and less

cooperation, since employees become more competitive with each other (Pfeffer & Davis-Blake, 1992; Pfeffer & Langton, 1993; Siegel & Hambrick, 2005).

Recently, pay differential researchers have shifted their focus toward the search for boundary conditions of the association between pay differentials and behavioral outcomes (Kepes, Delery, & Gupta, 2009; Trevor & Wazeter, 2006). Studies that are able to identify robust conditional variables are beginning to make sense of the inconsistent findings that have surfaced in the pay differential literature. Scholars have reached a general consensus that when pay differentials are based on justifiable reasons (i.e. legitimate), they can produce positive effects. Legitimacy is considered to be one of the key boundary conditions of pay differentials (Trevor & Wazeter, 2006). Another important conditional variable is interdependence, the condition that the cooperative perspective considers to be most effective for compressed pay differentials because team members are highly reliant on the collaboration of others (Kepes et al., 2009; Shaw et al., 2002). In conditions where there is high interdependence, similar pay levels give employees the perception that they contribute equally to the group.

Despite increased efforts, significant research gaps still exist in many areas of pay differential research. In particular, pay differentials have been noted to produce unfavorable emotional responses, which, if not resolved, lead to deviant behaviors in work places (Duffy, Scott, Shaw, Tepper, & Aquino, 2012; Kim & Glomb, 2014; Lam, Van de Vegt, Walter, & Huang, 2011). To avoid such a situation in the first place, it is critical to address the association linking pay differentials to undesirable emotions and potential destructive behaviors. Indeed, Shaw (2014), in a recent review of pay differentials, pointed out the large research gap in workplace deviance behavior as a

consequence of pay differentials. Workplace deviance behaviors (e.g., antisocial activities) create work environments that negatively influence the morals and productivities of employees, and, as a result, can have detrimental effects on the entire organization. Despite a wide recognition that these are important consequences of pay differentials (Freeman & Gelber, 2006; Harbring & Irlenbusch, 2008, 2011), there has been no field study, to my knowledge, that examines whether and when pay differentials lead to antisocial behaviors, in particular, social undermining. Social undermining refers to behaviors that, over time, hinder others' abilities to establish and maintain positive interpersonal relationships and a favorable reputation (Duffy, Ganster, & Pagon, 2002). Social undermining is of particular interest because it represents insidious actions that aim to reduce the performance of others in an organization. Its effects can be widespread before being discovered and, thus, can be very damaging on interpersonal relationships and the entire organization (Duffy, Ganster, Shaw, Johnson, & Pagon, 2006). Understanding the effects of pay differentials on both constructive consequences (e.g., increased work effort) and destructive behaviors (e.g., social undermining) not only has important theoretical contributions, but also helps organizations to make strategic decisions that maximize its efficiency and return on investments.

In this study, I examine the relationship between pay differentials and the behavioral consequences of work effort and social undermining, and I propose envy as the mediator underling this relationship. Envy, an emotion, refers to as individual's desire to have the superior qualities, achievements, and possessions, compared to others (Parrott & Smith, 1993), and research has shown that envy may have two, contradictory effects in the workplace. On one hand, envy has been named as a plausible primary

cause of “behaviors that seek to undermine the reputation and effectiveness of others in the workplace” (i.e. social undermining) (Schaubroeck & Lam, 2004). On the other hand, envy has also been shown to increase work effort and is linked to self-improvement aspirations (Tai, Narayanan, & McAllister, 2012). Envy, therefore, stands out as a potential mediator of pay differential effects on both work effort and social undermining. Understanding the role envy plays would contribute to both theoretical and practical knowledge of pay differentials. The current research responds to Shaw’s (2014) observation that “the empirical literature to date is more extensive in terms of answering questions of when rather than why or how, p.538”. Shaw also states “I would encourage researchers to consider situational and episodic envy as a potential emotional response to pay dispersion, p.539”. This study seeks to respond directly to Shaw’s call by answering “why” and “how” questions around situational and episodic envy in response to differential pay dispersion.

Traditionally, tournament theory and the equity theory are most commonly referred to in the pay differential literature to explain the underlying mechanism between pay differentials and outcomes (Bloom, 1999; M. P. Brown, Sturman, & Simmering, 2003; Shaw & Gupta, 2007; Shaw et al., 2002). As described earlier, most prior studies view pay differentials from either the motivation or the cooperation perspective (Pfeffer & Langton, 1993; Shaw, 2014), with the overall research trend centered on understanding the relationship between pay differentials and performance. The motivation perspective, which is mainly supported by the tournament theory and originated from organizational psychology, posits that high pay differentials increase motivation by increasing performance-to-outcome perceptions and highlights the importance of organizational

outcomes (Lawler, 1971). From this perspective, pay differentials inspire better performance if individuals believe their performance will lead to higher pay (Adams, 1963; Kepes et al., 2009; Pfeffer & Langton, 1993; Shaw et al., 2002). At the same time, researchers have postulated that large pay differentials can motivate employees to engage in undermining behavior in order to make themselves appear better than the competition (E. P. Lazear & Rosen, 1981). In contrast, the cooperation perspective, based on the equity theory, argues that high pay differentials can create feelings of inequity, which hinder cooperative efforts and destroy any sense of common purpose across the workforce (Beaumont & Harris, 2003). Equity theory also stipulates that with large pay differentials, employees may choose social undermining to restore their sense of equity perception (Beaumont & Harris, 2003).

While I do recognize the foundational importance of these theoretical frameworks in pay differential literature, in the current research, I introduce a different lens through which to study the effects of pay differentials on social undermining and work effort. I build upon the self-evaluation maintenance (SEM) model (Tesser, 1988) and show that pay differentials cause individuals to evaluate themselves, based on the comparison with others similar to themselves within jobs. When individuals are falling short, they develop strategies to change their situations in order to maintain a favorable self-evaluation. While social comparison is central to the SEM theory (Festinger, 1954), it is different from the other main theoretical perspectives in that it addresses social behavior, resulting from social comparison, on the basis of an individual's need to maintain or increase self-evaluation (Tesser, 1988). Individuals can become envious of those who threaten their self-definition, and the psychological literature has shown that envy can lead to various

detrimental behaviors (Smith & Kim, 2007). For example, envy predicts social undermining, or an individual's intentions to hinder others' performances, interpersonal relationships, and work successes (Duffy & Shaw, 2000; Duffy, Shaw, & Schaubroeck, 2008). The SEM perspective suggests that envy can lead individuals to undermine the perceived threats with the primary objective to preserve or improve their self-evaluation, regardless of whether the situation is fair or not and regardless of whether the situation affects their performance or not. By applying the SEM model and highlighting the emotional mechanism of envy, I propose a new framework, apart from the motivation and cooperation perspectives, to explain the effects of pay differential on behavioral outcomes of work effort and social undermining.

I further extend the model of pay differentials and behavioral outcomes by identifying two boundary conditions, internal pay standing and self-esteem, both of which can strengthen or weaken the relationships. Specifically, I argue that internal pay standing moderates the degree of envy caused by pay differential and that self-esteem moderates the effect of envy on behavioral outcomes. Internal pay standing, which is the position of individuals in the pay structure, explains why individuals at lower pay levels would have greater envy, compared with those with higher pay. Self-esteem, which is a person's overall self-evaluation of his/her competencies (Pierce & Gardner, 2004; Rosenberg, 1965), explains why individuals choose to respond with either increased work effort and/or social undermining when they feel envious as a result of pay differentials. The variable of self-esteem in my research model creates a conduit for studying coping strategies individuals choose when they feel envious. Specifically, I propose that individuals who have low self-esteem are more likely to respond to envy with social

undermining, while those with high self-esteem are more likely to expend more work effort.

In the following sections, I first review the pay literature and discuss the existent conceptual understanding of the pay differential effects. I then introduce the emotion of envy and theorize its relationship to pay differentials and social undermining/work effort. I propose a mediation model that links pay differentials to social undermining via envy. Finally, I posit that internal pay standing and self-esteem are key moderators. The resulting model, depicted in Figure 1, suggests a moderated mediation effect of pay differentials on the behavioral outcomes. This study adds new theoretical insights to the current knowledge in the pay differential literature and contributes to the field of management by raising important questions concerning the effects of pay differentials on behavioral outcomes.

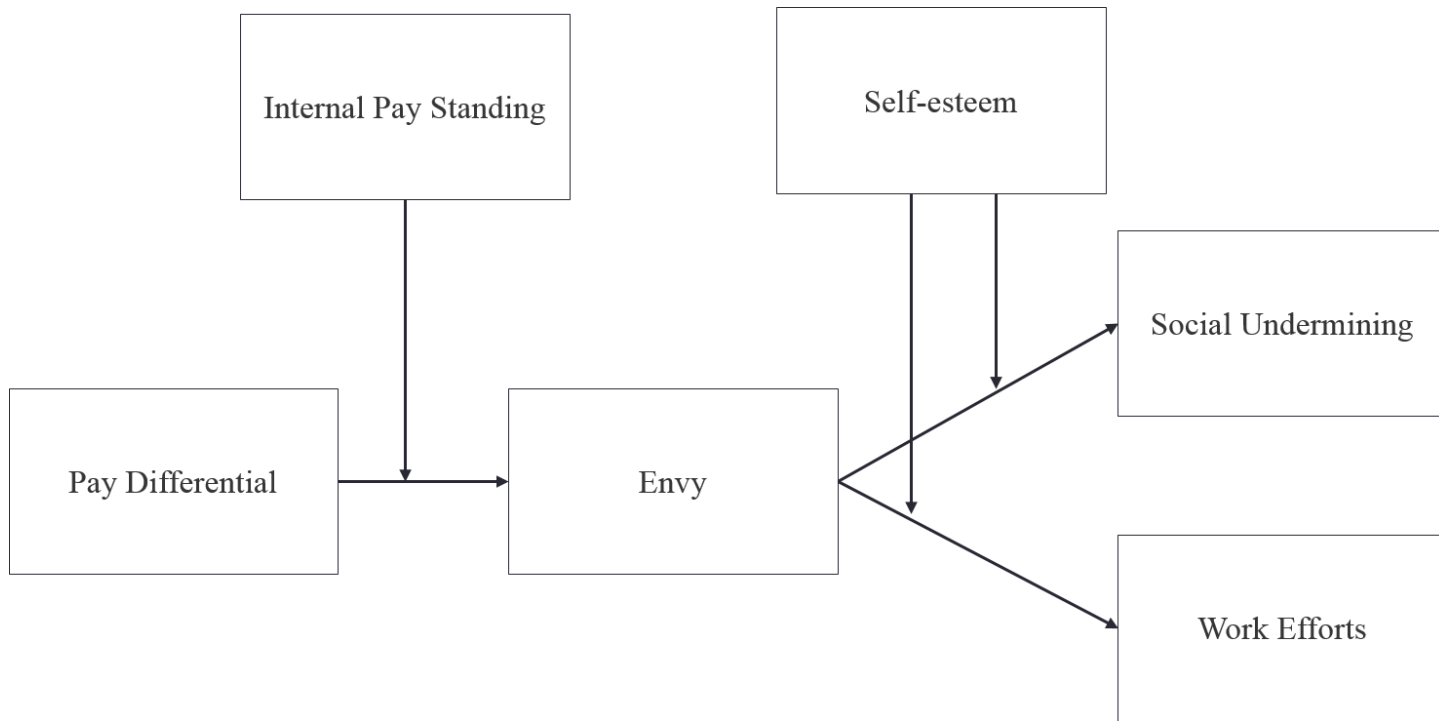


Figure 1: Theoretical Model

CHAPTER II

LITERATURE REVIEW & HYPOTHESES

Pay Differentials

Several terminologies are used to represent pay differences between employees in the compensation literature. These include pay dispersion (Bloom, 1999; Bloom & Michel, 2002; Duffy et al., 2012; Lee, Lev, & Yeo, 2008), salary dispersion (Pfeffer & Davis-Blake, 1992), and pay variation (Gupta, Conroy, & Delery, 2012). Though subtle differences, these terms primarily refer to the pay differences between individuals within a collective, such as a team or an organization. Also, the analysis level of these terminologies is generally defined at a group-level variable, such as calculating the covariance of variance based on all team members' pay information (Pfeffer & Langton, 1993; Shaw et al., 2002). In the current research, I chose to focus on pay differences between two individuals in a dyadic relationship, and I use the term "pay differential" to fit the case of one-to-one, actor-to-target pay comparison, in order to distinguish this study from those studies that involve comparison among multiple employees.

Pay differentials can be classified as vertical or horizontal (Gupta et al., 2012). Vertical pay differentials pertain to pay differences among individuals who have different jobs, responsibilities, skill levels, and working conditions (Siegel & Hambrick, 2005), while horizontal pay differentials refer to pay differences among individuals who perform the same type of job (Kepes et al., 2009). I focus on horizontal pay differentials because the participants in the current research are similar in that they are all employed by

research and development departments of high tech companies in Taiwan, and they all have the same types of job, developing products or technology.

Pay differential is one of the most meaningful measures used in social comparison among employees since pay reflects the value or evaluation of performance an organization assign to its employees. Pay differential is the unit of comparison that best allows employees to assess where they stand compared to others in the organization, and it is a primary factor in employees' reactions to their pay (Pfeffer & Langton, 1993). In this context, the critical theoretical construct that frames my hypothesis is based on the pay differential effect on employees being a result of social comparison, which, in turn, leads to a behavioral consequence.

Theoretical Background

As described above, previous research findings suggest two seemingly opposing views on the pay differential effects, represented by two mainstream theories, the tournament theory and the equity theory. Tournament theory proposes that the size of reward differential (i.e. pay differential) can serve as an incentive to promote employee productivity, with the assumption that rewards are performance-based, that performance is measurable, and that abilities across the work force are uniform (Knoeber & Thurman, 1994; Rosen, 1986). Tournament theory also suggests that high pay differential motivates individuals to compete for higher prizes in an environment where winners are

promoted and losers are selected out through a sorting process that eliminates poor performers while retaining and attracting greater talents (E. P. Lazear, 2000).

Equity theory, on the other hand, proposes that rewards should be distributed according to individual contributions (Adams, 1965). Employees form fairness perceptions by comparing the ratio of the inputs they contribute and the outputs they receive to the ratio of other reference targets. They perceive equity if their ratio is comparable to that of referent others. If they perceive they are contributing equivalent inputs to coworkers who are receiving higher outputs, they will perceive inequity (Siegel & Hambrick, 2005). From the equity theory perspective, the pay differential effect is dependent on whether it evokes perceptions of unfairness (Trevor & Wazeter, 2006).

In the present research, I draw on the self-evaluation maintenance (SEM) model, which assumes that “persons behave in a manner that will maintain or increase self-evaluation and one’s relationships with others have a substantial impact on self-evaluation” (Tesser, 1985, p.4). The SEM model is grounded in social comparison theory (Festinger, 1954), which recognizes the motivation in people to evaluate their opinions and abilities, and that evaluation is carried out by comparison with the opinions and abilities of others. The SEM model has been viewed as a process which places individuals into their own unique domains, or social groups, where they have the opportunities to outperform others (Beach & Tesser, 2000). While individuals obtain their identity from the group and certain values from being members of the group, the SEM model predicts that when outperformed, individuals would feel threatened by the group members that outperformed them, as their self-evaluation is lessened since their standing in the group and valuation by others in the group could potentially be lessened

as well. SEM theory is to be distinguished from social identity theory (SIT), another important theory that says that identity is based on the social comparisons. The key difference is that SEM theory says that people's identity is affected by comparison with other individuals, while SIT theory says that people's identity is affected by how their group compares with other groups (Schmitt, Silvia, & Branscombe, 2000).

The SEM model presumes that individuals make decisions about their self-identity base on the results of the comparison process. If they fall short of the attributes of the compared others, their reactions will be driven by the need to maintain their self-image. However, that reaction will depend on two critical variables. The first is closeness of the compared other is to oneself, whether it is in terms of relational closeness, psychological identification, or sharing the same domain or interest (Tesser, 1988). The success of strangers or people with whom individuals have little connection or association would not affect most people's self-evaluation. However, the good performance of someone who is a friend, relative, or coworker would affect most people.

The other critical factor in the SEM model is how important the area of comparison is to the identity of the individuals, or relevancy of the domain of comparison. Relevancy determines whether the comparison process will raise or lower the individual's self-evaluation. If the subject of comparison is of little relevance, then being lower does not hurt the subject. In fact, one may be happy to "bask in reflected glory" (Tesser, 1988, p. 5) of others greater success in non-relevant areas. This is also known as the reflection process. However, if the dimension of comparison is highly relevant to the subject, being lower in the comparison process will lower the individual's self-evaluation, causing the individual to feel threatened. The SEM model predicts that

the intellectual, emotional, and behavioral responses following the comparison process will be driven by the need of the threatened individual to maintain a positive self-evaluation. To prevent the loss of self-evaluation, threatened individuals can choose to change their closeness to the compared others, change the perceived importance of the domain of comparison, attempt to sabotage the performance of others, or attempt to improve their own performance. If the individual becomes psychologically distant to the compared others or if the domain of comparison is no longer important to the identity of the individual, then the comparison loosens its meaning and can no longer pose a threat. If relevancy remains high, then by sabotaging the other's performance or improving one's own performance, threat is decreased.

Previous research has shown that individuals select comparison targets based on perceived similarity with the other person (I. Brown & Dillon, 1978). When there is perceived similarity in characteristics, backgrounds, goals, or jobs, an individual expects similar results with the compared other (Heider, 1958). In the context of pay differentials, comparison units who are most similar within an organization are employees on the same job level in a team, as their identities are largely defined by their job description. While there are multiple dimensions through which employees make social comparison, pay is the measure that most closely represents their value and standing in an organization, and therefore, it is a dimension of high relevancy. In this study design, employees on the same team being studied share great similarities and the dimension of comparison, pay, is highly relevant to their self-evaluation. Accordingly, I propose that when lower paid employees compare themselves with higher paid

employees, the pay differential will cause a threat to the self-evaluation of the lower paid employee.

The Effects of Pay Differential on Envy

Much of the support for envy as a result of pay differential has been built on the framework of equity theory. Previous studies have established the link between fairness and envy, suggesting that envy is higher when the situation is unfair (Cohen-Charash & Mueller, 2007; Lieblich, 1971; Smith, Parrott, Ozer, & Moniz, 1994). Gino and Pierce (2009) proposed envy to be a byproduct of pay differentials because of the negative inequity feelings experienced by the envious individual. Envy is enhanced when there is perception of inequality of the input/output ratio among individuals (Duffy et al., 2008; Vecchio, 2000). Workplace envy literature has also presented similar equity perception arguments. For example, “perceived unfairness might itself become a source of envy-provoking disadvantage experienced by a person as individuals experiencing unfair treatment might infer that they are not valued members of the organization” (Cohen-Charash and Muller, 2007, p.667). Similarly, Smith (1991) provided evidence supporting the relationship between justice perceptions and envy.

From the SEM perspective, envy can be the result of emotions experienced when one’s self-identification is threatened. Parrott and Smith (1993) defined envy as the emotion that results “when a person lacks another’s superior quality, achievement, or possession and either desires it or wishes the other lacked it.” They further claimed that envy exists in “a domain that is self-definitional” (p. 906). Envy can be seen as part of the process in which individuals deal with threatened self-evaluation (Salovey &

Rothman, 1991). Schaubroeck and Lam (2004) studied promotion rejectees who experienced heightened envy after being passed over for promotions that were given to employees similar to themselves. They interpreted the result in light of SEM and noted that “envy appears to be a significant part of the process through which people attempt to maintain their self-images in the face of threat” (Schaubroeck & Lam 2004, p.33). Other studies have also shown that threat to one’s self-identification is one of the main sources of envy as a result of comparison with superior and similar others (Duffy et al., 2008; Vecchio, 2000). With these findings in mind, I propose that pay differential will cause a threat to the self-evaluation of the lower paid employee, and, as a result, the lower paid employee will develop envy toward the higher paid employee.

***Hypothesis 1:** Pay differential between two employees will be positively related to the employee’s envy.*

The Moderating Role of Internal Pay Standing

Internal pay standing, namely an employee’s pay level in the pay structure of a team, is an important contextual variable, which might influence the pay differential effect (Trevor & Wazeter, 2006). Pfeffer and Langton (1993) found that the internal pay standing was crucial in determining how employees react to a reward distribution. Specifically, lower paid employees may be more envious of other team members who are at a higher internal pay standing.

Shaw (2014), in his review, pointed out that overlooking pay level or internal pay standing, as referred to here, may be the reason why previous findings about the pay

differential effects on attitudinal or behavioral responses have been mixed. The rationale behind the importance of internal pay standing is that when lower paid individuals judge whether their rewards are adequate through social comparison (Festinger, 1954), their standing on the pay structure will determine how far they fall short from their expectation of attaining their desired outcome, when compared to the higher paid employees. If their standing on the pay structure is high, meaning their pay level is higher than many other employees, their feelings of “wanting” (Crosby, 1976), due to expectations, will be attenuated because of the smaller gap between their pay and those that are higher. Speculating this moderating effect from the perspective of the equity theory, I posit that higher paid employees would experience less intense feelings of inequity (M. P. Brown et al., 2003) because of their comparatively high pay and will also be less likely to experience envy. Frank (1985) also proposed that when employees’ relative pay standing is high, they are more likely to accept perceived inequality because they still hold a relatively advantageous standing.

On the other hand, individuals with lower internal pay standing will likely experience stronger envy because they will experience greater deprivation (Podder, 1996; Trevor & Wazeter, 2006). The feelings of wanting and relative deprivation in the lower paid individuals are exaggerated (Podder, 1996) by the fact that many other employees are better paid than they, and therefore, a greater discrepancy exists between their actual outcome and that desired. Previous studies have shown that high expectations in combination with an inferior outcome, when compared to similar others, results in negative emotional effects (Crosby, 1976).

Through the lens of the SEM model, individuals with lower pay standing will experience a greater threat to their self-identification and, as a result, experience both a greater sense of envy and a greater need to restore that self-evaluation. However, when an employee's internal pay standing is high, the pay differential will pose less of a threat to the employee's self-evaluation because of the attenuation of the wanting of superior qualities (i.e., better pay) that others have, and thus result in less envy. Accordingly, I propose the following:

***Hypothesis 2:** An employee's internal pay standing will moderate the relationship between the pay differential and an employee's envy.*

Specifically, the positive relation between pay differential and envy will be weakened when an employee's internal pay standing is high.

The Effect of Envy on Social Undermining

Feelings of envy often lead to various affective and behavioral reactions (Salovey & Rothman, 1991). On the negative side, envy causes adverse reactions, including depressed mood and anxiety, avoidance of the referent (Salovey & Rodin, 1986), overt hostility (Parrott & Smith, 1993), and social undermining (Duffy et al., 2012; Kim & Glomb, 2014; Lam et al., 2011). Vecchio (2000)'s integration classifies most possible reactions as *active-negative* (e.g., sabotaging a competitor), *active-positive* (e.g., bolstering the self-image), and *passive-negative* (e.g., pretending disinterest in the rival). On the positive side, envy can also lead to constructive reactions, including increased work effort (Duffy & Shaw, 2000; Schaubroeck & Lam, 2004) and enhanced self-

promotion (Lockwood & Kunda, 1997). Envy is an unpleasant emotion that needs to be released. Coping mechanisms will determine whether the behavioral response will be desirable, such as increasing work effort, or undesirable, such as social undermining.

The argument for an association between interpersonal envy and social undermining is fairly straightforward, but it is an understudied area of research in the pay differentials literature (Shaw, 2014). Social undermining—a behavior that is intended to hinder others' performance, interpersonal relationships, and work successes—differs from other forms of antisocial behavior at the conceptual level because it comprises only intentional behavior and behavior designed to weaken its target (Duffy et al., 2006; Duffy et al., 2012). Envy can lead to social undermining because diminishing others is one way individuals can make themselves feel better, raise their own standing, and release frustration and hostility (Cohen-Charash & Mueller, 2007; Dunn & Schweitzer, 2006). In the SEM model, social undermining is an avenue through which individuals who feel threatened can use to maintain their self-evaluation. Social undermining behaviors are subtle, and their negative effects not immediately obvious, which can be an effective coping strategy for employees with low internal pay standing to adopt when feeling envious.

Generally speaking, the key barrier for acting out an antisocial behavior, such as social undermining, is how envious individuals overcome different levels of their ethical standards. Since it is necessary to address this question appropriately, in order to build up the possibility of the linkage between envy and social undermining, I would like to elaborate more on this breakthrough point. Bandura (1986) argued that there is a moral disengagement within the minds of otherwise normal individuals, which causes them to

engage in unethical behavior. McFerran, Aquino, and Duffy (2010) further defined moral disengagement as the use of self-justification for engaging in otherwise socially and ethically unacceptable behaviors, contrary to self-regulating value systems, in order to explain why envious people may respond negatively. Envious individuals may justify or rationalize their undermining behaviors through three mechanisms (Duffy et al., 2012). The first mechanism is devaluing the target (Smith, Parrott, Diener, Hoyle, & Kim, 1999). If competing individuals use undermining to upset the success of their competitors, they should normally experience self-reproach or guilt. However, if they devalue their target and convince themselves that the target deserves to be brought down, they may even feel justified for causing harm. The second mechanism is the use of cognitive reasoning, or moral justification (Bandura, 1986), to convince themselves that harmful behaviors, such as social undermining, are both acceptable and appropriate. They may use euphemistic language for their moral disengagement by calling the behaviors “righteous.” The third mechanism is distortion of the harmful effects (Detert, Treviño, & Sweitzer, 2008). Social undermining often begins with small acts that insidiously accumulate over time. The effects are often delayed and the sources are often difficult to detect, so undermining carries low risk and is easily accomplished.

Therefore, envy can drive lower paid employees to commit acts of social undermining if they cannot reduce the envious feeling by other means and if they can justify their actions by devaluing the target, cognitively justifying their actions, or distorting the harmful effects of their actions.

Hypothesis 3: The lower paid employee's envy will be positively related to his or her social undermining behavior.

Mediating Role of Envy between Pay Differential and Social Undermining

Building upon the associations of pay differential-envy, as well as envy-social undermining, I propose envy acts as a mediator between pay differential and social undermining. Although equity perception, according to equity theory, might partially explain this mediating effect, the effect of envy resulted from the compared relevant target in a team, based on the SEM, could provide an incrementally better explanation to this association. Incorporating the emotion factor of envy helps to more fully understand the rationales underling the association between pay differential and social undermining. Furthermore, it echoes the point, suggested by past researchers, that both cognitive and affective explanations of antisocial behavior are equally important (Greenberg & Scott, 1996; Robinson & Bennett, 1997). Therefore, I hypothesize that:

Hypothesis 4: Envy will mediate the relationship between pay differential and social undermining.

The Effect of Envy on Work effort

Strong negative emotions, such as envy, universally cause pain to individuals who harbor those emotions (Lieberman & Eisenberger, 2009), to such an extent that they are greatly motivated to reduce the feeling of discomfort (Duffy et al., 2008). Instead of adopting destructive behaviors, such as social undermining, envious individuals can also

release the stress of unfavorable self-evaluation through constructive means, such as self-improvement by increasing work effort to improve their self-evaluation. Envy can be positive, if it motivates increased work effort or self-improvement attempts (Duffy et al., 2008; Schaubroeck & Lam, 2004).

There are two theoretical rationales to address this mechanism. First, envious individuals might be motivated to learn from the winner (D. J. Brown, Ferris, Heller, & Keeping, 2007) through upward social comparison that provides a “role model” effect for relative losers (Lockwood & Kunda, 1997). Role models symbolize the achievement that others strive to follow, although role models may be the envied targets. The comparison is meaningful when both are on the same team and share similarities that give the less-favored individuals a hope that they can attain similar advancement. Thus, they are motivated and know how to increase the “right” work effort, perhaps by putting in more time, expending greater energy, and being more involved in all areas of job duties—all for the purpose of job improvement. Second, envious individuals can view the unfavorable self-evaluation as a challenge and thereby increase job performance or work effort to improve personal outcomes that match the levels of envied targets (Tai et al., 2012; Van de Ven, Zeelenberg, & Pieters, 2009). In a similar vein, envy has been shown to strongly and positively associate with enhanced job performance in a sample of bank employees (Schaubroeck & Lam, 2004), and to effectively increase job efforts for addressing perceived inequity (Duffy et al., 2008). Taken together, I propose the following hypothesis:

***Hypothesis 5:** Envy will be positively related to an employee’s work effort.*

Self-esteem as a Moderator

Self-esteem is the overall self-evaluation individuals make about their competencies (Pierce & Gardner, 2004; Rosenberg, 1965). It has been well established in the psychology literature that self-esteem is a pervasive, generally adaptive, force in human motivation that is associated with broad desirable outcomes (Pyszczynski, Greenberg, Solomon, Arndt, & Schimel, 2004). Furthermore, self-esteem is the driving force behind adaptive behavior to preserve self-worth (Crocker & Park, 2003). Therefore, I expect self-esteem to moderate the relationship between envy and work effort/social undermining behaviors because it can direct how individuals choose to maintain their self-evaluations when feeling envious. Self-esteem can strengthen or weaken the effects of envy on work effort/social undermining behaviors, as suggested by Tai et al. (2012). Next, I elaborate on how lower paid employees are influenced by their self-esteem to maintain self-evaluation when feeling envious.

Korman (1970) suggests that individuals are motivated to achieve outcomes that are consistent with their self-concept. Individuals with high self-esteem have been shown to take on challenging courses and have high expectations of being successful (Gottfredson, 1981; Super, 1980). In addition, they are more likely to apply for jobs with higher status and income (Chen & Klimoski, 2003; Kammeyer-Mueller, Judge, & Piccolo, 2008; McNatt & Judge, 2004). They also rate themselves as being more moral than the average person (Campbell, Rudich, & Sedikides, 2002). Self-esteem is relevant to envy-generated harmful behaviors (Cohen-Charash & Mueller, 2007). As described earlier, when envious individuals choose to engage in social undermining behavior to release stress associated with envy, they undergo moral disengagement. I posit that

employees with high self-esteem, under the pressure of low pay status, are less likely to justify social undermining behavior for the sake of increasing self-evaluation of status and income, due to their self-perceived greater sense of morality. Given that both morality and status are essential to the sense of self-worth for the high self-esteem, I propose that they will choose to increase work effort to relieve stress from envy, as it will increase their self-evaluation in both their morality (by choosing a constructive behavior) and their status (by higher achievement).

On the other hand, individuals with low self-esteem are less certain that their feelings, thoughts, and behaviors are correct (Pierce & Gardner, 2004). In comparison to those with high self-esteem, those with low self-esteem are more likely to have less favorable self-evaluation, and, therefore, are more likely to be persuaded by the moral disengagement process to consider a negative way to restore their self-evaluation due to envy. Base on this assumption, I suggest that when people with low self-esteem experience envy, they are more likely to engage in social undermining. Accordingly, I propose the following hypotheses:

***Hypothesis 6a:** An employee's self-esteem will moderate the positive relation between envy and social undermining, in such a way that the positive relation will be weakened when self-esteem is high.*

***Hypothesis 6b:** An employee's self-esteem will moderate the positive relation between envy and work effort, in such a way that the positive relation will be weakened when self-esteem is low.*

Self-esteem Moderated Mediation Effect

Given that envy mediates the pay differential effect on social undermining and that self-esteem moderates the mediation effect of envy on pay differential to social undermining, I propose a moderated mediation hypothesis. Moderated mediation occurs when the strength of an indirect effect depends on the level of some variable, or when mediation relations are contingent on the level of moderators (Edwards & Lambert, 2007; Preacher, Rucker, & Hayes, 2007):

Hypothesis 7: The indirect effect of pay differential on social undermining via envy will be weakened when self-esteem is high.

CHAPTER III

METHOD

Sample

In this study, I collected data from 186 employees (614 dyads) of 46 teams, working in 5 high tech companies in Hsinchu Science and Industrial Park in Taiwan. All participants were full-time employees in the research and development department (R&D) of the companies. Each employee was working closely with all other team members in order to achieve their research and development goals. All members of the same team had the same job title, but each had different work experience. This study was mainly built with a round-robin design and required responses from multiple sources: employees, supervisors, and human resource managers.

Through personal connections, I selected 52 Taiwanese companies in the high tech industry. I contacted the HR directors (or higher level executives, such as vice president, when I could) via phone calls and/or e-mails. I also set up personal meetings, if possible, with the contacts to encourage survey participation. In the process of communication, I explained my research goals and described the participation process. Of 52 companies initially contacted, 44 refused participation on grounds of information confidentiality. I visited the remaining 8 companies and provided the survey documents first to HR directors to review and approve. In the end, a total of 199 employees from the 8 companies participated in my survey. To allay any fear over confidentiality, I clearly explained my commitment to completely protect both the company and individual

information gathered. The confidentiality policy was also presented in writing on the first page of the survey. In each survey packet, I included Taiwanese NT equivalent of \$3.50 US dollars to show my gratitude for their participation.

I used a round-robin survey design to obtain data for the key variables of envy and social undermining. Each employee rated his or her teammates and, in turn, was rated by each of them (Warner, Kenny, & Stoto, 1979). To maintain research quality, round-robin design surveys require high (i.e., at least 80%) response rates and team sizes of no fewer than three members (Sparrowe, Liden, Wayne, & Kraimer, 2001). Once the above requirement was applied, surveys from four teams (13 employee-level data) had to be discarded. Therefore, the final sample was made up of 186 employees, which comprised 46 teams working in 5 high tech companies. Among those 46 teams, the within-team response rate was 93%. All participants were Taiwanese, with 28.9% being female. The average age was 31 years, and tenure was 4.79 years. Education levels of the employees were mostly bachelor degrees (55.38%) and master's degrees (41.94%), with a few with PhD degrees (2.69%). The smallest team had three members, and the largest team had eight.

Measures

Pay differential (HR manager rating). Pay differential data was the most difficult to obtain, due to its sensitivity. I made every effort to communicate as clearly as possible to each HR manager at the onset to ensure their understanding of how critical this information is to the entire research and the importance of their support to ensure precise pairing/dyadic data. I obtained employee rosters and each employee's pay level

information, measured in annual compensation, and operationalized the pay differential variable as (focal employee's pay level [actor] – another employee's pay level [target]) multiplied by -1. Thus, this pay differential value ranged from negative to positive, with a mean of zero for all values. I took the inverse of the differential variable by multiplying -1, to reflect an intuitive association between pay differential and envy/social undermining from the perspective of actor employees. Specifically, I argue that a higher pay differential condition would increase the likelihood of the envious feeling experienced by the actor employee. For example, if an actor employee A's pay level is 10,000 and a target employee B's pay level is 70,000, the pay differential between employee A and employee B becomes 60,000 ($= [10,000 - 70,000] \times -1$). Similarly, if an actor employee A's pay level is 10,000 and a target employee C's pay level is 40,000, the pay differential between employee A and employee C becomes 30,000 ($= [10,000 - 40,000] \times -1$). Thus, from the actor employee A's viewpoint, the pay differential between oneself and employee B is greater than the pay differential between oneself and employee C. It is necessary to multiply the difference between actor and target pay levels by (-1) to properly reflect the relationship between pay differential and envy/social undermining, in the direction that I would like to examine.

Internal pay standing (HR manager rating). Using the pay information provided by human resource directors, I rank ordered each employee's pay rank within his or her team so as to reflect whether employees' perceptions of their internal pay standing was higher or lower, when compared to others' pay. For example, in a seven-member team, when an employee has two employees above him/her and four employees below him/her, in terms of pay levels, the employee's internal pay standing was coded as

3. Most employees had some idea about other employees' pay standing in the pay structure of the team, particularly who had the highest pay, although knowledge of the exact pay others receive was generally well-guarded. In other words, while absolute pay differences were not usually known, employees were able to gather information on the pay ranking of other team members.

Envy (employee rating). I used a round-robin survey method (Bond & Lashley, 1996) to measure envy. Each employee rated his/her teammates and was, in turn, rated by each of his/her teammates (Rentzsch, Schröder-Abé, & Schütz, 2015). Therefore, in a five-member team, there would be 20 (5 x 4) dyadic relationships or observation units. Following previous studies (e.g., Kim & Glomb, 2014), I measured an actor employee's envy targeted toward another employee by asking a one-item question: "To what extent do you agree with the following statement? I feel envy toward this person in my workplace. For example, I desire to have this person's superior qualities or achievements." The wording of this item was adopted from previous studies' definitions of envy (D. J. Brown et al., 2007; Duffy et al., 2008; Smith & Kim, 2007). Respondents were given a five-point Likert scale, ranging from "strongly disagree" to "strongly agree." I operationalized the envy variable in two ways, corresponding to either social undermining or work effort as the consequences. First, when I tested the relationship, pay differential-envy-social undermining, envy was considered a dyadic variable, showing an actor employee A's envy to a target employee B, then C, etc. Thus, each employee had as many envy scores as the number of his/her team members. Second, in testing for the effect of envy on work effort, I measured envy as the highest envy score that an employee gave toward all other team members.

Social undermining (other employee rating). Similar to envy, I measured social undermining using a round-robin survey. Each employee was asked a one-item question: “How much do you agree with the following statement about how each of your coworkers undermine you at work? For example, ‘This person intentionally engages in behavior which (a) hinders your ability to establish and maintain positive interpersonal relationships, (b) hurts your ability to be successful at work, or (c) damages your reputation.’” The wording of this item was adopted from previous studies’ definitions of social undermining. I used five-point Likert scale, ranging from “strongly disagree” to “strongly agree.” The degree of a target’s social undermining was evaluated by all other members in the team to better capture the nature of inter-rating of employees.

Work effort (employee rating). I measured work effort using a ten-item scale, adopted from Brown and Leigh (1996), with a seven-point Likert scale that ranged from “strongly disagree” to “strongly agree.” The example items were: “I work at my full capacity in all my job duties” and “When there’s a job to be done, I devote all my energy to getting it done.” I operationalized work effort as an individual level variable because it was self-reported by each employee on how hard he or she worked. The reliability coefficient (Cronbach’s alpha) was .95.

Self-esteem (employee rating). In this survey, employees rated their own levels of self-esteem, using a ten-item scale that was adopted from Greenberger et al. (2003). Sample items were: “I feel that I have a number of good qualities,” and “I feel that I’m a person of worth, or at least on an equal plane with others.” I used six-point Likert scale, ranging from “strongly disagree” to “strongly agree.” The reliability coefficient (Cronbach’s alpha) was .92. Self-esteem, as a moderator between envy and work effort,

was treated as an individual level variable. However, when it was being tested as the moderator between envy and social undermining, I chose to treat self-esteem as a dyadic level variable. Specifically, I assigned dyadic level self-esteem values, based on the actor's numbering. For example, in a four-member team, there are 12 combinations between actor and target such as 1-2 (actor-target), 1-3, 1-4, 2-1, 2-3, 2-4, 3-1, 3-2, 3-4, 4-1, 4-2, and 4-3. When the combination was 1-2, 1-3, and 1-4, I assigned all three combinations' dyadic self-esteem value as member 1's self-esteem value, since all of these combinations of actor numbering represented the self-esteem of employee 1. Accordingly, I assigned 2-1, 2-3, 2-4 as employee 2's self-esteem value.

Controls. To address possible alternative explanations and to establish the incremental predictive validity of the independent variable, I measured several additional variables and included them in my analyses. First, I controlled for the tenure, gender, and supervisor-rating performance of both the actor employee and target employee, since previous studies had shown that those variables could influence the degree of pay differential and employees' attitudes and behaviors (e.g., Trevor & Wazeter, 2006). I measured tenure by asking employees about the number of years they worked and gender by asking employees about their gender (0 = Female, 1 = Male). To measure supervisor-rating performance, I used a five-item scale, adopted from Greenhaus, Parasuraman, and Wormley (1990), with a five-point Likert scale that ranged from "strongly disagree" to "strongly agree." Example items were: "The accuracy when performing core job tasks" and "The ability to perform core job tasks." The internal reliability coefficient (Cronbach's alpha) was .87.

In addition, I controlled for tenure dissimilarity, another dyadic-level variable. Tenure dissimilarity has been shown in previous studies to influence the nature of interaction between two employees (Liu et al., 2015; Van de Vegt, Bunderson, & Oosterhof, 2006). Tenure dissimilarity was operationalized as the tenure of the actor employee minus the tenure of the target employee. I also controlled for actor's pay knowledge of target's pay, because it could have influenced his/her reaction to the pay differential (Martin & Lee, 1992). Without pay knowledge of the target employee, an actor would not be able to make a social comparison and therefore, would not have any positive or negative emotion toward the target on the basis of pay differential. Pay knowledge was measured using three-items that were adopted from Martin and Lee (1992). The example items were: "How familiar are you with the pay schedules listed in your contract for people and jobs other than yourself" and "How familiar are you with your pay and the pay of others on my team." Respondents answered, according to a seven-point Likert scale that ranged from "strongly disagree" to "strongly agree" (Cronbach's alpha = .82). Lastly, I measured social desirability, as the variance of our key variables: envy and social undermining. Social desirability is important in that it can be influence employees' tendency to maintain their good standing and show less intense feelings of envy toward others. I measured social desirability using an 11-items scale that was developed by Reynolds (1982). The example items were: "I have never deliberately said something that hurt someone's feelings," and "I have never been irked when people expressed ideas very different from my own." Seven-point Likert scale, ranging from "strongly disagree" to "strongly agree," was used (Cronbach's alpha = .61). Table 1 shows the corresponding respondent for each key variable.

Table 1: Respondents for Each Variable

Variables	Measurement Level	Employee Response	Coworker Response	Supervisor Response	Human Resource Data
Pay Differential	Dyadic				X
Internal Pay Standing	Individual				X
Envy	Dyadic/Individual	X			
Social Undermining	Dyadic		X		
Work effort	Individual	X			
Self-esteem	Individual	X			
Tenure	Individual	X			
Gender	Individual	X			
Performance	Individual			X	
Pay Knowledge	Individual	X			
Social Desirability	Individual	X			

Analytical Strategy

Since I used a round-robin survey method to measure envy and social undermining behavior, the data has a complex nested structure. Individuals are not only nested within dyadic relationships, they are also nested within teams. In other words, each relationship reflects two individuals, rather than just one. Hence, I used the social relations model (SRM) (Kenny, 1994; Snijders & Kenny, 1999)—a variant of hierarchical linear modeling—which has been used in previous dyadic data analyses studies (Lam et al., 2011; Van de Vegt et al., 2006). For data analyses, I used the MLwiN software package (Goldstein et al., 1998). In SRM, the random effect estimates indicate the percentage of the total variance in an actor’s envy, as well as social undermining behavior that is attributable to characteristics of the actor, the target (envied individual), the dyad relationship, and the team. In terms of testing indirect effect, first stage moderating mediation effect, second stage moderating mediation effect, as well as first and second stages moderating mediation effect, I referred to Preacher’s papers and

ran the Monte Carlo-based simulation with 20,000 repetitions to test its significance level, since this study is a multilevel nested structure data (Edwards & Lambert, 2007; Preacher et al., 2007; Preacher, Zyphur, & Zhang, 2010). Finally, for testing the association between envy and work effort (and the moderating effects of self-esteem), I used the hierarchical linear modeling because neither of those analyses involved dyadic level (paired data) analyses.

CHAPTER IV

RESULTS

Descriptive Statistics

Table 2 shows the descriptive statistics, including the mean, standard deviation (SD), and correlations of all the study variables. The pay differential was positively related with actor's envy ($r = .53, p < .01$). Furthermore, envy was positively related with actor's social undermining behavior ($r = .23, p < .01$) and negatively related with work effort behavior ($r = -.18, p < .01$). For tenure, gender, and performance, I managed these three control variables from either actor or target's perspective; therefore, the mean and SD were the same. In terms of pay differential and tenure dissimilarity, both values were obtained by taking the difference between the actor and target, with the mean values being zero, as well.

Variance Partitioning

Table 3 shows the partitioning of variance in envy and social undermining for the actor, target, dyadic, and group levels of analysis. For the variable envy, 4% of the total variance in envy was due to differences between groups, 31% was attributable to differences between actors, 36% was attributable to differences between the targets, and 29% was due to unique dyadic characteristics. For the variable social undermining, 0% of the total variance in social undermining was due to differences between groups, 64% was attributable to differences between actors, 13% was attributable to differences

between the targets, and 23% was due to unique dyadic characteristics. These results showed significant variance in envy or social undermining occurs due to the factors that are related to the nature of the dyadic relationship between the actor and the target, as well as whether the source of data came from an actor or a target.

Table 2: Means, Standard Deviations, and Correlations

Variables	Mean	SD	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1. A's tenure	4.79	1.55																
2. A's gender	.71	.46	-.02															
3. A's performance	4.10	.65	.34	-.06														
4. B's tenure	4.79	1.55	.39	-.04	.05													
5. B's gender	.71	.46	-.04	-.07	-.00	-.02												
6. B's performance	4.10	.65	.05	-.00	.27	.34	-.06											
7. Tenure dissimilarity	0	1.72	.55	.02	.26	-.55	-.02	-.26										
8. A's pay knowledge	5.02	.83	.38	-.02	.30	.22	.02	.05	.14									
9. A's social desirability	4.42	4.78	.07	-.27	.16	.01	.02	.05	.05	.24								
10. A's internal pay standing	2.72	1.45	-.33	.07	-.42	.04	-.06	.12	-.33	-.32	-.10							
11. A's self-esteem	4.09	0.29	.06	-.10	.22	-.03	-.04	.04	.08	.10	.08	-.15						
12. Pay differential	0	32.70	-.31	.10	-.39	.31	-.10	.39	-.56	-.20	-.14	.54	-.11					
13. Envy (dyad level)	3.07	0.96	-.07	.01	-.15	.26	-.09	.44	-.30	-.06	-.06	.30	-.01	.53				
14. Social Undermining (dyad level)	2.54	0.96	-.03	.03	-.44	.17	-.05	-.02	-.18	-.01	.03	.46	-.21	.35	.23			
15. Envy (individual level)	3.07	0.75																
16. Work effort (individual level)	4.98	0.90																.38

Note: "A" refers to "Actor" in a dyadic relationship; "B" refers to "Target" in a dyadic relationship. Correlations for variables 1 to 13 are based on the matched sample of $N = 614$ dyads, including 186 members of 46 teams. Correlations for variables 14 and 15 are based on 186 members. Correlations greater than or equal to $\pm .08$ are significant at $p < .05$. Correlations greater than or equal to $\pm .11$ are significant at $p < .01$.

Table 3: Variance Partitioning for Envy and Social Undermining

Source of variance	Envy		Social Undermining	
	Estimate (%)	SE	Estimate (%)	SE
Group variance	.04 (4%)	.04	.00 (0%)	.00
Actor variance	.32 (31%)	.02	.64 (64%)	.08
Target variance	.36 (36%)	.06	.13 (13%)	.03
Dyadic variance	.29 (29%)	.03	.24 (23%)	.02
Deviance	1,475.28		1407.56	

Hypothesis Tests

Tables 4 and 7 show the results of social relation model analyses, corresponding to the dependent variable as either envy or social undermining. As shown in Model 2 of Table 4, pay differential was positively related to envy ($\beta = .42$, $SE = .06$, $p < .01$) of the actor employee. As expected, Hypothesis 1 was supported. The higher the pay differential in a dyadic relationship leads to the stronger level of actor's envy. Further, the pay differential was positively related to social undermining ($\beta = .10$, $SE = .06$, $p < .10$) which was shown in Model 2 Table 7. Moreover, the actor's envy level was positively related to social undermining level ($\beta = .06$, $SE = .04$, $p < .10$; Model 5; see Table 7) even after controlling for the effect of the pay differential. Therefore, envy partially mediated the effect of the association between pay differential and social undermining. Besides, based on Preacher and Selig (2012) suggestion, a Monte Carlo-based simulation with 20,000 repetitions indicated that the indirect path from the pay

differential to the social undermining via envy was significant (.03; 95% CI [.00, .06]). This is the supporting evidence for Hypothesis 4.

To test the internal pay standing moderating effect in Hypothesis 2, I included the interaction term between pay differential and actor's internal pay standing in Model 3 of Table 4. The results show that the interaction variable was significantly related to actor employee's envy ($\beta = -.09$, $SE = .04$, $p < .05$). Figure 2 shows the pattern of the interaction effect. The positive association between pay differential and envy was stronger when the actor's internal pay standing was low, compared to when the internal pay standing was high, which supports Hypothesis 2.

In Table 5, the information from the SRM results was used to calculate path analytic tests at low (-1 SD) and high (+1 SD) levels of internal pay standing on the following relationship: pay differential—envy—social undermining. The path estimates revealed that the effects of pay differential on social undermining via envy varied across levels of internal pay standing. With low internal pay standing, the indirect effect of pay differential on social undermining was significant ($P_{YMP_{MX}} = .02$, $p < .05$), according to a Monte Carlo-based simulation with 20,000 repetitions (CI [.00, .08]). The total effect of pay differential on social undermining was significant, as well ($P_{YX} + P_{YMP_{MX}} = .24$, $p < .01$). However, with the case of the high internal pay standing, the indirect effect of pay differential on social undermining was not significant ($P_{YMP_{MX}} = .01$, *n.s.*)

Table 4: Results of Social Relation Model Analyses: A's Envy as a Dependent Variable

Variables	Model 1	Model 2	Model 3
Control Variables			
A's tenure	-.41	7.43	6.95
A's gender	-.01	-.03	-.03
A's performance	-.23 **	-.11 †	-.11 †
B's tenure	.49	-7.36	-6.90
B's gender	-.04	-.01	.00
B's performance	.53 **	.37 **	.36 **
Tenure dissimilarity	.42	-8.14	-7.63
A's pay knowledge	.00	.00	.00
A's social desirability	-.04	-.02	-.02
A's internal pay standing	-.07	.01	.02
Main Effect			
Pay differential (PD)		.42 **	.42 **
Interaction			
PD × A's internal pay standing			-.09 *
Deviance			
	1354.27	1311.93	1306.26
Change of deviance			
		42.34	5.67

Note: $N = 614$ dyads, including 186 members of 46 teams. Standardized coefficients are reported. "A" refers to "actor" in a dyadic relationship; "B" refers to "target" in a dyadic relationship. † $p < .10$. * $p < .05$. ** $p < .01$. One-tailed tests.

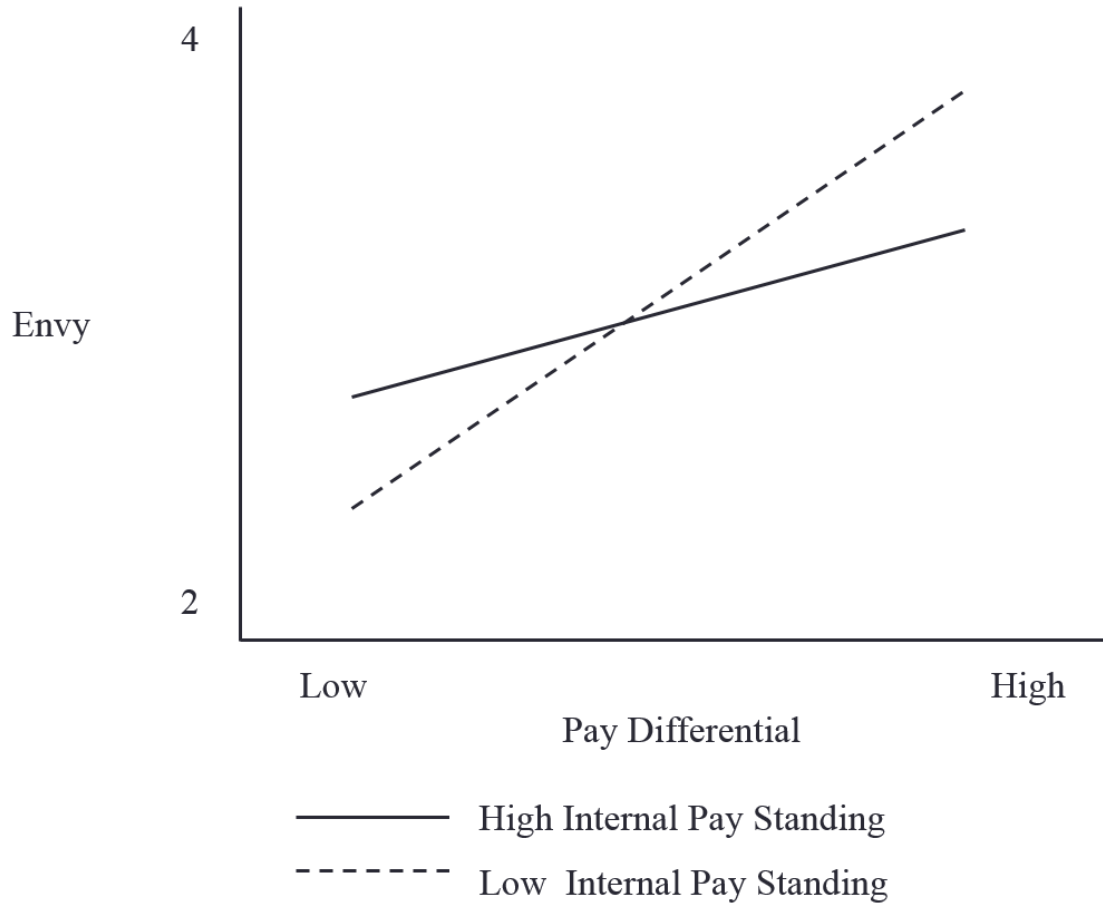


Figure 2: Interactive Effects of Pay Differential and Internal Pay Standing on Envy

Table 5: Path Analytic Results—Direct, Indirect, and Total Effects of Pay Differential on Social Undermining (via Envy) at Low and High Levels of Internal Pay Standing (First-Stage Moderator)

	P_{MX}	P_{YM}	Direct Effects (P_{YX})	Indirect Effects ($P_{YM}P_{MX}$)	Total Effects ($P_{YX} + P_{YM}P_{MX}$)
Simple paths for low internal pay standing	0.512**	0.047*	0.213**	0.024*	0.237**
Simple paths for high internal pay standing	0.320**	0.047*	0.138**	0.014	0.154**

Notes. $n = 614$. Coefficients in bold are significantly different across internal pay standing levels. One-tailed tests.

P_{MX} = path from X (pay differential) to M (envy).

P_{YM} = path from M to Y (social undermining).

P_{YX} = path from X to Y.

* $p < .05$

** $p < .01$

Table 6: Path Analytic Results—Direct, Indirect, and Total Effects of Pay Differential on Social Undermining (via Envy) at Low and High Levels of Self-esteem (Second-Stage Moderator)

	P_{MX}	P_{YM}	Direct Effects (P_{YX})	Indirect Effects ($P_{YM}P_{MX}$)	Total Effects ($P_{YX} + P_{YM}P_{MX}$)
Simple paths for low self-esteem	0.411**	0.049*	0.185**	0.020*	0.205**
Simple paths for high self-esteem	0.411**	0.049*	0.148**	0.020*	0.168**

Notes. $n = 614$. Coefficients in bold are significantly different across internal pay standing levels. One-tailed tests.

P_{MX} = path from X (pay differential) to M (envy).

P_{YM} = path from M to Y (social undermining).

P_{YX} = path from X to Y.

* $p < .05$

** $p < .01$

Table 7 shows the results of the social relation model analyses for actor's social undermining behavior. Model 4 of Table 7 shows that an actor's envy was positively related to the actor's social undermining behavior but the effect was marginal ($\beta = .07$, $SE = .04$, $p < .10$). Thus, Hypothesis 3 was marginally supported. Model 6 of Table 7 shows the moderation effect of target's self-esteem on the association between envy and social undermining. The results demonstrate that self-esteem significantly moderated the relation between envy and social undermining ($\beta = -.07$, $SE = .03$, $p < .05$). As shown in Figure 3, the pattern of the interaction was consistent with my expectations; specifically, the positive relation between envy and social undermining was stronger when self-esteem was low. Thus, Hypothesis 6a was supported.

In Table 6, I calculated the path analytic test at low and high self-esteem on the following relationship: pay differential—envy—social undermining. Although both high and low self-esteem conditions showed significant indirect effect with a Monte Carlo-based simulation with 20,000 repetitions (CI [.00, .04]), there was no significant difference between the moderated mediation test and bringing in self-esteem as the moderator.

Lastly, I further applied Preacher et al. (2007) Model 4's approach, simultaneously including two moderators—internal pay standing, located in the first stage indirect effect, and self-esteem, located in the second stage indirect effect—to come out with the results displayed in Table 8. The path estimates revealed that when internal pay standing is low (without considering the self-esteem level), the path estimates revealed that the effects of pay differential on social undermining via envy was significant ($P_{YM}P_{MX} = .02$, $p < .10$), according to a Monte Carlo-based simulation with

20,000 repetitions (CI [.00, .05]). The total effect of pay differential on social undermining was significant for low self-esteem condition ($P_{YX} + P_{YM}P_{MX} = .26$, $p < .01$), as well as for high self-esteem condition ($P_{YX} + P_{YM}P_{MX} = .22$, $p < .01$). However, the indirect effects under high internal pay standing case, including low and high self-esteem conditions, did not show any significant finding under a Monte Carlo-based simulation with 20,000 repetitions (CI [-.02, .06]).

Table 7: Results of Social Relation Model Analyses: A's Social Undermining Behavior as a Dependent Variable

Variables	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Control Variables						
A's tenure	-.96	-6.61	-7.94	-9.46	-6.85	-8.07
A's gender	.01	.00	.00	.01	.00	.01
A's performance	-.35 **	-.31 **	-.31 **	-.34 **	-.30 **	-.30 **
B's tenure	9.75	6.78	8.11	9.63	7.02	8.24
B's gender	-.04	-.04	-.04	-.04	-.04	-.04
B's performance	-.06	-.09 *	-.09 *	-.09 *	-.11 *	-.11 *
Tenure dissimilarity	10.75	7.49	8.97	10.62	7.75	9.11
A's pay knowledge	.12 *	.13 *	.12 *	.12 *	.13 †	.12
A's social desirability	.09 *	.10 *	.09 *	.08 *	.09 *	.09 *
A's internal pay standing	-.41 **	-.37 **	-.37 **	-.39 *	-.37 **	-.37 **
Main Effect						
Pay differential (PD)		.10 †	.09 *		.07	.07
Self-esteem (SE)		-.10 *	-.10 *		-.10 *	-.10 *
Interaction						
Envy × SE			-.08 **			-.07 *
Mediator						
Envy				.07 *	.06 *	.05 †
Deviance	1299.11	1292.44	1284.92	1295.63	1289.85	1283.06
Change of deviance		6.67	7.51		5.77	6.79

Note: $N = 614$ dyads, including 186 members of 46 teams. Standardized coefficients are reported. "A" refers to "Actor" in a dyadic relationship; "B" refers to "Target" in a dyadic relationship. † $p < .10$. * $p < .05$. ** $p < .01$. One-tailed tests.

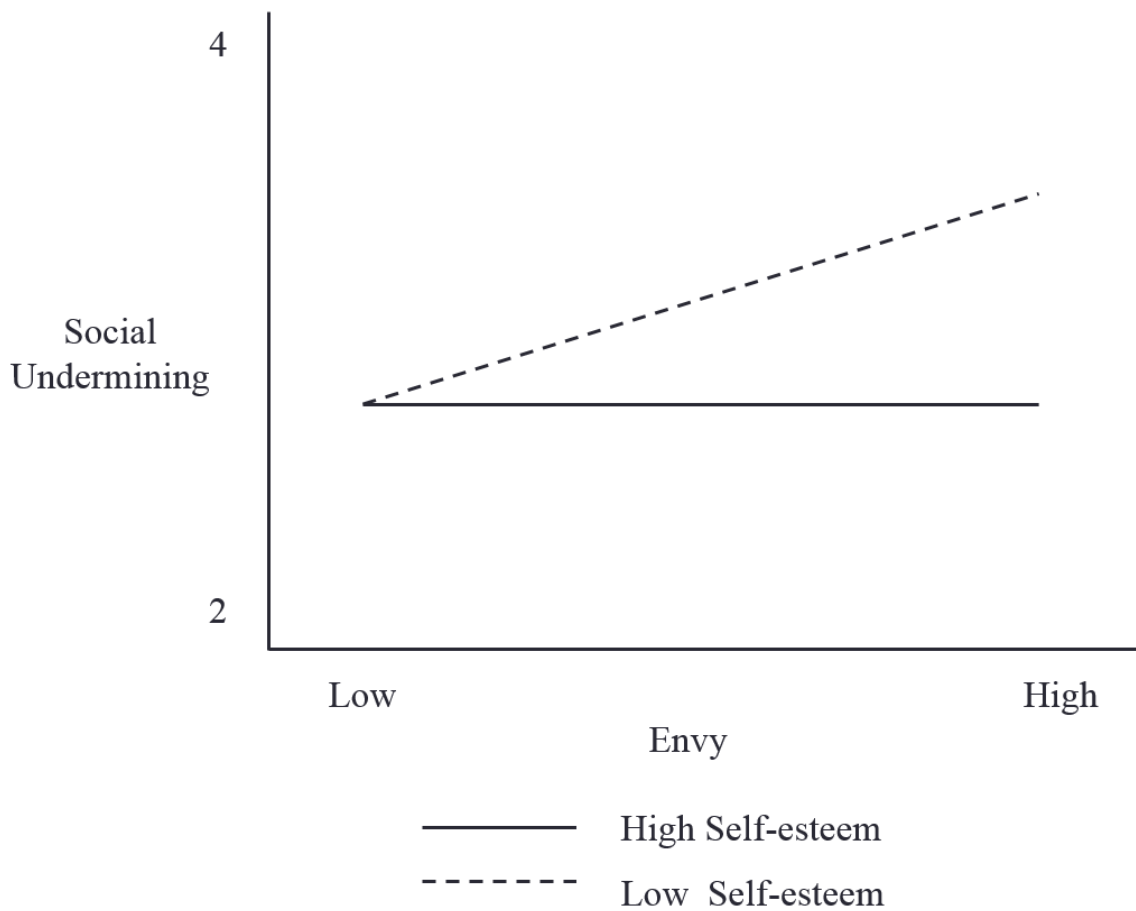


Figure 3: Interactive Effects of the Envy and Self-Esteem on Social Undermining

Table 9 shows the results of the testing of the association between envy and work effort, as well as the moderating effect of self-esteem via hierarchical linear modeling. Model 2 of Table 9 demonstrates that target's envy was not significantly related to his/her work effort ($\beta = .09$, $SE = .08$, *n.s.*). Thus, Hypothesis 5 was not supported. In addition, Model 3 of Table 9 shows that self-esteem significantly moderate the relationship between envy and work effort ($\beta = -.07$, $SE = .04$, $p < .05$). As shown in Figure 4, the pattern of interaction is not as expected, and therefore, does support hypothesis 6b either.

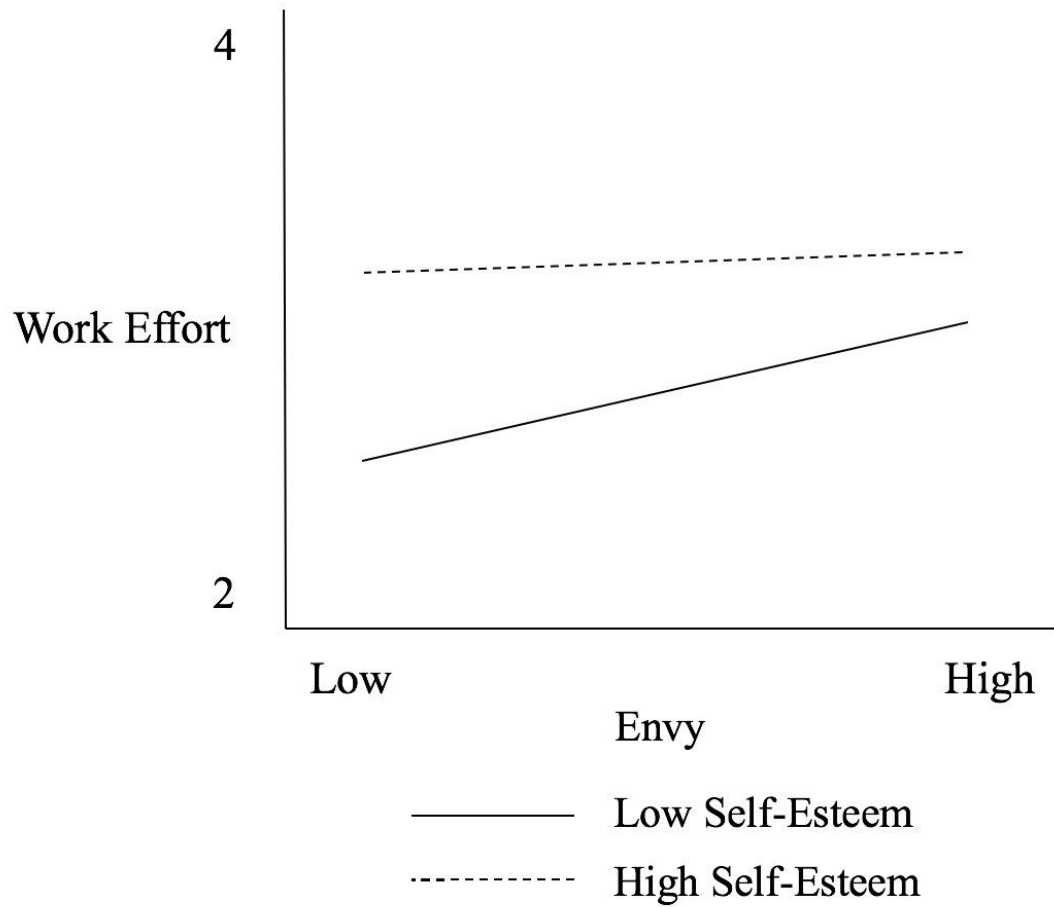


Figure 4: Interactive Effects of the Envy and Self-Esteem on Work Effort

Table 8: Path Analytic Results—Direct, Indirect, and Total Effects of Pay Differential on Social Undermining (via Envy) at Low and High Levels of Internal Pay Standing (First-Stage Moderator) and at Low and High Levels of Self-esteem (Second-Stage Moderator)

	P_{MX}	P_{YM}	Direct Effects (P_{YX})	Indirect Effects ($P_{YM}P_{MX}$)	Total Effects ($P_{YX} + P_{YM}P_{MX}$)
<i>When internal pay standing are low</i>					
Simple paths for low self-esteem	0.512**	0.042	0.238**	0.022†	0.260**
Simple paths for high self-esteem	0.512**	0.042	0.195**	0.022†	0.216**
<i>When internal pay standing are high</i>					
Simple paths for low self-esteem	0.320**	0.042	0.157**	0.013	0.171**
Simple paths for high self-esteem	0.320**	0.042	0.113**	0.013	0.127**

Notes. $n = 614$. Coefficients in bold are significantly different across internal pay standing levels.

P_{MX} = path from X (pay differential) to M (envy).

P_{YM} = path from M to Y (social undermining).

P_{YX} = path from X to Y.

† $p < .10$

* $p < .05$

** $p < .01$

Table 9: Results of Hierarchical Linear Modeling Analyses: Work effort as a Dependent Variable

Variables	Model 1	Model 2	Model 3
Control Variables			
Tenure	.04	.04	.04
Gender	.09	.07	.06
Performance	.41 **	.39 **	.35 **
Pay knowledge	.15 *	.14 *	.16 *
Social desirability	.21 *	.19	.18
Internal pay standing	-.09 *	-.07	-.08
Main Effect			
Envy		.09	.10
Self-esteem (SE)			.18
Envy × SE			-.07 *
Log likelihood	-207.51	-206.78	-206.72

Note: $N = 186$ members of 46 teams. Standardized coefficients are reported. † $p < .10$. * $p < .05$. ** $p < .01$. One-tailed tests.

I did a post-hoc analysis of self-esteem as a moderator of the relationship between pay differential and envy and also kept internal pay standing as a moderator as well. The results demonstrate that self-esteem significantly moderated the relation between pay differential and envy ($\beta = -.08$, $SE = .03$, $p < .01$). As shown in Figure 5, the pattern of the interaction shows that the positive relation between pay differential and envy was stronger when self-esteem was low.

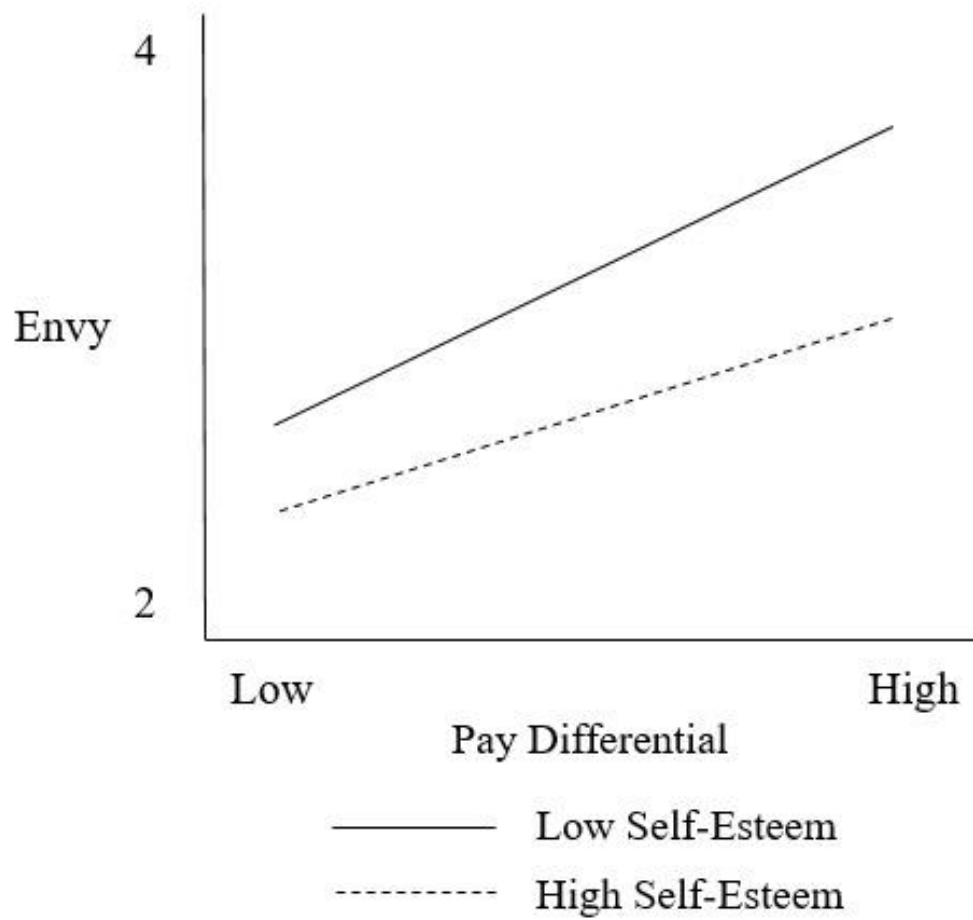


Figure 5: Interactive Effects of the Pay Differential and Self-Esteem on Envy

CHAPTER V

DISCUSSION

The compensation literature has paid relatively little attention to the effects of pay differentials on antisocial behaviors and the mechanism underling the pay differential effects. The current research contributes to the compensation literature in two ways. First, it is one of the first studies that provides a comprehensive framework examining the pay differential effects on envy, social undermining, and work effort in the field setting. Second, this study identifies internal pay standing and self-esteem as important boundary conditions explaining when the associations of pay differential-envy-work effort/social undermining will be strengthened or weakened. Findings suggest that envy partially mediates the pay differential effects on social undermining. Large pay differential is positively associated with an employee's level of envy, and the pay differential-envy association is stronger when an employee's internal pay standing is low. Furthermore, an employee's envy positively relates to social undermining behavior for a lower paid employee, although this relationship is attenuated when the lower paid employee has high self-esteem.

Interpretation of the insignificant pay differential effect on work effort

While the field study provides empirical evidence supporting most of the proposed hypotheses, I failed to find evidence in support of the predictions related to the work effort variable. For example, the proposition that envy would mediate the pay

differential effect on work effort was not supported. There are two possible explanations. First, the results in Table 2 show that the variance of work effort was the smallest when compared to the other two dependent variables (i.e., envy and social undermining). The small variance might suggest a problem of range restriction because people, in general, tend to claim that they are hardworking (Sackett, Laczo, & Arvey, 2002; Sackett & Yang, 2000), which would cause the result to lose significance during data analysis. Future research may want to consider either enlarging the sample size or using more survey items to eliminate the range restriction problem.

Second, the use of a self-report measure for work effort and the consequent social desirability problem might explain the insignificant effects on work effort. The self-reporting approach is appropriate for this research, since it examines employees' intrapersonal perceptions. Since employees' perceptions of their own work effort are based on their envious emotions, evaluating one's work effort by one's colleagues or supervisors (i.e., others' perceptions) would be less meaningful, given the design and purpose of the current research. I acknowledge social desirability as a potential problem, and I controlled for it in the data analyses. However, there could be other complicating factors that have not been captured or eliminated by controlling social desirability alone. Given the unreliability of self-reporting measures for the variable work effort, future research might incorporate objective data, such as ratings by supervisors or human resource data, to cross check for the validity of the construct. Despite the aforementioned problems with measuring work effort, I believe it is worthwhile and necessary to elucidate the pay differential effect on work effort and the role envy plays in this relationship.

Interpretation of the pay differential effect on social undermining via envy

Studies on the effect of pay differentials on destructive behaviors are very limited in the compensation literature (Shaw, 2014). Previous studies have been done in controlled laboratory experiments (Freeman & Gelber, 2006; Harbring & Irlenbusch, 2008). However, the current research is the first, to my knowledge, that provides empirical evidence demonstrating how pay differential influences envy. Specifically, this study shows that large pay differential positively relates to the emotion envy of the lower paid employee, directed at the higher paid employee. This effect was further moderated by the lower paid employee's internal pay standing.

These findings provide important practical implications. For example, organizations might assess their pay structure and provide the lower paid employees opportunities for performance improvement or supporting resources—workshops or paid educational seminars, conferences, continued education, and other organization-wide support of healthier work life style, such as stress reduction workshops, on location gym, child care, and free meal plans—alleviate the negative effect caused by dispersed pay differential. The goal is to improve the lower paid employees' perceptions of their status by improving their quality of life that would be worthwhile for the organization to invest in long-term benefits with short-term costs. Organizations should, however, take care that the benefits do not isolate highly paid employees or give off any indication of inequity among employees.

The findings of the current research also suggest a positive relationship between envy and social undermining behavior, especially for the low self-esteem employees.

Therefore, it may be worthwhile to incorporate self-esteem assessments for employees in the recruiting process to identify those who are low in self-esteem, as they are more likely to carry out antisocial behaviors (e.g., social undermining) when they experience significant envy. Furthermore, from a proactive viewpoint, organizations may consider providing resources to improve employees' self-confidence. From a reactive viewpoint, HR managers or supervisors might consider identifying employees with low self-esteem and placing them in job positions with more compressed pay.

Implications for the SEM model

The current research uses the SEM model and provides new insights for the pay differential effect on behavioral outcomes, which significantly contributes to the pay differential literature. The SEM model posits that people feel threatened when they are outperformed by a similar others in an area that is important to their self-identification, and, as a result, they will behave in a way that would preserve their self-image. The SEM model predicts that when experiencing a threat to self-evaluation, the consequent emotional responses can lead an individual to respond in three possible ways: a) distance oneself from the compared other or by making oneself less similar to the other; b) change the relevancy of the dimension of comparison; c) attempt to alter the rival's outcome (Tesser, 1988). Pay differential posts a threat to the self-identification of a lower paid employee after experiencing social comparison. My findings suggest a positive relationship between pay differential and envy, which then leads to social undermining. Such a relationship supports the SEM model, which predicted envy as a possible response

and the attempts to affect the performance of compared others, such as social undermining, as a possible behavioral consequence.

The dominant theories in pay differential literature, such as tournament theory and equity theory, do explain the pay differential effect as a consequence of whether the pay differential is legitimate and as an effort to balance the input and output ratio of oneself with those of compared others. I concur with these theoretical propositions, but I also posit that the SEM model goes beyond the requirement of legitimacy and can explain the pay differential effect even in the setting of justified pay differential because the pay differential presented a threat to the self-evaluation of the employee. In order to provide supporting evidence for this argument, I tested the current model with and without the actor employee's equity perception in a SRM analysis. The results show similar findings. In these two analyses, the variable, "actor's equity perception," serves as a proxy for the legitimacy concept in a pay differential condition. Therefore, when I controlled for the actor's equity perception, I partialled out the influence of the equity perception (legitimacy) to the outcome variables. To this end, the consistency of my results, with and without the equity perception variable, implies that the legitimacy of a pay differential equity perception may not have meaningful impact on my theoretical model.

In sum, I suggest that the SEM model is an appropriate theoretical framework to apply to the pay differential context because it can be extended to other studies of attitudes and adaptive mechanisms that may be used by employees who feel threatened after experiencing social comparison at work.

Future Research

The current research suggests several directions for future research. First, studies on emotional factors are scarce in the pay differential literature. This research shows a positive relationship between pay differential and the emotion envy. Future studies might investigate how pay differential influences other unpleasant emotional factors, such as anger and frustration, how these emotions may interplay with each other, and the behavioral consequences resulted. This will lend understanding to the complex roles that emotions play in the context of pay differential.

Second, there is limited knowledge on workplace deviance behavior. In this research, I showed how pay differentials influence anti-social behaviors, specifically social undermining. Social undermining is invidious and less violent. How will pay differentials affect other forms of deviant work behaviors (Aquino & Thau, 2009), such as aggression and victimization? Perhaps pay differential leads to these more destructive forms of behavior, and if it does, how does the effect of these overt behaviors compare with the effect of insidious ones, like social undermining?

Third, it would be interesting to carry out a study of antisocial behavior, with a concurrent comparison of within-role behavior and extra-role behavior (such as organizational citizenship behavior, OCB), in a dynamic way under pay differentials context. To my knowledge, there has been no study exploring employees' responses in a pay differential context via a dynamic perspective. All the existing research takes a static viewpoint. However, employees' responses to specific levels of pay differential may be more of a dynamic process, rather than a static one. For example, facing very large pay differential, envious employees may completely disengage proactive behavior, such as

OCB, and instead engage in antisocial activities. In contrast, in response to a lower level pay differential, the lower paid employee may disengage proactive behavior to some extent, but involve more in-role efforts in order to improve his/her status, rather than adopt antisocial social behavior toward the envied targets. Future research could break down the study subjects' response sequences and patterns to see whether there is first a decrease in proactive behavior and then an increase in antisocial behavior.

Fourth, although previous research has explored boundary conditions of pay differential and its outcomes (M. P. Brown et al., 2003; Kepes et al., 2009; Shaw et al., 2002; Yang & Klaas, 2011), only a few situational/contextual factors are known. In this study, I show self-esteem to be an important moderator between envy and social undermining. Such studies are of practical importance, as pay differentials are almost universally found to some extent in the pay structure of all organizations. It would be important for organizations to assess their pay policy and to find ways to reduce the adverse effects of pay differentials. Providing organizational incentives and forms of employee investments would give employees greater perception of support (Jia, Shaw, Tsui, & Park, 2014) and would alleviate the stress of negative emotions as a result of pay differential, which would, in turn, reduce deviant work behavior and encourage constructive ones. To sum up, exploring the moderators from the perspectives of organizational policy, as well as organizational support, is another way to extend the boundary conditions of pay differential consequences.

Finally, my study focuses on horizontal pay differential effects. It would be interesting to investigate how the current findings apply in vertical pay differential scenarios. Conceptually, a reasonable pay differential would exist between high and low

job positions. In a vertical pay differential situation, the social comparison across jobs would likely have different effects on the individual at the lower job level. One would expect envy to play a different role in this context. Because the SEM model would predict that the target for social comparison would not be similar and that there would be decreased psychological identification with the compared others, there would, therefore, be a decreased relevancy of the domain of comparison, as well. Future studies on vertical pay differential effects may want to investigate whether the theoretical model in the current research holds, and if not, how the effects might change.

Limitations

This research has several limitations. First, my interpretation of the result proceeded with a certain causal order. However, since the data is cross-sectional, the direction of causality cannot be firmly determined. I addressed this potential problem in my research design by applying several methods to reduce this concern. Specifically, I collected pay data from the organizational record, measured envy and social undermining using a round-robin method, and measured other variables using supervisors' and employees' responses. Although all of these methods may not fully eliminate this issue, they can alleviate it. In addition, the attribute of the core path model shows a pattern of objective data—emotion factor—response behavior, corresponding to pay differential—envy—social undermining pattern. This sequence is conceptually more reasonable than other sequential possibilities.

Second, I cannot fully rule out the possibility of common method bias (Podsakoff, Mackenzie, Lee, & Podsakoff, 2003). However, I made efforts to collect data from

multiple sources, such as supervisor rating for the performance and self-rating for envy and work effort and others' rating for the social undermining and objective measure on pay differential. Though I cannot claim that my research method can completely eliminate this concern, I made great effort to separate all possible common method bias sources on the main research model.

Third, all participants in this study are Chinese, and the study was carried out in Taiwan. The Chinese tend to emphasize harmony and interpersonal relationship in their value system (Markus & Kitayama, 1991). In cultures where individualism predominates, I would expect to find an even stronger association between pay differential and envy, as well as between pay differential and social undermining. Therefore, these results should be applied to other cultures with care.

Finally, single-item measures were used in my research design to capture envy and social undermining, in an effort to alleviate participants' workload, given the round-robin design. I was aware of this trade-off between multiple or single item for variable envy and social undermining. There are two reasons in support of adopting single-item measure. First, Wanous, Reichers, and Hudy (1997) reported that single-item measures are valid and have adequate reliability, if the construct captured are obvious and clear to the participants. Prior to carrying out the study, I asked five experts in organizational behavior and human resource management (e.g., PhD or University Professor) to evaluate my items to ensure clarity of the surveys. Second, in my study, I found it is important to balance quality and feasibility of the obtained responses. Case in point, in order to increase the items in the survey for envy and social undermining from 1 to 3, as the minimum requirement for calculating cross items reliability value, for an eight-member

team, each member would need to answer an additional 42 responses. While this might increase limited quality on envy and social undermining measurement, it may also damage data quality of other constructs, due to the burden on the participants to answer a lengthy survey. At the end, I gathered the information on each employee's envy level and social undermining within a team in which all employees had intense interactions with each other. In addition, I captured the construct, social undermining measure, with rating from others rather than self-reporting. While I believe my study design met the reliability and validity requirement according to Wanous et al. (1997), future research may consider the use of multiple items to confirm the findings of this study.

Conclusions

In this research, I introduced the concept of social comparison and used the SEM framework to demonstrate the effects of pay differential on social undermining behavior, and I elucidated the mediating role of envy. Furthermore, I identified internal pay standing and self-esteem as two important moderators in the pay differential—envy—social undermining relationship. Using a multi-level, multi-source, nested data set obtained from high-tech companies in Taiwan, I provided empirical evidence supporting my research model. This study provided an important alternative theoretical perspective with empirical evidence

APPENDIX (QUESTIONNAIRE)

A. *Envy (Kim & Glomb, 2014)*

“How much do you agree with the following statements about your envious feeling toward your coworkers in your workgroup? Please circle the number 1 (strongly disagree) to 5 (strongly agree) to the following question”.

You are under an emotion in which you desire to have the superior qualities, or achievements that your coworker owns.

B. *Work effort (Brown & Leigh, 1996)*

- 1) Other people know me by the long hours I keep.
- 2) My clients/team members know I'm in the office early and always leave late.
- 3) Among my peers, I'm always the first to arrive and the last to leave.
- 4) Few of my peers put in more hours weekly than I do.
- 5) I put in more hours throughout the year than most of our team members do.
- 6) When there's a job to be done, I devote all my energy to getting it done.
- 7) When I work, I do so with intensity.
- 8) I work at my full capacity in all my job duties.
- 9) I strive as hard as I can to be successful in my work.
- 10) When I work, I really exert myself to the fullest.

C. *Social undermining (Duffy et al., 2006; Duffy et al., 2012)*

How much do you agree with the following statements about how each of your coworkers respond to you at work? Please circle the number 1 (strongly disagree) to 5 (strongly agree) to the following question.

The person intentionally engage in behavior that hinders your ability to establish and maintain positive interpersonal relationships, hurts your ability to be successful at work, or damages your reputation.

D. Self-esteem (Greenberger et al., 2003)

- 1) On the whole, I am satisfied with myself.
- 2) At times I think I am no good at all.
- 3) I feel that I have a number of good qualities.
- 4) I am able to do things as well as most other people.
- 5) I feel I do not have much to be proud of.
- 6) I certainly feel useless at times.
- 7) I feel that I'm a person of worth, or at least on an equal plane with others.
- 8) I wish I could have more respect for myself.
- 9) I am inclined to feel that I am a failure.
- 10) I take a positive attitude toward myself.

E. Task Interdependence (Campion, Medsker, & Higgs, 1993)

- 1) I cannot accomplish my tasks without information or materials from other members of my team.
- 2) Other members of my team depend on me for information or materials needed to perform their tasks.
- 3) Within my team, jobs performed by team members are related to one another.

F. Pay Equity Perceptions (Trevor & Wazeter, 2006)

- 1) High performers and low performers seem to get the same pay raises.
- 2) I am paid fairly considering my experience.
- 3) I am paid fairly considering my education.
- 4) I am paid fairly considering my responsibilities.
- 5) I am paid fairly considering other people within the same workgroup.
- 6) I am paid fairly considering other people in this company.
- 7) Overall, I think I am paid fairly.

G. Pay Knowledge (Martin & Lee, 1992)

- 1) How knowledgeable are you about your collective bargaining contract?
- 2) How familiar are you with the pay schedules listed in your contract for people and jobs other than yours?
- 3) How clearly do you know about your pay and the pay of others on your team?

H. Performance (Greenhaus, Parasuraman & Wormley, 1990)

- 1) The quantity of work.
- 2) The quality of work.
- 3) The efficiency of work.
- 4) Upholds highest professional standards.
- 5) The accuracy when performing core job tasks.

I. Social Desirability (Reynolds, 1982)

- 1) There have been occasions when I took advantage of someone.
- 2) I'm always willing to admit it when I make a mistake.
- 3) I sometimes try to get even rather than forgive and forget.
- 4) I am always courteous, even to people who are disagreeable.
- 5) There have been times when I was quite jealous of the good fortune of others.
- 6) It is sometimes hard for me to go on with my work if I am not encouraged.
- 7) I sometimes feel resentful when I don't get my way.
- 8) No matter who I'm talking to, I'm always a good listener.
- 9) I have never been irked when people expressed ideas very different from my own.
- 10) I am sometimes irritated by people who ask favors of me.
- 11) I have never deliberately said something that hurt someone's feelings.

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