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Original Research Article

Which is the Better Approach to Accommodate Non-pecuniary Factors in Work Incentive Models: Social Preference or Social Esteem? ♦

Abstract

This study examines the relevance of different approaches related to non-pecuniary factors by distinguishing positive from negative work attitudes (e.g., effort and shirking). Using survey data, we quantify the relative importance of several human resource management practices. Results show that the social esteem approach, including pride and shame, is more prevalent than the social preference approach, including reciprocity and fairness, with respect to effort. However, the latter approach is as important as the former approach with respect to shirking. These results are robust, irrespective of gender. Distinguishing the context of work incentives, either effort of shirking, is crucially important when discussing the effects of non-pecuniary factors.

JEL Classification: J0; J16; J5

Keywords: Effort; Equity; Work Incentives; Pride; Reciprocity; Shirking

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I. Introduction

Work incentive is a chief concern of economists because companies can achieve high performance in terms of productivity and profitability through improved work attitudes of employees. Among the numerous studies made of work incentives, the efficiency wage theory is a particularly influential approach (Akerlof, 1982; Akerlof & Yellen, 1990; Shapiro & Stiglitz, 1984). The efficiency wage theory comprises the so-called gift exchange model of Akerlof and the shirking model of Shapiro and Stiglitz. Although their incentive mechanisms differ, they are common in the respect that a higher wage motivates employees to work hard. More recent studies recognize limitations of the pecuniary approach and increasingly emphasize factors beyond material incentives.[1] Two approaches are often used to analyze non-pecuniary factors in behavior agency theory. One is the social preference approach. The other is the social esteem approach. The former has examined how others affect one's behaviors. Examples include reciprocity and fairness (Fehr, Klein, & Schmidt, 2007; Falk, Fehr, & Fischbacher, 2008).[2] Specifically in the literature, equity is discussed

[1] For example, Dugar (2010) studies nonmonetary sanctions and rewards in a laboratory experiment.

[2] Strategic reciprocity based on pecuniary incentives (e.g., Akerlof, 1982) is included in the social preference approach, although some define reciprocity as "an in-kind response to beneficial or harmful acts ... even if *no material gain* can be expected (Fehr & Gächeter, 2000, p.160)."

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as an important source of reciprocal behavior (Bolton & Ockenfels, 2000; Fehr & Schmidt, 1999). Self-motivation, such as by pride and shame, has particularly been addressed: most people care about how others regard their behavior (Brennan & Pettit, 2004).

We study which approach is more relevant to encompass non-pecuniary factors in work incentive models by examining the relative importance of several factors. For this purpose, we reconstruct work incentive arguments comprehensively by the application of findings related to human behaviors in the recent literature to personnel economics. The approaches distinguish positive and negative attitudes towards work. Dohmen et al. (2009) used the approach, where positive and negative reciprocity reflects different personality traits, in their survey research in Germany. We also introduce asymmetric reactions to human resource management practices. The literature shows that people tend to punish harmful behavior more strongly than they reward beneficial behavior (Fehr & Gächter, 2000; Offerman, 2002). Trivial unfavorable treatment might be sufficient to make employees shirk, although decent favorable treatment can be necessary to induce effort. Additionally, our analyses integrate asymmetric reactions with gender differences in bargaining behavior. The literature shows that women are more willing to accept unfair monetary offers than

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men are (Eckel & Grossman, 2001; Solnick, 2001). We wonder if a similar phenomenon applies when examining the relations between work incentives and non-pecuniary human resource management practices.

The analyses use survey data collected from local employees of multinational companies in Southeast Asia. We use covariance structural analysis in which work incentives are explained by pecuniary and non-pecuniary factors such as equity, job training, relationships with supervisors, company management, social evaluation, and working conditions. In the literature, they are the primary factors affecting work incentives. In our analyses, social evaluation is related to the social esteem approach. Categories aside from job training are related to the social preference approach.

Our analyses show the social esteem approach is more prevalent than the social preference approach when discussing effort, although the latter is as important as the former in terms of shirking behaviors. Factors such as social evaluation and job training are revealed to encourage employees more effectively than other factors do. Self-esteem, which can be held up as a result of good social evaluation of companies, affects employee motivation much more strongly than do less visible factors, such as equity. However, the degrees of impact on shirking do not differ among factors compared to those on effort. Additionally, these results are valid, irrespective of

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gender. We conclude that the relevance of approaches varies depending on which work attitudes we are investigating.

We also confirm that some implications from past laboratory experiments are applicable to the study of work incentives in practical working environments. Employees tend to resist unfavorable treatment more strongly than they reward favorable treatment. The result is consistent with the literature related to asymmetric reactions to favorable and non-favorable treatment. However, our analyses do not show that women are more tolerant of unfavorable non-pecuniary treatment than men are. The degree of impact of protesting unfavorable treatment does not vary between genders. No gender differences are observed in shirking behaviors. Additionally, our analyses reveal that the degree to which some practices motivate employees differs between men and women. Social evaluation accounts for male motivation more importantly than for female motivation, although relationships with supervisors account for female motivation more importantly than for male motivation. These analyses serve as a complement to controlled laboratory experiments because some have questioned whether laboratory results can provide useful practical implications based on unrealistic assumptions (Charness, Frechette, & Kagal, 2004; Fehr & Gächter, 2000; Pereira, N. Silva, & J. Silva, 2006).

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This paper is organized as follows. Section 2 presents a description of data used for the analyses and introduces the model. Results of the analyses are discussed in Section 3. Section 4 concludes the paper.

II. Data and model

The analyses use survey data collected from employees working for foreign plants of 57 Japanese multinational companies in the manufacturing industry. They operate businesses in Malaysia, China, Thailand, Singapore, and Indonesia. All employees working for those plants participated in the survey. Survey questions are related to demographic characteristics, work-related attitudes, and subjective evaluations of human resource management at their respective companies.

The survey was administered during 2005-07 using a placement method with a self-administered questionnaire. To safeguard privacy, particularly for inquiries related to shirking, anonymity is guaranteed. The survey questionnaire explicitly announced to respondents that only individual responses would be used for this research and would not be revealed to supervisors or to their companies. Almost all employees responded to this census survey and the response rate did not vary depending on gender. This helped avoid selection bias of sampling for the

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gender-based study.

Our questionnaire is classified into eight categories of questions: two types of work attitudes, equity, social evaluation, job training, relationships with supervisors, company management, and working conditions.

We distinguish work attitudes of two types, effort and shirking. Effort and shirking represent employees' overall work attitudes. Effort comprises factors such as willingness to work hard and to take on extra tasks.[3] Shirking comprises aversion to work. Previous works distinguish negative reciprocity (Camerer & Thaler, 1995; Roth, Prasnikar, Okuno-Fujiwara, & Zamir, 1991; Slonim & Roth, 1998) and positive reciprocity (Fehr, Kirchsteiger, & Riedl, 1993; Berg, Dickhaut, & McCabe, 1995). [4] Distinguishing positive and negative attitudes towards work enables us to use different model specification under which different factors affect work incentives.

Our analyses introduce asymmetric reactions to human resource management practices. Previous studies have shown that people tend to punish harmful behavior more strongly than they reward beneficial behavior (Fehr & Gächter, 2000; Offerman,

[3] A similar measure of work effort is used in the literature such as Clark et al. (2010).

[4] The idea to distinguish negative and positive reciprocity is related to Herzberg's two-factor theory.

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2002). Specifically, several laboratory games reveal inequality aversion: people reject unfair offers to penalize their partners even though they end up with lower pay-offs themselves. Applying similar logic to the labor market, we wonder if employees resist working hard under inequitable treatment, although shirking harms the company's business so that they end up with a lower payment.

In sum, our analyses identify differences in factors that affect effort and shirking, and examine the degree of asymmetric impacts of the factors on work attitudes.

Among recent works related to non-pecuniary work incentives, equity often garners special attention because the literature discusses equity as a main source of reciprocal behavior. Specifically, distributional fairness is the primary focus of the economics literature under laboratory games. However, recent research in industrial psychology has devoted more attention to so-called overall fairness, which includes more than distributional fairness because overall fairness is regarded as a proximal driver of human behavior in reality (Lind, 2001). *Equity* described in this paper is analogous to overall fairness, which includes both pecuniary and non-pecuniary factors. It is beyond the idea of distributional fairness used in laboratory games and represents factors affecting whether employees feel that they are fairly treated.

Other categories of questions are more straightforward. Social evaluation

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represents how a society evaluates the company. Job training comprises factors related to whether the current position provides opportunities for skill development. Relationships with supervisors include factors such as overall feelings and supervision capability. Similarly, company management represents executive managers' attitudes towards employees: whether they care about employee welfare and show respect to employees. Those seven categories encompass non-monetary factors. However, the last category of working conditions includes factors related to monetary compensation such as the level of wages, benefits, and the availability to take leave.

Our analyses can be related to behavior agency theory. Social evaluation in our analyses is related to the social esteem approach. The social evaluation term captures employees' feelings about how others regard their work. However, equity is related to the social preference approach. Other categories such as relationships with supervisors, company management, and working conditions are also related to the social preference approach because those factors affect employee attitudes towards work. For example, employees might appreciate better working conditions offered by employers so that they work hard, as the gift exchange model of Akerlof suggests. Nevertheless, it remains unclear how to classify job training. It can be related to the

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social preference approach if employees appreciate job training opportunities provided by employers. Otherwise, the social esteem approach is more suitable, specifically if the category captures self-attainment in the sense that employees enjoy skill development. Our analytical method includes both the social esteem approach and the social preference approach, although it has a stronger flavor of the latter approach than the former one.

Table 1 presents selected questions used for these analysis. They are prepared by relating previously described literature in economics to the industrial psychology literature (Mowday, Porter, & Steer, 1982; Eisenberger, Armeli, Rexwinkel, Lynch, & Rhodes, 2001). For example, social evaluation is related to the concept of Corporate Social Responsibility. This category includes the factor of whether the company contributes to society and does not conduct socially controversial business activities such as child labor abuse.

Table 2 summarizes the sample used for these analyses. The sample size is 44,562, eliminating a few observations that had missing variables. In our sample, women are slightly more numerous than men. Women comprise about 60% of respondents. Almost all respondents (about 80%) are permanently employed and only 20% of the sample is temporarily employed. Additionally, nearly 40% of the

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sample are observations from Thailand.

We use covariance structural analysis. Our model explains employees' attitudes towards work by such factors as equity, social evaluation, job training, relationships with supervisors, company management, and working conditions. These factors are latent variables: they are not measured directly. We use observed variables presented in Table 1 (survey responses) to infer the latent variables. One may want to think that, for example, an equity variable is derived from three questions as if it were a compound variable.

Our structural equation is expressed as $\mathbf{t} = \mathbf{At} + \mathbf{Bh},$ where $\mathbf{t}$ is a vector of structural variables, **h** is a vector of exogenous variables, and **A** and **B** are matrices of parameters. Structural variables are unobserved latent variables and observed variables (i.e., all variables in Table 1). Exogenous variables are equity, social evaluation, job training, working conditions, and disturbances. The parameters are estimated using maximum likelihood methods so that the population variance-covariance matrix, which is a function of the parameters, approximates its sample variance-covariance matrix.

Using covariance structural analysis, our analyses are designed to address factors beyond the scope of traditional quantitative methods. Factors such as equity and

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effort are non-observable. It is not easy to apply traditional quantitative methods to study the current topic. Similar topics are often analyzed by application of ordered probit models to survey data. Many questions are not used after variable selection when using each question item as an explanatory variable. Covariance structural analysis compounds the information of several questions so that we do not waste collected information. Additionally, we cannot infer the degree of impacts of each independent variable by comparing estimated coefficients obtained under ordered probit models. One might wonder if marginal effects measure the magnitude of coefficients. However, it is necessary to assume the cardinality of Likert scales. The comparison is straightforward under covariance structural analysis because standardized path coefficients reveal the degree of impact of each category, which enables us to evaluate the relative importance of each category.

III. Results of analyses

Table 3 presents the results of the analysis. The first six columns labeled “All” present the results obtained using the whole sample; other columns present the results obtained using sub-samples: Columns 7–12 for men, Columns 13–18 for women. For each latent variable, the first row shows estimated coefficients; the

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second row shows standard errors. Standardized coefficients follow beneath from Row 7.

The importance of equity was confirmed from the formulation of employees' work attitudes. Column 1 presents results obtained under a benchmark model. The coefficient on equity is estimated as positive, which indicates that employees make extraordinary efforts when they feel equally treated. However, other non-monetary factors are more effective to induce effort. The standardized path coefficient is estimated as 0.14 on social evaluation and 0.27 on job training for each compared to 0.04 on equity. Corporate image and job training are revealed to be important in practice. Activities related to corporate social responsibility help not only to promote sales but also to motivate employees through an improved image of a company. Employees are encouraged to work harder if they enjoy working through skill acquisition.

The results imply that visible (or direct) gifts are more effective for inducing employees' efforts than invisible (or indirect) gifts are. A different model specification with the terms of working conditions confirms that implication. In Column 3, the standardized path coefficient on working conditions is estimated to be three times as large as that on equity. Working conditions are visible factors such as

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level of wages, benefits, and the ability to take leaves.

Relations between aspects of equity and work incentives are revealed by comparing results under the benchmark model with those under other specifications. The standardized path coefficient is estimated as 0.02 on equity in Column 3 compared to 0.04 in Column 1. The degree of the impact of Column 3 is weaker than that of Column 1 because equity in Column 1 includes more than distributional fairness. Working conditions are a proxy for employees satisfaction related to monetary compensation. Therefore, the effect of equity aside from pecuniary factors remains in Column 3. Additionally, equity judgments turned out to be influenced strongly by relationships with supervisors. The salient implication is related to interactional justice in organizational justice. Employees tend to feel fairly treated under good relationships with supervisors. They are willing to be dedicated under fair treatment. Therefore, the coefficient of equity is not estimated at the statistically significant level once human relationships are included in Column 2.

Some implications obtained in the effort case apply to analyses of the shirking case. Columns 4–6 present results of the analysis using shirking as a dependent variable. A benchmark model in Column 4 confirms the importance of equity. The coefficient on equity is estimated as negative. Employees shirk if they do not feel

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that they are treated equally. Additionally, the degree of the impacts related to equity is not as large as other non-monetary factors. The standardized path coefficient is estimated as -0.20 on equity compared to -0.28 on social evaluation and -0.23 on job training. However, the degrees of impacts do not vary much among the three factors compared to those in Column 1, where a greater difference is observed. Additionally, the degree to which employees respond to equity is much larger (in absolute value) than the estimate in Column 1.

These results reveal that employees are more sensitive to equity when discussing shirking than when discussing effort. In fact, this statement applies not only to equity but also to almost all other factors in our analyses. We observe asymmetric reactions towards favorable and unfavorable human resource practices. Employees are more sensitive to unfavorable treatment. The results suggest the necessity of distinguishing positive/negative responses (i.e., effort and shirking) when modeling the effects of human resource management practices on work incentives. Although favorable treatment helps to motivate employees, the impacts of favorable treatment are not as great as those of unfavorable treatment on employees' attitudes towards work. Companies may want to devote more attention to precautionary practices rather than promotional practices of human resource management. Trivial unfavorable treatment

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might cost a lot in the sense that enormous favorable treatment is then necessary to recover the work incentives of discouraged employees. Unfavorable treatment should be avoided to the greatest extent possible.

The remaining implications resemble those in the effort case. Columns 5–6 present results of the analysis obtained under different specifications. The degree of equity's impacts became smaller in Columns 5–6 than that of the benchmark model in Column 4.[5] The standardized path coefficient on supervisors is estimated as -0.20 and the path coefficient on working conditions is estimated as -0.23, compared to -0.13 on equity (Column 5). Employees shirk if they feel that their supervisors treat them poorly or if they are not satisfied with monetary compensation. Similarly, the standardized path coefficient on management is estimated as -0.32 compared to -0.09 on equity (Column 6). Employees are discouraged from working if company management does not care for them. Again, we confirm that equity in Column 4 captures a broader concept of equity. Equity judgment is emotional and is often affected by several pecuniary and non-pecuniary factors. For example, employees are not willing to work hard if their companies do not devote closer attention to them

[5] Examining goodness of fit measures confirms that the benchmark model in Column 1 (or 4) fits the data better than other specifications. The GFI, 0.89, is close to 0.9, which is a rule of thumb of a good fit. Our AGFI of 0.84 is also close to 0.9, although the value is reduced slightly by adjustment according to the number of parameters.

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(Row 12). Although the importance of such intentions is well recognized, it was not straightforward how employees formulate equity judgments in reality. Our analyses identify the degree to which equity's impacts decline after accounting for other factors because the effect of equity, aside from other factors, remains.

We further examine the robustness of results by conducting gender-specific analyses (Columns 7–18). The literature presents gender differences in human behavior. Our analyses investigate whether similar gender differences are observed in effort solicitation based on non-pecuniary factors. Rows 15–20 provide test statistics signifying whether coefficients are estimated as equivalent for both genders. We interpret that the respective degrees of impacts are not equal if the test statistic is greater than 1.96 (i.e. statistically significant at the 5% level).

Our analyses show no difference in impacts of equity between men and women. However, the impacts of other factors such as social evaluation, job training, and relationships with supervisors are shown to differ between men and women when discussing positive responses. The social evaluation of companies is more important to motivate male employees than female employees, although job training is more effective to motivate female employees than male employees. The role of pride turned out to be more important for men than women. Our results confirm the

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common belief that men are creatures of pride. Although the results of job training might not be readily apparent, a possible interpretation is that women appreciate opportunities for skill acquisition in a men-oriented society. Human resource strategies might want to be customized towards each gender because the degree of effectiveness varies between genders.

Another feature is the lack of gender differences in discussing negative responses. The degree of impacts of protesting unfavorable treatment does not change irrespective of gender. For example, the standardized path coefficient on social evaluation is estimated as -0.29 (Column 10, Row 8) for men compared to -0.28 (Column 16, Row 8) for women. Similarly, the standardized path coefficient on job training is estimated as -0.22 (Column 10, Row 9) for men compared to -0.23 (Column 16, Row 9) for women. No differences exist in the respective degrees of impacts because the test statistic is less than 1.96

In sum, factors motivating male employees differ from those motivating female employees, but factors discouraging employees are common, irrespective of gender. Additionally, neither gender is more emotional than the other in the sense that the degree of impacts of protesting unfavorable treatment does not vary.

We close this section by relating our analyses to behavior agent theory. A salient

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implication of our results is that the social esteem approach is more prevalent than the social preference approach when discussing effort, but the latter is as important as the former when discussing shirking. In the effort columns of Table 3, the standardized path coefficients of social evaluation in Row 8 are larger than those of equity in Row 7, relationships with supervisors in Row 10, and company management in Row 12 for each. However, they show similar values in columns of shirking. These results imply that the relevance of either approach varies depending on the work attitudes: effort or shirking.

V. Conclusion

Evidence from survey analyses and experimental economics challenges traditional economics, where pecuniary factors play a primary role in raising work incentives. Increasingly, attention is devoted to non-pecuniary factors in the study of work incentives. One example is reciprocity and fairness in the choice of effort. Self-esteem is another example.

This paper presents a study addressing which approach is relevant to discuss non-pecuniary factors by distinguishing positive and negative work attitudes (e.g., effort and shirking). Non-pecuniary factors are often analyzed under the social

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preference approach such as reciprocity and fairness and the social esteem approach such as pride and shame. We attempt to study work incentives comprehensively using a model with three key categories: equity, which is related to social preference approach; social evaluation, which is related to the social esteem approach; and job training, which is unclassified. The analyses quantify the relative importance of these human resource management practices.

Our results imply that the social esteem approach is more prevalent than the social preference approach when discussing effort. Although the importance of equity was confirmed, other practices such as social evaluation and job training are apparently more effective to motivate employees. On the other hand, the social preference approach is as important as the social esteem approach when discussing shirking. The degree of impact on shirking does not differ much among factors compared to the case of effort. It is not fruitful to discuss which approach is superior because results exhibit the importance of both approaches. It is more practical to distinguish the context of work incentives, either effort of shirking, when discussing the effects of non-pecuniary factors.

We also examine the interaction between equity and other factors categorized in the social preference approach. Our analyses reveal the complicated nature of equity

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judgments. The degree of equity's impacts becomes smaller once we account for other factors because the effect of equity aside from those factors remains.

Furthermore, we study non-pecuniary work incentives by particularly addressing gender differences. This study examines whether non-pecuniary factors play a different role in motivating male and female workers. We observed gender differences in factors inducing effort. The role of pride, which can be captured by the social evaluation of companies, is more important for motivating men than women. On the other hand, we observed no gender differences in terms of factors discouraging employees. The degree to which human resource management practices discourage employees was revealed to be similar for men and women.

One motivation to conduct this study was to examine whether behavioral implications obtained in past laboratory experiments are actually applicable to work incentives. Results show that some behavioral implications of laboratory experiments are applicable to work incentives in practical working environments. Employees tend to resist unfavorable treatment more strongly than they reward favorable treatment. However, women are not necessarily more tolerant than men. No gender differences are observed for the degree of impacts of protesting unfavorable treatment.

Additional efforts are underway to develop a new framework of economics

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incorporating non-monetary factors and heterogeneous demographic characteristics, including gender differences. We hope these analyses will provide step toward further development in this field.

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Table 1 Selected questions used for analyses[6]

1. Effort	* I work ahead even though my supervisors do not demand it.
	* I try to work more than assigned.
2. Shirking	* I sometimes slow down on my work.
	* I sometimes avoid working.
	* I have lost enthusiasm for my work.
3. Equity	* The company evaluates me fairly based on my performance.
	* The evaluation standards of human resource management are fair.
	* My work is evaluated properly.
4. Social evaluation	
	** I am satisfied with the social evaluation of the company.
	** I am satisfied with the social evaluation of my work.
	* My company makes contributions to society.
	* I am proud of informing others that I work for this company.
5. Job training	* I can learn new skills and develop my ability through my work.
	* The management helps to develop the workers' abilities.
	* Supervisors and/or seniors are willing to train subordinates.
	* The company arranged effective job-training courses within a year.
6. Relationships with supervisors	
	** I am satisfied with the leadership of my supervisor.
	** I have a good relationship with my supervisor.
7. Working conditions	
	** I am satisfied with the welfare system of the company/factory.
	** I am satisfied with the number of holidays and working hours.
	** I am satisfied with the level of my salary/wage.
	** I am satisfied with the opportunities for promotion.
8. Company management	
	* The management show respect to workers.
	* The management appreciates workers' hard work.
	* The management cares about workers' welfare.

[6] * Multiple choice answers are 1. I don't think (or feel) so.; 2. I somewhat don't think (or feel) so.; 3. Cannot say; 4. I somewhat think (or feel) so.; 5: I think (or feel) so.

** Multiple choice answers are 1. Dissatisfied; 2. Somewhat dissatisfied; 3. Cannot say; 4. Somewhat satisfied; 5. Satisfied.

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Table 2 Summary Statistics

		Male	Female			
Gender		42.4	57.6			
		Permanent	Temporary			
Permanent/Temporary		80.6	19.4			
		Yes	No			
Experiences to change jobs		53.9	46.1			
		Malaysia	Singapore	Indonesia	China	Thailand
Areas		26.3	1.8	0.9	29.0	42.0
		1	2	3	4	5
1. Effort						
	work ahead	8.9	8.3	26.9	21.6	34.3
	work more	12.8	8.9	20.7	27.0	30.5
2. Shirking						
	slow down	33.1	17.2	20.2	16.6	12.9
	avoid working	24.9	13.7	20.0	18.7	22.7
	lost enthusiasm	44.7	17.7	18.8	9.7	9.1
3. Equity						
	performance	19.0	20.5	24.0	21.2	15.3
	evaluation standards	22.3	19.9	25.8	19.4	12.5
	work evaluation	18.8	19.1	27.9	21.6	12.6
4. Social evaluation						
	company	6.0	7.8	34.9	33.2	18.0
	work	6.8	9.0	39.3	29.7	15.3
	contributions	7.2	7.8	22.3	27.1	35.6
	proud	7.4	6.9	16.4	25.1	44.3
5. Job training						
	learn	10.6	12.0	22.0	28.4	27.0
	management	9.1	10.1	22.6	27.0	31.2
	supervisors	8.3	12.4	24.1	29.7	25.5
	courses	19.7	15.2	23.2	22.4	19.5
6. Supervisors						
	leadership	12.4	14.2	22.9	30.3	20.2
	relationships	7.0	10.9	30.0	32.0	20.1
7. Working conditions						
	welfare system	18.9	17.9	20.2	27.8	15.1
	holidays/ working hours	14.8	14.1	19.1	29.2	22.9
	salary	32.6	25.7	18.0	16.2	7.5
	promotion	17.0	13.7	46.5	14.5	8.3
8. Company management						
	respect	14.9	14.1	26.2	26.0	18.7
	appreciation	15.5	16.0	25.7	24.5	18.3
	cares	15.8	15.2	25.1	25.2	18.7
Sample size	44,562					
		unit: frequency (%)				

Table 3 Results of Analyses

		[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]	[16]	[17]	[18]
		All						Male						Female					
		Effort	Effort	Effort	Shirking	Shirking	Shirking	Effort	Effort	Effort	Shirking	Shirking	Shirking	Effort	Effort	Effort	Shirking	Shirking	Shirking
[1]	Equity	0.03*	0.01	0.01**	-0.10*	-0.06*	-0.04*	0.02**	0.00	0.01	-0.10*	-0.07*	-0.04*	0.03*	0.01	0.02***	-0.10*	-0.10*	-0.04*
	Standard errors	0.01	0.01	0.01	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.00	0.00
[2]	Social evaluation	0.24*	0.20*	0.20*	-0.28*	-0.20*	-0.20*	0.30*	0.25*	0.28*	-0.29*	-0.22*	-0.21*	0.23*	0.19*	0.20*	-0.28*	-0.20*	-0.21*
	Standard errors	0.01	0.01	0.01	0.01	0.01	0.01	0.02	0.02	0.02	0.01	0.01	0.01	0.02	0.02	0.02	0.01	0.01	0.01
[3]	Job training	0.28*	0.25*	0.27*	-0.14*			0.25*	0.21*	0.24*	-0.13*			0.30*	0.28*	0.29*	-0.14*		
	Standard errors	0.01	0.01	0.01	0.01			0.01	0.01	0.01	0.01			0.01	0.01	0.01	0.01		
[4]	Supervisors		0.07*			-0.10*	-0.09*		0.06*			-0.11*	-0.09*		0.04*			-0.10*	-0.08*
	Standard errors		0.01			0.00	0.00		0.01			0.01	0.01		0.01			0.01	0.01
[5]	Working conditions			0.05*		-0.11*				0.02**		-0.09*				0.04*		-0.12*	
	Standard errors			0.01		0.00				0.01		0.01				0.01		0.01	
[6]	Management						-0.17*						-0.17*						-0.17*
	Standard errors						0.01						0.01						0.01
	Standardized coefficients																		
[7]	Equity	0.04*	0.01	0.02**	-0.20*	-0.13*	-0.09*	0.02**	0.00	0.02	-0.20*	-0.14*	-0.09*	0.04*	0.02	0.02***	-0.21*	-0.12*	-0.09*
[8]	Social evaluation	0.14*	0.12*	0.12*	-0.28*	-0.20*	-0.21*	0.19*	0.16*	0.17*	-0.29*	-0.22*	-0.21*	0.14*	0.12*	0.12*	-0.28*	-0.20*	-0.22*
[9]	Job training	0.27*	0.24*	0.27*	-0.23*			0.26*	0.22*	0.25*	-0.22*			0.30*	0.28*	0.30*	-0.23*		
[10]	Supervisors		0.11*			-0.20*	-0.17*		0.11*			-0.20*	-0.17*		0.08*			-0.19*	-0.17*
[11]	Working conditions			0.06*		-0.23*				0.03**		-0.18*				0.05*		-0.26*	
[12]	Management						-0.32*						-0.31*						-0.33*
[13]	GFI	0.89	0.85	0.83	0.89	0.83	0.84	0.89	0.83	0.85	0.89	0.83	0.83	0.89	0.85	0.83	0.89	0.83	0.83
[14]	AGFI	0.84	0.79	0.78	0.85	0.77	0.77	0.85	0.78	0.79	0.86	0.77	0.78	0.85	0.80	0.78	0.86	0.77	0.78
									* statistically significant at the 0.1% level; ** at the 3% level; *** at the 10% level										

The first six columns labeled "All" present the results obtained using the whole sample; other columns present the results obtained using sub-samples: columns 7–12 for males, columns 13–18 for females. For each latent variable, the first row shows estimated coefficients; the second row shows standard errors. Standardized coefficients follow beneath from row 7.
GFI is similar to R-squared in regression analysis. Ranging between 0 and 1, GFI takes a value of one if the model fits the data perfectly. AGFI is comparable to adjusted R-squared. AGFI adjusts the number of parameters in deriving GFI because the value of GFI increases with the number of parameters.

	Gender differences in coefficients																		
[15]	Equity							0.73	1.04	0.27	0.17	2.22*	0.42						
[16]	Social evaluation							-2.75*	-2.21*	-3.11*	0.90	1.44	0.17						
[17]	Job training							3.04*	3.79*	2.97*	-0.38								
[18]	Supervisors								-3.19*			1.58	0.96						
[19]	Working conditions									1.15		-4.39*							
[20]	Management												-0.74						
									* statistically significant at the 5% level										

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References

Akerlof, G. A. (1982). Labor contracts as partial gift exchange. *Quarterly Journal of Economics*, 97, 543-569.

Akerlof, G., & Yellen, J. (1990). The fair wage-effort hypothesis and unemployment. *Quarterly Journal of Economics*, 105, 255-283.

Berg, J., Dickhaut, J., & McCabe, K. (1995). Trust, reciprocity and social history. *Games and Economic Behavior*, 10, 122-142.

Bolton, G., & Ockenfels, A. (2000). ERC-A theory of equity, reciprocity and competition. *American Economic Review*, 90, 166-193.

Brennan, G., & Pettit, P. (2004). *The economy of esteem*. Oxford: Oxford University Press.

Camerer, C.,& Thaler, R. (1995). Anomalies: ultimatums, dictators and manners. *Journal of Economic Perspectives*, 9, 209-219.

Charness, G., Frechette, G. R., & Kagel, J. H. (2004). How robust is laboratory gift exchange? *Experimental Economics*, 7, 189-205.

Clark, A. E., Masclet, D., & Villeval, M. C. (2010). Effort and comparison income: Experimental and survey evidence. *Industrial and Labor Review*, 63, 407-26.

Dohmen, T., Falk, A., Huffman, D., & Sunde, U. (2009). Homo reciprocans: Survey evidence on behavioural outcomes. *Economic Journal*, 119, 592-612.

Dugar, S. (2010). Nonmonetary sanctions and rewards in an experimental coordination game. *Journal of Economic Behavior & Organization*, 73, 377-386.

Eckel C.C., & Grossman, P. J. (2001). Chivalry and solidarity in ultimatum games. *Economic Inquiry*, 39, 171-188.

Eisenberger, R., Armeli, S., Rexwinkel, B., Lynch, P. D., & Rhodes, L. (2001). Reciprocation of perceived organization support. *Journal of Applied Psychology*, 86, 42-51.

Falk, A., Fehr, E., & Fischbacher, U. (2008). Testing Theories of Fairness--Intentions Matter,

UNDER PEER REVIEW

Games and Economic Behavior, 62(1), 287-30

Fehr, E., Kirchsteiger, G., & Riedl, A. (1993). Does fairness prevent market clearing? An experimental investigation. *Quarterly Journal of Economics*, 108, 437-460

Fehr, E., & Schmidt, K. M. (1999). A theory of fairness, competition, and cooperation. *Quarterly Journal of Economics*, 114, 817-868

Fehr, E., & Gächeter, S. (2000). Fairness and retaliation: the economics of reciprocity. *Journal of Economic Perspectives*, 14, 159-181.

Fehr, E., Klein, A., & Schmidt, K. M. (2007). Fairness and contract design. *Econometrica*, 75, 121-154

Lind, E.A. (2001). Fairness heuristic theory: justice judgments as pivotal cognitions in organizational relations. In J. Greenberg, & R. Cropanzano, (Eds.), *Advances in Organizational Justice* (pp.56-88). CA: Stanford University Press.

Mowday, R.T., Porter L.W., & Steer, R.M. (1982). *Employee-organization linkage: the psychology of commitment, absenteeism, and turnover*. New York: Academic Press.

Offerman, T. (2002). Hurting hurts more than helping helps. *European Economic Review*, 45, 1423-1437.

Pereira, P. T., Silva, N., & Silva, J. (2006). Positive and negative reciprocity in the labor market. *Journal of Economic Behavior & Organization*, 59, 406-422.

Roth A., Prasnikar, V., Okuno-Fujiwara, M., & Zamir, S. (1991). Bargaining and market behavior in Jerusalem, Ljubljana, Pittsburgh, and Tokyo: an experimental study. *American Economic Review,* 81, 1068-1095.

Shapiro, C., & Stiglitz, J. E. (1984). Equilibrium unemployment as a worker discipline device. *American Economic Review,* 74, 433-444.

Slonim, R., & Roth, A. (1998). Financial incentives and learning in ultimatum and market games: an experiment in the Slovak Republic. *Econometrica*, 66, 569-596.

UNDER PEER REVIEW

Solnick, S. (2001). Gender differences in the ultimatum game. *Economic Inquiry*, 39, 189-200.