

# The effects of Perceived Fairness and Inter-group Relative Performance Feedback on Whistleblowing decisions

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**Abstract.** *This study examines the effect of individuals' fairness perception of the supervisor and inter-group RPF on whistleblowing decision even though individuals are not rewarded for doing so. When individuals are not rewarded for whistleblowing, economics theories predict that a wealth-maximizing individual never reports others. However, individuals can be also motivated by reciprocity and social comparisons. We conduct an experiment with 105 participants. Results show that there is an interactive effect of individuals' fairness perception and inter-group RPF. These results suggest that the presence of an inter-group RPF affect negatively to peer reporting. And also, they suggest that when individuals perceive their supervisor as fair, they will be more likely to behave in a reciprocal way, by reporting peers' overstatements, when inter-group RPF is absent rather than present.*

## **1. Introduction**

Unethical behaviors by employees may be difficult to control in organizations (Tannenbaum, 1968), since there are situations in which direct supervision cannot be possible (Trevino & Victor, 1992). Co-workers often acquire information about other agents that is not directly available to the principal (Fama & Jensen, 1983). Thus, they will be more likely than supervisors to be aware of unethical and opportunistic behaviors (Trevino & Victor, 1992; Zhang, 2008). Co-workers will play an important role in order to detect misconducts in organizations, such as fraud (Nitsch, Baetz & Hughes, 2005). In this vein, management should encourage employees to report unethical behavior internally (Mayer, Nurmohamed, Trevino, Shapiro & Schminke, 2013). Thus, it is important to analyze the factors that increase the likelihood that employees will report such behaviors internally (Mayer et al., 2013). In this study, I examine how the perceived fairness and inter-group RPF influence the peer reporting decision. Specifically, I analyze if individuals will be more willing to report peers' overstatement when they perceive their supervisor as fair rather than unfair, even though they are not rewarded for doing so. Furthermore, I analyze if this relationship depends on whether an inter-group RPF is present or not.

Individuals are not always willing to report peers' misconduct behaviors. Reporting on peers' misconduct behavior is an act that arouses diverse and conflicting opinion (Reuben & Stephenson, 2012). In the management literature we can find studies which show that individuals are willing to punish peers when they behave opportunistically (see Fehr & Gächter, 2000). Some motivations for reporting peer's overstatements could be the indignation feelings at observing lies (Reuben & Stephenson, 2012), dislike for disadvantageous inequality (Bolton & Ockenfels, 2000; Fehr & Schmidt, 1999), or the competitive preferences (Fershtman & Weiss, 1998; Frank, 1985). On the other hand, research on whistleblowing effects has found that employees are generally reluctant to report such misconducts (Robertson, Stefaniak & Curtis, 2011) because they fear retaliation for reporting or believe such effort will be ineffective (Mayer et al., 2013; Mesmer-Magnus & Viswesvaran, 2005). In addition, some groups may oppose it for

several reasons, such as: (a) because violates a moral obligational loyalty to the group and professional norms of autonomy and self-regulation (Graham, 1986; Swazey & Scher, 1981); (b) because members benefit from engaging in, or overlooking wrongdoing (Near & Miceli, 1985); and (c) because that exposure of wrongdoing may lead to lose their jobs (Greenberg, Miceli & Cohen, 1987).

From an economic point of view, peer reporting could be encouraged by monetary incentives (Miceli, Near & Dworkin, 2009). If individuals are rewarded based on their peer's reporting, a wealth-maximizing individual will always prefer to blow the whistle on a misconducting peer (Zhang, 2008). On the other hand, when individuals are not rewarded based on their peer's reporting, economic theories predict that individuals never report on others because they are indifferent (Reuben & Stephenson, 2012). However, individuals are not only motivated by monetary incentives. Numerous studies have shown that individuals are also motivated by reciprocity (Hannan, 2005) and social comparisons (Luft & Shields, 2009). In this vein, this study analyzes how reciprocity and social comparison affect peer reporting decision when individuals are not rewarded for reporting peers misconduct.

Reciprocity theory states that individuals are willing to reward kind actions and punish unkind actions even though they incur a cost to do so (Hannan, 2005). Zhang (2008) analyzed how individuals' fairness perception of the principal affects the willingness to report others when individuals are rewarded by a peer reporting system (it provides a monetary reward for truthful whistleblowing). According to reciprocity theory, she argues that individuals will be less willing to blow the whistle when they perceive the principal as unfair rather than fair. The reason for that is that individuals who feel exploited by the supervisor are more likely to conduct similar acts as a mechanism to correct perceptions of inequity (Hollinger & Clark, 1983). In this study I try to extend Zhang's (2008) research by analyzing the effect of individuals' fairness perception of the principal on whistleblowing decisions when individuals are not rewarded for doing so. Specifically, I propose that individuals report peers' overstatement more likely when they perceived

that have been treated fairly by their supervisor rather than unfairly, even when they do not receive any reward for peer reporting.

On the other hand, individuals may be motivated by social comparisons too (Luft & Shields, 2009). An inter-group RPF facilitates the social comparison between teams. In inter-group situations, individuals have the desire to make favorable comparisons of one's own group against other out-groups (Hogg, 2000; Lount & Phillips, 2007; Tajfel & Turner, 1986). In this vein, several studies have found that inter-group social comparison can eliminate motivation loss (Erev, Bornstein & Galili, 1993; Harkins and Szymanski, 1989; Ouwerkerk & Ellemers, 2002; Worchel, Rothgerger, Day, Hart & Butemeyer, 1998). However, the peer's overstatement can increase the possibility to achieve favorable comparisons. Thus, I propose that, in order to try to obtain a positive comparison relative to other teams, individuals report peers' overstatement less likely when an inter-group RPF is present than when it is absent. In addition, I propose that the presence of an inter-group PRF will decrease the effect of individuals' perceive fairness on whistleblowing decision. When an inter-group RPF is present, individuals will be more focus on his relationship with the other teams rather than how they are treated by their supervisor (Kelly & Tan, 2010).

I tested my expectations in an experiment among 105 graduate students. I analyzed the actual peer reporting rather than the intentions to report. The meta-analysis of whistleblowing studies carried out by Mesmer-Magnus & Viswesvaran (2005) showed that the predictors of whistleblowing intentions are not necessarily the same as the predictors of actual whistleblowing (Miceli et al., 2009). Thus, I try to cover a research limitation on whistleblowing behavior, where authors measured the intention to blow the whistle rather than the actual whistleblowing (Mesmer-Magnus & Viswesvaran, 2005; Miceli et al., 2009).

In this experiment, a team member was given the opportunity to lie by overstating their results in order to receive a higher payoff and another team member observed the behavior of his/her teammate. Those individuals who observed overstating had the

opportunity to report others. Individuals who were reported for overstating their results were sanctioned. However, individuals who report other did not receive any monetary reward from their action (Reuben & Stephenson, 2012). In this experiment, the independent variables were the individuals' fairness perception of the principal (low vs. high) and the inter-group PRF (present vs. absent).

Contrary my expectations, I did not find a significant effect of individuals' fairness perception of the principal on peer reporting decision. On the other hand, according to my expectations, the experimental results showed that individuals reported peer's overstatements in a lower extent when an inter-group RPF was present. Also, they showed that when individuals perceive their supervisor as fair, they will be more likely to behave in a reciprocal way, when inter-group RPF is absent rather than present. This result suggests that the peer reporting decision will be more driven by inter-group competition rather than reciprocity.

This study contributes to management accounting research by extending our knowledge about how different control systems influence employees' decisions about whether report internally or not unethical behaviors. In organizations, control systems are implemented together other control systems and organizational practices, thus examining the interactive effect of different control systems and organizational practices is an important issue to firms (Kelly & Tan, 2010). In this vein, this study analyzed the interactive effect of individuals' fairness perception and inter-group RPF. In addition, unlike Zhang's (2008) study I focused on a setting in which employees did not receive a monetary reward for whistleblowing because this is not common in practice (Towry, 2003). On the other hand, previous accounting literature has focused on how relative performance feedback influence on performance (Hannan, Krishnan & Newman, 2008; Hannan, McPhee, Newman & Tafkov, 2013; Murthy & Schafer, 2011; Tafkov, 2013). However, I try to show that not only it is important to analyze the effect of providing relative information on performance, but also to understand how this information could affect to other individual behaviors.

## **2. Hypotheses development**

### **2.1. *Effect of individual's fairness perception on whistleblowing decision***

The individuals' fairness perception of the principal is an important determinant in the individuals' willingness to blow the whistle (Miceli, Near & Schwenk, 1991; Zhang, 2008). Employees who perceive that they are treated fairly by their employer are more likely to frame the relationship as based upon mutual social exchange, advancing behaviors intended to benefit the organization, such as whistleblowing (Seifert, Sweeney, Joireman & Thornton, 2010). They could believe that they owe something in return to the supervisor, and as a consequence they are motivated to engage in an extra-role behavior which benefits their supervisors (Trevino & Weaver, 2001). Thus, peer reporting could be seen as a behavioral response to the perception of fairness since it may be considered an additional task for the employee to help the management (Douhou, Magnus & Van Soest, 2012; Victor, Trevino & Shapiro, 1993). This response to the perception of fairness can be explained by the reciprocity theory.

Reciprocity theory states that people want to be nice to those who treat them fairly and want to punish those who hurt them (Fehr & Schmidt, 1999; Rabin, 1993). People engage in reciprocity even in the absence of any expectation of future interactions or material benefits because they have a social preference for being treated kindly (Hannan, 2005). Thus, people reward kind intentions and punish unkind intentions, even though it may be a cost to do so (Hannan, 2005). In this vein, Kelly & Tan (2010) and Hannan (2005) argue and find that employees who receive a larger profit-sharing or a higher wage from their firm would reciprocate with behaviors that benefit their firm even when those behaviors are not extrinsically rewarded or contractually enforceable.

Therefore, based on reciprocity theory, if employees perceive that they are being treated fairly, they should be more willing to benefit their organizations by engaging in extra-role behaviors (Seifert et al., 2010; Trevino & Weaver, 2001). Thus, when a team member overstates his result which has negative consequences for the organization, the teammates will be more willing to blow the whistle in order to help the organization when

they perceive their supervisor as fair rather than unfair. That is, I propose a positive relationship between individual's perceive fairness of the principal and the likelihood that individuals report peers' overstatement.

*H1: Individuals will be more likely to report peers' overstatement when individuals perceive their supervisor as fair rather than unfair.*

## **2.2. Direct and moderated effect of inter-group RPF on whistleblowing decision**

Economic theories assume that people compete for monetary rewards, however social comparison theory argues that people also compete for non-monetary rewards (Greenberg, Ashton-James & Ashkanasy, 2007; Smith, 2000). In addition, social comparisons not only occur between individuals but also between teams (Munkes & Diehl, 2003), since people not only compare themselves with others, but also compare the group to which they belong with other groups (Goethals & Darley, 1987; Williams & Karau, 1991).

Inter-group settings encourage higher levels of competition (Lount & Phillips, 2007). The opportunity for inter-group comparison creates a "social competition" to see one's own group as better than an out-group (Turner, 1975; Lount & Phillips, 2007). That is, when inter-group comparison is possible, people have the desire to make favorable comparisons of one's group against other groups (Hogg, 2000; Lount & Phillips, 2007; Tajfel & Turner, 1986). An inter-group RPF provides information about the performance of different teams. This information facilitates inter-group comparisons since it allows individuals compare their own group performance to other groups. Thus, an inter-group RPF could encourage social competition among teams.

Several studies have found that inter-group settings can reduce the lack of motivation (Erev et al., 1993; Ouwerkerk & Ellemers, 2002; Worchel et al., 1998), since it encourages higher effort of team members in order to maintain a positive self-image (Beach & Tesser,

1995; Tesser, 1988) and promotes within-group collaborations (Baer, Leenders, Oldham & Vadera, 2010; Burton-Chellew, Ross-Gillespie & West, 2010). However, when a team member overstates his/her results, the likelihood to obtain favorable comparison relative to other teams increases. Thus, the higher within-group collaboration that inter-group competition encourages could motivate team members to cover their teammates. Therefore, in order to try to obtain a better position compared to other groups (Munkes & Diehl, 2003), I expect that individuals will be less willing to report peers' overstatement when an inter-group RPF is present than when it is absent. Thus, I formulate the following hypothesis:

*H2: Individuals will be less likely to report peers' overstatement when inter-group RPF is present rather than absent.*

Finally, I consider whether the inter-group RPF could moderate the relationship between individual's fairness perception of the principal and whistleblowing decision. Based on Kelly & Tan (2010), I expect that introducing a feedback system that reports the teams' performance may increase the focus of individuals on the relationship of their group with other groups and shift their focus away from how they perceive their supervisor. Thus, when an inter-group RPF is present, the whistleblowing decision would be driven by the inter-group competition rather than the individual's fairness perception of the principal. That is, when individuals perceive their supervisor as fair, I expect that they will be more willing to report peers' overstatements when inter-group RPF is absent than when it is present.

*H3: Inter-group RPF will reduce the positive relationship between individuals' fairness perception and the likelihood of reporting peers' overstatement.*



### **3. Research Method: Experimental design**

In order to test my hypotheses I used an experiment in which participated 105 graduate students from Pablo de Olavide University. The choice of such participants is due to the fact that it was not needed any specific knowledge or previous experience to carry out the task. Students participated in the experiment on a voluntary and anonymous way, and they gained real monetary rewards for their participation.

#### **3.1. *Experiment design and task description***

In this experiment, the participants worked in groups of three people, in which one participant played the role of supervisor and the other two ones played the role of employee. These groups were formed randomly by the computer. Each session of this experiment consisted in eight periods. In each period each individual was matched with two new participants (Zhang, 2008). Participants were not repeatedly matched to avoid extraneous variables as explanations for the employees' behaviors (Zhang, 2008). The subject could not know the identity of the participants who formed their teams.

I used Z-Tree Software to program the task of this experiment (Fischbacher, 2007). The task that participants had to carry out depended on the role that they played. Although, there were two employees in the team, only one (Employee A) performed the task. The task was based on Gill and Prowse (2012), and it consisted of a screen with 48 sliders. Each slider was initially positioned at 0 and could be moved as far as 100. The team received a point for each slider that Employee A positioned exactly 50. They were allotted 2 minutes per period. In each period, after Employee A finalized the task, they received information about their results and then, they had to communicate how many points they had obtained. On the other hand, Employee B observed both the actual result obtained by Employee A as his/her reported result in each period. If employee A overstated his/her results, Employee B had the opportunity to ask that the Employee A will be revised. Finally, the task of the Supervisor was to choose which the employee B's reward was.

Employee B knew which his/her wage was before to decide whether report or not peer's overstatement.

The reward of Employee A depended on the number of points that he/she had reported. The employees A was informed that the computer did not check whether the reported points matched the actual points that he/she obtained. The computer only checked this when Employee B decided that Employee A had to be revised. In the case that Employee B decided that Employee A had to be revised, Employee A's reward depended on the actual points that he/she obtained and not on the reported points, and he/she was fined. Specifically, the reward of Employee A was:

$$\text{Employee A's reward} = 1100 \text{ LECUS}^1 + V;$$

Where:

$$V = \begin{cases} 10 \times \text{Reported points}, & \text{if Employee B decided not to blow the whistle} \\ 10 \times \text{Actual points} - 800, & \text{if Employee B decided to blow the whistle} \end{cases}$$

The reward of Employee B was chosen by the Supervisor. That is, the reward of Employee B was fixed, it did not depend on his/her whistleblowing decision. The Supervisor chose a wage for Employee B which ranged between 650 LECUS and 1450 LECUS and Employee B knew it.

Finally, the Supervisor reward was determined by the results of the Employee A and the wages of both employees. Specifically, the reward of the Supervisor was:

$$\text{Supervisor's reward} = 3050 \text{ LECUS} + 15 \times \text{Actual points} - \text{Wage B} - \text{Employee A's reward};$$

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<sup>1</sup> LECUS is the fictitious currency which was used in this experiment. At the end of the experiment, the total LECUS obtained was converted to EUROS (160 LECUS = 1 EURO).

### **3.2. Variable Manipulation and measurement**

The dependent variable of this study was the whistleblowing decision. I measured this variable in two ways. On one hand, I measured this variable as a dummy variable, which indicates whether the participant blew the whistle or not (Reuben & Stephenson, 2012). On the other hand, similar to Towry (2003) and Zhang (2008), I measured the dependent variable as the percentage of whistleblowing (the number of times that the participant decided to blow the whistle divided by that the number of times that the participant had a teammate who overstated his/her results).

The independent variables of this experiment were the fairness perception and the inter-group RPF. The first one was measured by the wage that the principal chose to pay to agents in each period and by a question which was included in the post-experimental questionnaire (*QB6: Under which value do you consider your wage chosen by your supervisor as low?*). When the principal has the option of choosing a low or a high wage, a principal that chooses a high wage can be seen as giving a gift to the agents (the principal reduces its own wealth by giving a higher wage when it does not have to do) (Zhang, 2008). Thus, this action should be perceived as fairer than the selection of a low wage, since theories of social justice suggest that feelings of unfairness will arise if people perceive that they receive lower outcomes than others or lower outcomes that they expected (Grienberger, Rutte & Van Knippenberg, 1997). I considered that the wage was low when it was lower than the value that they answered in the question QB6 ( $WAGE < QB6$ ) and high when it was higher ( $WAGE \geq QB6$ ).

On the other hand, inter-group RPF was manipulated by providing or not to the participants information about the performance of their own team as well as about the performance of the rest of the teams in the session. In the case that inter-group RPF was absent, they did not receive information about other teams' performance.

#### **4. Results**

In order to check if the chosen wage affected participants' fairness perception of the supervisor, I included two questions in the post-experimental questionnaire. Employees B were asked how fair their supervisor was when they chose a low (high) wage. Results showed that the participants' fairness perception was affected by the chosen wage. Participants considered fairer their supervisor when they provided them a high wage than when provided a low wage ( $t=-5.963$ ,  $p\text{-value}<0.001$ ). When inter-group RPF was absent, the mean fairness rating for the supervisor was significantly lower when the supervisor chose a low wage (1.95) than when chose a high wage (3.53) ( $t=-4.187$ ,  $p\text{-value}<0.01$ ). When inter-group RPF was present, I found the same result, the mean fairness rating for the supervisor was significantly lower when the supervisor chose a low wage (2.25) than when chose a high wage (3.69) ( $t=-4.213$ ,  $p\text{-value}<0.01$ ). Therefore, the wage chosen by the supervisor compared with the wage under which individuals consider as low wage was used as a measure of the participants' fairness perception of the supervisor. Specifically, I considered that the fairness perception was low when individuals received a low wage and high when they received a high wage.

##### **4.1. Descriptive Statistics**

In this experiment participated 105 subjects which repeated the same task during eight periods. Of these participants, 35 played the role of Employee B. They were the participants who had the opportunity to report peers' overstatements. However, Employee B only had this opportunity when the other employee of his/her group had overstated his/her result. Thus, I focused only on the observations in which the Employee A (who had the possibility to overstate his/her result) overstated his/her result. Employees B had the opportunity to blow the whistle 83 times.

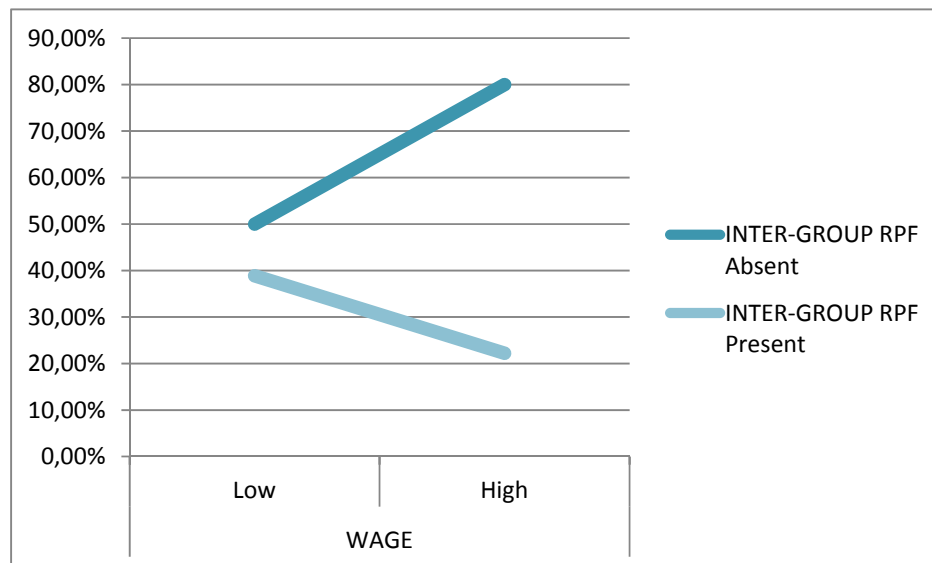
Table 4.1 (17) reports the descriptive statistics for the mean wage, the number of times that was chosen a low (high) wage by the Supervisor, the number of times that Employees A overstated their results and the whistleblowing decision. Figure 4.1 (6) shows a graphical summary of the whistleblowing decision.

**TABLE 4.1 (1). Descriptive Statistics**

	INTER-GROUP RPF ABSENT			INTER-GROUP RPF PRESENT			TOTAL		
	Low wage	High wage	Total	Low wage	High wage	Total	Low wage	High wage	Total
<b>Mean wage (Std. Dev)</b>	721.48 (66.76)	1066 (214.07)	854.66 (220.39)	706.30 (78.37)	1061.62 (212.16)	852.08 (229.51)	714.50 (71.98)	1063.97 (209.80)	853.45 (223.34)
<b>% Chosen wage</b>	63.36% (27/44)	38.64% (17/44)	-	58.97% (23/39)	41.03% (16/39)	-	60.24% (50/83)	39.76% (33/83)	-
<b>Number of overstatements</b>	27	17	44	23	16	39	50	33	83
<b>% of Whistleblowing</b>	48.15% (13/23)	70.59% (12/17)	56.82% (25/44)	47.83% (11/23)	31.23% (5/16)	41.02% (16/39)	48% (24/50)	51.52% (17/33)	49.40% (41/83)

The mean wage chosen by the supervisors was 853.45 LECUS (SD=223.34). Specifically, when inter-group RPF was absent (present) the mean wage was 854.66 (852.08). There is not significant differences in the mean wage chosen by the supervisor when an inter-group RPF was present or absent ( $F=0.003$ ,  $p\text{-value}>0.1$ ). In addition, these differences are not significant regardless supervisor chose a high ( $F=0.004$ ,  $p\text{-value}>0.1$ ) or a low wage ( $F=0.547$ ,  $p\text{-value}>0.1$ ). Also, I did not find significant differences in the wages between the periods ( $F=0.708$ ,  $p\text{-value}>0.1$ ).

**FIGURE 4.1 (1). Whistleblowing decision**



The descriptive statistics showed that the percentage of whistleblowing was higher when supervisor chose a high wage than a low wage, which is consistent with my first hypothesis. However, this happened only when inter-group RPF was absent. That is, this descriptive statistics showed that the effect of fairness perception depends on whether an inter-group RPF was present or not, such as I proposed in the third hypothesis. Consistent with my second hypothesis, the percentage of whistleblowing was higher when an inter-group RPF was absent than when it was present.

#### **4.2. Hypotheses test**

In order to test my hypotheses about the influence of perceived fairness and inter-group RPF on whistleblowing decisions, I carried out two different analyses. One in which the dependent variable was a dummy variable which indicates if individual  $i$  reported his/her peer for overstating the results in period  $z$  (A). And another one in which the dependent variable was the percentage of whistleblowing (B).

### A) Whistleblowing decision as a dummy variable

In order to examine the effect of perceived fairness and inter-group on whistleblowing decision I ran a logit regression. The dependent variable indicated if individuals reported their peers for overstating their results (dummy variable). As independent variable I used: i) fairness perception: a dummy variable equal to one if the supervisor chose a high wage and zero when chose a low wage; ii) inter-group RPF: a dummy variable equal to one when inter-group RPF is present; and iii) an interaction term between i) and ii).

Results on Table 4.2 (18) show that there is a marginally significant effect of inter-group RPF (p-value=0.077), but there is not a main effect of fairness perception (p-value=0.793). Also, they show a marginally significant interaction effect of these two variables (p-value=0.081). These results do not support the first hypothesis, which predicts that fairness perception influence positively on whistleblowing decision. On the other hand, the hypothesis 2, which predicts that individuals blow the whistle in lower extent when inter-group RPF is present, is supported. In addition, as I predicted in hypothesis 3, there is a significant interaction effect.

**TABLE 4.2 (2). LOGIT REGRESSION. Effects on whistleblowing decisions**

	<b>B</b>	<b>S. E.</b>	<b>Wald</b>	<b>df</b>	<b>p-value</b>	<b>Exp (<math>\beta</math>)</b>
Inter-group RPF	-0.838	0.474	3.135	1	0.077	0.432
Perceived Fairness	0.124	0.474	0.069	1	0.793	1.132
Inter-group RPF * Perceived Fairness	-1.651	0.947	3.039	1	0.081	0.192
Constant	-0.019	0.237	0.006	1	0.938	0.982

Hypothesis 3 predicts that the positive effect of perceived fairness on whistleblowing decision is mitigated when an inter-group RPF is present. The simple effects analysis shows that when supervisor choose a high wage, individuals decide to blow the whistle in a significant higher extent when inter-group RPF is absent than when it is present (p-value=0.028). I argued that when inter-group RPF is present individuals focus more on comparing their group with other groups than on how they are treated by the supervisor. In this vein, I expected that when individuals perceive that they are being treated fairly by their supervisor, they responded in a reciprocal way when inter-group RPF was absent, but not when it was present. Results showed that when individuals perceived their supervisor as fair, they were less willing to blow the whistle when inter-group RPF was present than when it was absent. The simple effects are shown in the Table 4.3 (19).

**TABLE 4.3 (3). Simple effects**

	$\beta$	S.E.	Wald	df	p-value	Exp( $\beta$ )
Effect of perceived fairness when inter-group RPF is absent	-0.950	0.657	2.089	1	0.148	0.387
Effect of perceived fairness when inter-group RPF is present	0.701	0.682	1.058	1	0.304	2.017
Effect of inter-group RPF when perceived fairness is low	0.013	0.568	0.001	1	0.982	1.013
Effect of inter-group RPF when perceived fairness is high	1.664	0.758	4.821	1	0.028	5.280



## **B) Whistleblowing decision as the percentage of whistleblowing**

In this analysis whistleblowing decision was measured as the percentage of whistleblowing (Towry, 2003; Zhang, 2008). Following Zhang (2008), I selected the Employees B who had overstating teammates both when they received a low wage and when they received a high wage (19 participants). I calculated two whistleblowing percentages for each of them: one for when supervisors chose a low wage and another for when they chose a high wage. The denominator of the percentage for the low (high) wage condition was the number of times that an Employee B had a teammate who overstated his/her result when he/she received the low (high) wage. The numerator was the number of times the employee B blew the whistle in that situation.

In order to test the hypotheses I ran a repeated-measure ANOVA. The results (see Table 4.4 (20), panel A and Figure 4.2 (7)) show that there was a significant direct effect of inter-group RPF ( $p$ -value=0.043), but there was not a main effect of fairness perception ( $p$ -value=0.603), and a marginally interaction effect of these factors ( $p$ -value=0.081).

Therefore, I did not find support for the hypothesis 1, which predicts a positive effect of fairness perception on the likelihood of whistleblowing. On the other hand, consistent with the second hypothesis, my results showed that the percentage of whistleblowing was significantly lower when inter-group RPF was present than when it was absent. Therefore, the second hypothesis was supported.

In addition, I found support for hypothesis 3 in this analysis also. The percentage of whistleblowing was significantly higher when the supervisor choose a high wage and an inter-group RPF was absent rather than present ( $p$ -value=0.005). This result suggested that, in spite of individuals perceived that they were treated fairly by their supervisor, they blow the whistle in lower extent when inter-group RPF was present than when it was absent.

**TABLE 4.4 (4). REPEATED-MEASURE ANOVA. Effects on whistleblowing percentage****PANEL A: MAIN EFFECTS**

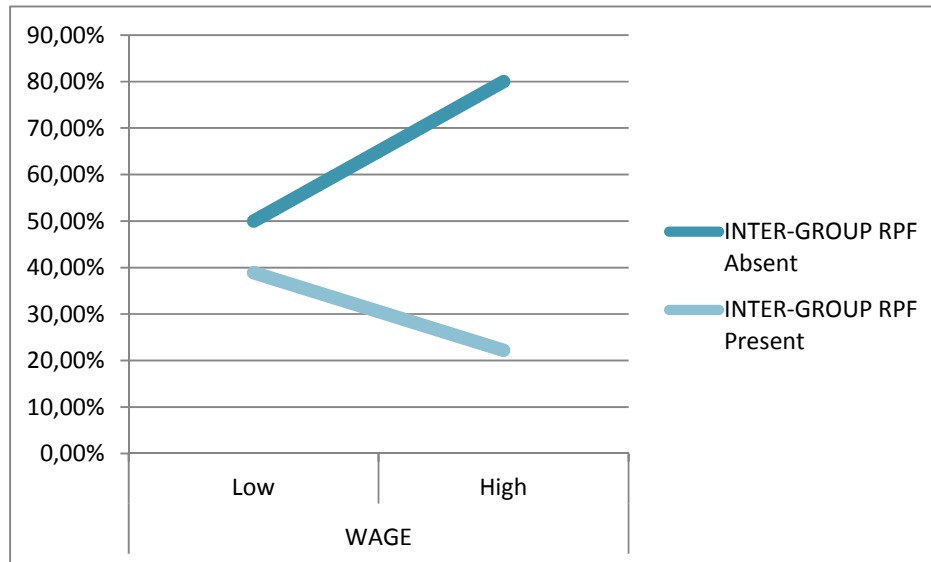
	<b>df</b>	<b>F</b>	<b>p-value</b>
Fairness perception	1	0.281	0.603
Inter-group RPF	1	4.784	0.043
Fairness perception * Inter-group RPF	1	3.439	0.081
Error	17		

**PANEL B: SIMPLE EFFECTS**

	<b>Df</b>	<b>F</b>	<b>Sig.</b>
Effect of Fairness perception when inter-group RPF is absent	1	5.062	0.051
Effect of Fairness perception when inter-group RPF is present	1	0.571	0.471
Effect of inter-group RPF when fairness perception is low	1	0.256	0.620
Effect of inter-group RPF when fairness perception is high	1	10.123	0.005

Simple effects analysis (see Table 4.4 (20), Panel B) revealed that when inter-group RPF was absent, the percentage of whistleblowing was significantly higher when the perceived fairness was high than when it was low (p-value=0.051). However, when inter-group RPF was present, there was no significant difference between when the perceived fairness was high or low (p-value=0.471). These results indicated that the positive effect that the fairness perception had on the whistleblowing decision when inter-group RPF was absent, it was mitigated when an inter-group RPF was present.

**FIGURE 4.2 (2). Percentage of whistleblowing**



Altogether, both analyses suggested that there was a significant interaction effect of perceived fairness and inter-group RPF on the whistleblowing decision. Consistent with my third hypothesis, in spite that individuals perceived that they were treated fairly, they blow the whistle less when an inter-group RPF was present than when it was absent. Relative to main effects, both analyses did not support hypothesis 1. There was not a significant positive relationship between fairness perception and whistleblowing decision. The simple effects analysis of my second analysis showed that this relationship was positive and significant only when inter-group RPF was absent. On the other hand, the main effect predicted by hypothesis 2 (inter-group RPF main effect) was supported by both analyses.

### 4.3. Supplemental analysis

#### A) Employee A behavior

According to the social comparison theory, I would expect that when inter-group RPF is present, Employees A will exert a higher effort or that they will be more willing to overstate their results in order to achieve a favorable comparison relative to other teams. In this section, I analyze these expectations. Table 4.5 (21) shows some descriptive statistics about Employee A behavior.

**TABLE 4.5 (5). Employee A behavior**

	INTER-GROUP RPF ABSENT			INTER-GROUP RPF PRESENT			TOTAL		
	Low wage	High wage	Total	Low wage	High wage	Total	Low wage	High wage	Total
<b>Mean effort (Std. Dev)</b>	16.15 (7.78)	17.52 (7.74)	16.74 (7.77)	17.36 (9.06)	18.64 (11.61)	17.95 (10.29)	16.69 (8.36)	18.06 (9.75)	17.29 (9.01)
<b>Mean Honesty</b>	93.60 %	92.85 %	93.28%	88.18 %	91.55 %	89.69%	91.20%	92.25%	91.66%
<b>% Overstate</b>	31.03 % (27/87 )	26.15 % (17/65 )	28.95% (44/152 )	33.33 % (23/69 )	27.12 % (16/59 )	30.47% (39/128 )	32.05(50/156 )	26.61 (33/124 )	29.64% (83/280 )
<b>Mean Overstatement (Std. Dev)</b>	7.93 (6.46)	9.12 (9.70)	8.39 (7.78)	13.74 (13.89)	11.50 (12.44)	12.82 (13.19)	10.60 (10.83)	10.27 (11.00)	10.47 (10.83)

Unlike what social comparison theory could predict, I did not find that the effort of the participants was significantly higher when inter-group RPF was present than it was absent ( $F=1.266$ ,  $p\text{-value}=0.261$ ). However, rather than to increase their effort, in order to obtain a positive comparison relative to other groups, individuals may be more willing to

overstate their results. In order to test this, I focused on the honesty in performance reporting, the percentage of people who overstate their results and the mean overstatement.

Honesty was measured as  $1 - \text{Overstatement} / \text{Overstatement Available}$  (Evans, Hannan, Krishnan & Moser, 2001). Individuals were less honest (near to significant) when inter-group RPF was present than when it was absent ( $F=2.580$ ,  $p\text{-value}=0.109$ ). The difference in honesty was significant between inter-group RPF present versus absent when the wage chosen by the supervisor was low ( $F=3.335$ ,  $p\text{-value}=0.070$ ). It could be explained because Employee A could think that Employees B would be less willing to peer reporting when the supervisor chose a low wage. However, this explanation did not make sense in my experiment, because Employee A did not know which the wage chosen by the supervisor was.

On the other hand, I did not find any significant differences between the percentage of people who overstate their results when inter-group RPF was absent vs. present ( $W=0.077$ ,  $p\text{-value}=0.781$ ). However, consistent with the social comparison theory, I found that when individuals overstated their results, they did it in a significant higher extent when inter-group RPF was present than when it was absent ( $F=3.571$ ,  $p\text{-value}=0.062$ ). However, like it happened with honesty in performance reporting, the significant differences in individual's overstatements between inter-group RPF absent vs. present only happened when the supervisor chose a low wage ( $F=3.780$ ,  $p\text{-value}=0.058$ ).

An explanation for this unexpected result could be that Employees A believed that their peers are not going to report them to the Supervisor. Employees A could think that their peers are not going to report them when they observed in previous periods that other Employees B did not do it. According to this, I found that individuals' overstatements were significant higher when inter-group RPF was present than when it is absent, but only when individual observe that Employee B did not peer report in the previous period ( $F= 5.346$ ,  $p\text{-value}=0.024$ ). Related to this, in the post-experimental questionnaire, individuals answer the question: *Did my expectation about whether Employee B will peer reporting or not*

*influence on my decision about overstating or not my results?* (scale range from 1 to 5). The participants' mean response for this question was 3.94 (SD=1.51), significantly differ from the midpoint of 3 ( $t=3.685$ ,  $p\text{-value}=0.001$ ). Thus, these results suggested that individuals would overstate their results more when inter-group RPF was present according to the social comparison theory, when they believed that their peers were not going to report this behavior to the supervisor. Therefore, an explanation for this unexpected result could be that it would be more likely when individual think that Employee B is not going to peer reporting. As the Employees A, the Supervisor could think that the Employee B is not going to report peers' overstatement if they observed this in other Employees B in the previous period. However, the results do not support this explanation. The previous decision about peer reporting did not have a significant influence on the wage chosen by the supervisor ( $W=0.457$ ,  $p\text{-value}=0.499$ ).

## **5. Discussion and Conclusions**

This study tried to extend our knowledge about the factors which affect the likelihood that individuals report unethical behaviors internally (internal whistleblowing). In a setting in which individuals are not rewarded based on their report about peers' behaviors, a wealth-maximizing individual never reports others because they are indifferent to outcomes others (Reuben & Stephenson, 2012). However, individuals are not only motivated by monetary incentives. Numerous studies have shown that individuals are also motivated by reciprocity (Hannan, 2005) and social comparisons (Luft & Shields, 2009). In this vein, this study analyzed the effect of individuals' fairness perception of the supervisor and inter-group RPF on peer reporting decision even though individuals are not rewarded for doing so.

The results of this study generally support hypotheses 2 and 3, which predict a negative effect of inter-group RPF and an interaction effect of fairness perception and inter-group RPF on whistleblowing decision respectively. However, they did not support hypothesis 1, which predicts that individuals' fairness perception of the supervisor affect positively to

whistleblowing decisions. These results suggest that individuals in order to achieve a favorable comparison relative to other teams, will be less willing to report peers' overstatements when inter-group RPF is present than when it is absent. Furthermore, when individuals perceive that they are being treated fairly by their supervisor, they will be less likely to behave in a reciprocal way when inter-group RPF is present. The results show that when individuals perceive they have been treated fairly by their supervisor, they report in lower extent peers' overstatement when inter-group RPF is present than when it is absent. In addition, results suggest that only when inter-group RPF is absent, individuals will help more the organization by whistleblowing when they perceive that they are treated fairly by the supervisor rather than unfairly (simple effects, second analysis).

In addition, results show that, according to the social comparison theory, individual overstatements will be higher when an inter-group RPF is present rather than absent. However, this will happen when individuals believe that their peers are not going to report to the supervisor their behavior. On the other hand, I found that the individual overstatements were significantly higher when inter-group RPF was present than it was absent, whenever the supervisor chose a low wage. This could be explained by what the Supervisor believes about whether Employee B is going to peer reporting or not. Therefore, I could expect that it will be more likely that the Supervisor chose a low wage when the Employee B did not report in the previous period. However, the results did not support this explanation.

Most of the studies about RPF focus on the effects on performance (e. g. Hannan et al., 2008; 2013; Murphy & Schafer, 2011; Tafkov, 2013). However, it is not only important to understand how inter-group RPF affect performance, but also it is important understand how this information may affect other individual behaviors. In this vein, this study analyzed the effect of RPF (inter-group RPF) on whistleblowing decisions. In addition, due to the fact that control systems are implemented together other control systems or organizational practices, it is important to analyze the interactive effect of different control systems and organizational practices (Kelly & tan, 2010). This study contributed to

this issue by examining the interactive effect of inter-group RPF and individuals' fairness perception of the supervisor. I analyzed the individuals' fairness perception of the principal since it plays an important role in whistleblowing decision (Miceli et al., 1991; Zhang, 2008).

On the other hand, this study has several limitations which should be noted. As Zhang's (2008) study, I assume that employees can perfectly observe each other, however in practice, employees only be able to imperfectly observe them. Another limitation of this study is the reduced sample size. Thus, future research could replicate the experiment with a bigger sample. In addition, similar to Zhang (2008), the fairness perception in this study is based on how fair individuals perceive the wage provided by their supervisor. However, individuals' fairness perception of the supervisor could be based on interpersonal relationships. Thus, future research could extend this issue. Finally, in this study, I only focus on the relationship between the employee who has the opportunity to peer reporting and the supervisor. I have not taken into account the relationship between this employee with his/her peer and the relationship between the employee who overstate his/her result and the supervisor. In this vein, future research could extend this study by analyzing: (1) if it matter whether the supervisor is fair towards the employee who engaged in the misconduct; and (2) if it matter how the relationship is between the potential whistleblower and his/her peer.

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