The Role of Social Comparison, Perceived Fairness and Reciprocity in Labor Contracts: An Experimental Study[1]

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Abstract

Three different treatments of Gift Exchange Games were conducted in order to investigate workers' reciprocal behavior. In the first random matching treatment, the reciprocal behavior was based on wages offered by previous employers. Since the matching was one shot, although the wage offered was fair and exceeded wage levels in the previous round, workers did not reciprocate. Workers were more reciprocal in the second fixed matching treatment. In this treatment, workers interacted with the same employer throughout the session. However, in the third treatment, when workers were exposed to market wages, the relative wage effect became more important than own or current wages in determining effort levels. But the overall relative wage effect depended on the implicit behavior of the workers; high effort workers and low effort workers perceived the relative wage differently. When current wages exceeded market wages, low effort workers reciprocated more than high effort workers and when the market wage exceeded own wage, high effort workers reduced effort levels more than low effort workers

Keywords: Reciprocity, Wage Rent, High Effort and Low Effort Workers

1. Introduction

Fairness and reciprocity have been studied and applied in the past literature in order to investigate their role in enhancing the efficiency of markets. Contrary to conventional economic assumption, humans exhibit bounded self-interest and treat fair treatment more importantly than mere material gain, particularly when rewarding fair and kind actions and punishing unfairness. This behavioral tendency is investigated and applied in order to explain the decrease in the morale of employees when there is a wage reduction (Blinder and Choi, 1990 and Bewley, 1998). Buyers offer higher prices to induce reciprocation of sellers in order to increase the quality of a good (Fehr et al., 1993; Simon and Fehr, 2000) and in labor markets, workers reciprocate high wages with higher effort levels (Gachter and Falk, 2002; Fehr and Schmidt, 1999 and Fehr et al., 1997).

The presence of reciprocal evidence suggests that the action of being kind or unkind to other agents is reciprocal; if people are nice, it is considered fair and expected that kindness is returned with kindness. However, a question remains at large as to how agents form the perception of fairness, specifically in the labor market.

Since most of the experimental data on positive reciprocal behaviors in labor market are derived from the Gift Exchange Game (GEG), as in Gachter and Falk, Feht et al. and Fehr and Schmidt, in which the employer interacts with only one worker, and Maximiano et al. (2007), the employer interacts with many workers, the reciprocation exhibited excludes some vital information, such as reference wages. In reality, although the market wage information is not perfect, it provides a reference point for workers to compare and evaluate fairness before deciding on the effort level. Analysis of the effect of co-workers' wages on effort levels has been inconclusive, such as that offered by Clark, Masclet and Villeval (2010), who find that the ranking of wages, rather than average wages is a strong determinant of effort levels and in Charness and Khun (2007) the effect is mixed. In research by Gachter et al. (2002), the analysis of the effect of relative wages on effort levels is aided by the assumption that market efforts is observable. However, if workers cannot observe their own wage ranking in the market, the formation of fairness will be more complex.

The formation of the perception of fairness by workers are sometimes biased; self-serving bias may form different perceptions of fairness. If workers are biased in the evaluation of fairness, inducement by employers through high wages would not be reciprocated.

Past research relies on a consequential approach, particularly the distribution of benefits in order to analyze the formation of fairness and reciprocal behavior. Specifically, unequal distribution of benefits is interpreted as unfair, and therefore workers reciprocate with low effort and if the distribution is perceived as equal, workers reciprocate with high effort levels. In this research category, Loewenstein

et al. (1999), Bolton and Ockenfels (1999) and Fehr and Schmidt model reciprocity as motivated by inequity aversion. However, studies of the intention of the proposer in the ultimatum game suggests rejection of the proposal is due to not only the distribution of the offer but also the intention. Falk et al. (2003) finds that a given offer is more likely to be rejected if the proposer could have proposed a more equitable offer, rather than a unequal offer. In Rabin (1993,) reciprocity is motivated by the belief of other's intention in fair treatment, and Levine (1998) extends reciprocity to include the altruistic intentions of other players.

I build on these sources in order to explain the fairness formation within the context of the labor market. This research attempts to show that workers form the idea of fairness based not only on equality but also on the perceived intention of the employer. Specifically, workers compare current own wage with market wages in order to evaluate the intentions of the employer before deciding on effort.

I find that patterns of past interactions influence future decisions of effort levels. The repetition effect allows for retaliation on non-reciprocal behavior or it induces players to cooperate in order to build gratitude in future interactions. This effect encourages workers to reciprocate more than workers in a random matching treatment.

When the information of market wages is introduced in the third treatment, workers build the notion of fairness based on relative wages more than own wage. I find that effort levels are significantly influenced by relative wages. Workers reciprocate positive own and market wage differentials (i.e., positive wage rent) with higher effort levels, and negative wage rents with lower effort levels. However, the degree of reciprocation depends on the past effort levels exerted. Historically, high effort workers are more responsive to negative wage rents than positive wage rents, whereas low effort workers are more responsive to positive wage rents than negative wage rents. The difference is because high effort workers perceive that effort should be compensated by high wages; therefore, more averse to negative wage rents. Low effort workers perceive positive wage rents as good intention by employers and fair; therefore, they are more willing to exert higher effort levels in order to reciprocate kindness.

2. Experimental Design and Procedures

The first two sessions were replicated from Gachter and Falk (2002) with no market wage information and session three with market wage information. The game is a two-player sequential game that consists of two stages. In the first stage, an "employer" offers a wage *(w)* to a "worker". In the second stage, the worker can either reject or accept the offer. If the offer is rejected, the game ends with both parties earning nothing. If the offer is accepted, the worker has to choose an "effort" level *(e)*.

The employer payoff function in experimental money is:

$$\pi=(v-w)e \tag{1}$$

where *v* refers to some exogenously given value.

A worker's payoff is the difference between the wage *(w)* and the incurred effort costs *C(e),* minus the fixed travel cost of 20 experimental money, if he accepts the wage offer:

$$U=w-C(e)-20 \tag{2}$$

Table 1: Effort Levels and the Associated Costs

Effort	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
C(e)	0	1	2	4	6	8	10	12	15	18

Worker is the second mover and higher effort levels involve extra costs; the worker will exert the effort level not greater than 0.1. Therefore, the best response of a firm is to offer a wage at the minimum level. Thus, $w = 21$ and $e = 0.1$ (i.e. w^* and e^*) are strict subgame perfect equilibrium and are our reference outcomes.

The subjects were randomly assigned to the role of "firm" and "worker". After the role was determined, they were separated into two different rooms. The "workers" and the "firms" were then given about five minutes to read the instructions, which included a set of exercises to calculate the payoff of both worker and firm. The experiment would not start until all the exercises were answered. The experimenter then explained the payoff functions and procedures to the subjects. Payoff functions of "firm" and "worker" were public knowledge and similar to all the subjects. Each firm was connected to a worker but the identity was not revealed. In total, there were ten rounds of interaction. The program Z-Tree was used to run the experiment (Fischbacher, 2007).

I recruited a total of 72 undergraduate students from Universiti Sains Malaysia who were from different faculties. The students had never participated in any experimental study before. The treatments are explained as followed[2]:

The One Shot (OS) Treatment

The subjects were randomly paired with an anonymous partner. Each subject was matched with different partners after each round. The subjects were told about their payoff and their partner's payoff. After this, the subjects proceeded to the next round.

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[2] Instructions in all the treatments can be obtained from the author upon request from the readers.

As subjects interact with different partners in each round, there should be no incentive for subjects to reciprocate, as current actions could not be enforced by future interactions. A total of 26 subjects participated in the one shot game (i.e., 13 workers and 13 employers).

The Repeated Game (RG) Treatment

Each subject interacted with the same anonymous employer throughout the experiment. After making the effort decision, workers were informed of the summary of payoffs. In this treatment, the correlation between wage and effort should be stronger than OS treatment. There were 24 students which participated in this treatment. In this treatment, competing agents are motivated to cooperate for two reasons: (i) repeated interaction induces the fear that exploitation of cooperative partners may result in retaliation and (ii) the agent harbors the hope that current cooperation may lead to future gratitude.

The Relative Wage Treatment (RGMW)

The setup is similar to the RG game, but in this treatment, both parties know the market wage information. The market wage is average wage for a particular round. Workers knew the market wage, and could compare wages received from employer to market wages. The difference of own wage and market wage is called market rent. There were 22 participants in the experiment. The effort difference between this treatment and the RG treatment highlights the role of explicit information feedback to the subjects.

3. Behavioral Prediction and Explanation

We make some behavioral predictions of workers in the treatments and explain the reasons.

3.1 The OS Treatment

In the OS treatment, anonymity is maintained as workers and employers are matched only once, randomly. Therefore, there is no strategic reason for both players to reciprocate kindness. Workers will extend effort only at e^* independent of the wage offer. Recognizing this, employers will offer the minimal level of wage, w^*.

3.2 The RG Treatment

In the RG treatment, workers are matched with the same employers throughout the session. Since matching is repeated with the same partner, players can better judge the intention and behavior of the partner than in OS treatment based on

the historical pattern of behaviors. This information opens up the opportunity for retaliation towards non-reciprocal behavior. Therefore, the Spearman rank correlation, *Corr(w,e),* in RG should be higher than *Corr(w,e)* in OS treatment. The robustness of the reciprocity is measured by the change of e and w (i.e., $\Delta e = e_t - e_{t-1}$ and $\Delta w = w_t - w_{t-1}$) for each individual worker.

3.3 The RGMW Treatment

In this last treatment, workers and employers are exposed to market average wages. When evaluating the fairness of the current own wage, workers treat market wages as reference wages. Workers perceive current offers as fair if their own wages exceed market wages and unfair if market wages exceeds their own wage. I predict that the effect of wage rents are higher than the effect of own wages on effort levels. Thus, the hypothesis;

Reciprocity Hypothesis: Favorable horizontal wage comparison, e.g., $r > 0$ is positively correlated with effort level, i.e., *Corr(r,e)*> 0, where *r* is denoted as wage differential or wage rent.

However, the reciprocation of workers also depends on other implicit factors such as the historical effort pattern exerted. Specifically, historically high effort workers perceive negative wage rent as unfair, as he is under-compensated. Therefore, high effort workers will reciprocate negatively to negative wage rent but will not respond to positive wage rent. Reversely, the degree of effort reduction is lower when the wage rent is negative among low effort workers. These workers perceive low effort- low wage as fair. Therefore, the degree of responsiveness to low wage rent is lower among historically low effort workers than high effort workers. The low effort workers will also perceive positive wage rent as generous and kind, and will reciprocate more than high effort workers.

4. Experimental Results

In this section, the comparison between OS treatment and RG treatment will be presented first, followed by results from RGMW treatment.

4.1 Regularities in Gift Exchange without Social Comparison
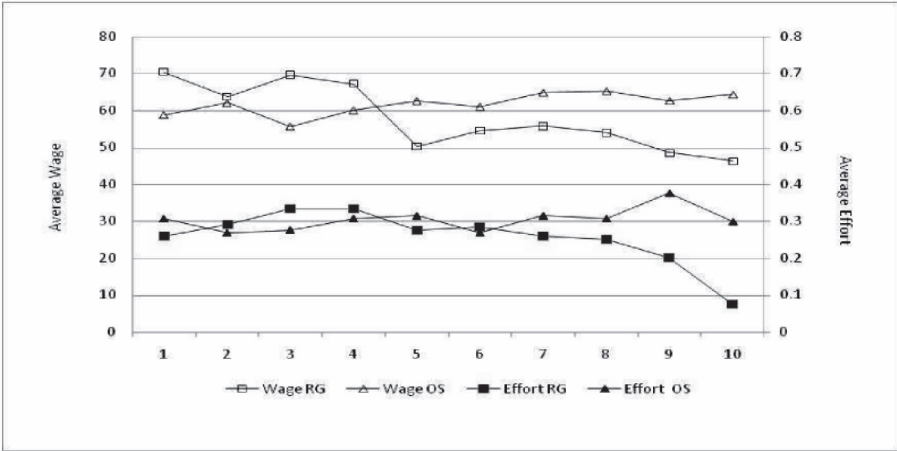
Our first hypothesis concerns the responses of workers to wages offered by firms.

R1: Fairness is reciprocal when employers offer higher wages than w* and workers extend effort levels above e*

Figure 1 shows the evolution of the average efforts of workers and wages for employers in the OS and RG Treatment. The wages offered by firms are consistently

higher than the reference wage w^* and workers reciprocate with effort levels higher than e^*.

Figure 1: The Evolution of Average Wages and Average Efforts in OS and RG Treatments

Wage levels above w^* indicate generosity and the intention of employers to induce high effort levels from workers. On average, employers offered 62 experimental money to the worker in the OS treatment and 58 experimental money to the worker in RG treatment.

Workers reciprocate high wages with high effort levels which deviates from subgame levels across all periods. Workers in OS treatment exerted on average 0.304 unit of effort and 0.31 unit in RG treatment.

According to reciprocity hypothesis, reciprocal behavior rewards kind action and punishes unkind action. We classify that if effort and wage are positively correlated and significant at the 1 percent level, the worker is considered to be a reciprocator. Table 2 depicts the overall individual behavior of workers in OS treatment.

Table 2 shows 31% reciprocators in the OS treatment that fulfill the reciprocity criteria. The robustness of reciprocal behavior is based on the "measure for measure" reciprocity. Almost 81% of the subjects reciprocate high wage with higher effort levels or low wages with lower effort levels at least five times.

Figure 1 shows in the first five periods of the RG game, average wages are higher than the average wage in OS treatment. The higher wage level is reciprocated with higher effort levels from workers in RG treatment than in OS treatment.

In RG treatment, the repeated interaction between employer and the same worker acts as punishment and reward. Reciprocal norms should play a more significant role in encouraging co-ordination in RG treatment than in OS treatment. Table 3 shows the overall individual behavior of workers in RG treatment.

From Table 3, repeated interaction between employer and worker encourages workers to reciprocate. Almost 42% of the subjects are reciprocators compared to only 31% reciprocal behavior in OS treatment. The repeated game effect increases reciprocal tendencies among workers. Based on the number of "measure for measure" criteria, 58% of the workers reciprocate high wages with high effort levels in RG treatment. Overall, the Spearman Rank Correlation between wage and effort levels in RG is 0.6951 and in OS is 0.4137.

Table 2: Summary of Worker Behavior in the One Shot Treatment

Worker no	No of $e=0.1$	Corr(w,e)	e in $t=10$	No of m
1	7	0.3043	0.1	2
2	7	0.6161**	0.1	3
3	6	-0.2387	0.1	1
4 *(r)*	1	0.7166***	0.3	8
5 *(r)*	0	0.9474***	0.5	8
6	7	0.4999	0.1	5
7	10	0	0.1	0
8	0	0.6616**	0.2	5
9 *(r)*	0	0.9784***	0.3	9
10 *(r)*	2	0.9781***	0.2	7
11	1	0.7059**	0.7	7
12	0	0.6386**	0.9	5
13	4	0.3839	0.3	5

Notes:

- No of $e=0.1$ includes all effort levels of 0.1 and the number of rejection decision if the wage offered was 21.
- *(r)* indicates reciprocal type
- *Corr(w,e)* indicates Spearman rank correlation coefficients between wage and effort. ** indicates 5 percent significance level and *** indicates 1 percent level. Rejection is included in the calculation.
- e in $t=10$ indicates effort level in the final round of the experiment.
- No of m refers to "measure for measure" reciprocity, i.e., the signs of Δw and Δe are same for at least 5 times.

Table 3: Summary of Worker Behavior in the Repeated Game Treatment

Worker no	No of *e*=0.1	Corr*(w,e)*	*e* in *t*=10	No of *m*
(1) *(r)*	3	0.8667***	rej(25)	3
2	1	0.7145**	0.1	8
(3)	0	-0.0727	rej(80)	6
4 *(r)*	2	0.8361***	0.1	7
5	1	0.6976**	0.1	5
6	10	0	0.1	0
7	5	0.5544**	0.1	5
8 *(r)*	4	0.9343***	0.1	7
9 *(r)*	6	0.7817***	0.1	2
10 *(r)*	1	0.9162***	0.1	5
(11)	7	0.6891**	rej(25)	4
12	8	0.6757	0.1	3

Notes:

– No of *e*=0. 1 includes all effort levels of 0.1 and the number of rejection decision if the wage offered was 20. Rejection of wages > 20 cannot be explained with self interest.

– *e* in t=10 indicates effort level in the final round of the experiment. The rejection of the wage is denoted as "rej" and the wage offer is in parenthesis. Worker number 1, 3 and 11 are excluded from this analysis

– *r* indicates reciprocal type

– Corr*(w,e)* indicates Spearman rank correlation coefficients between wage and effort. ** indicates 5 percent significance level and *** indicates 1 percent level. Rejection is included in the calculation.

– No of *m* indicates "measure for measure" individual reciprocal behavior.

R2: **Workers form perceptions of fairness based on previous wage levels in order to determine effort levels.**

Workers refer to previous wage levels as an anchor in order to determine effort levels in future dealings. If current wages are lower than previous wage levels, workers will perceive it as unfair and reciprocate with lower effort levels, and with higher effort levels if current wages are higher than previous wages.

To investigate the effect of wages on effort levels, we ran a random Tobit regression for both OS and RG treatments. Table 4 shows that the common history of a firm-worker relationship plays a role as "punishment" if a player does not play reciprocal norm. Effort level is enhanced in the RG treatment compared to OS treatment. The results found in the paper by Gachter, Simon and Falk (2002) reports the co-efficient in OS treatment as 0.0069 and RG 0.0111. The overall effect of repeated game on wage-effort relationship in this paper corresponds to the result but the effect is weaker.

Table 4: The Effort-Wage Relationship (Random Tobit Regression)

Treatment	OS	RG	RGMW
Const	-0.0772	0.0639	-0.16
Z stats	-1.12	-0.55	-1.59
Wage	0.0032***	0.0041***	0.0074***
Z stats	6.76	7.53	4.32
D1			0.0458*
Z stats			1.93
Period	yes	yes	yes
Worker type	yes	yes	yes
Chi-squared	68.39	127.12	100.73
Left censored	15	13	3
N	195	227	96

Note: *** indicates 1% s.l.

D1 = 1 if wage*(t)* > market wage*(t-1)* and 0 otherwise.

R3: Perceived fairness by workers increase the overall efficiency of labor contracts.

Reciprocal behavior encourages cooperation and enhances efficiency between worker and employer. First, we illustrate the profit levels in OS treatment and then compare it with RG treatment.

Table 5 shows the different levels of wage and profit in the OS treatment. On average, higher than average wage levels offered by employers (i.e., wage offered > 69.43) causes significantly higher than average joint profits (i.e., average joint profit > 66.03) (p=0.0001). However, at the firm level, employers who offered higher than average wages do not significantly earn higher than average profits. On average, the firms' payoff is not significantly higher than 25.21 which is the average firm payoff.

Table 6 shows the levels of profit and wage offered by employers in RG treatment. Overall, joint profits in RG treatment is significantly higher than average joint profits (i.e., joint profit > average joint profit) when firms offered higher than average wage levels (p=0.12). Contrary to OS treatment, at firm levels, higher than average wages enables employers to earn higher than average incomes (p=0.44).

The higher than average joint profit in high wage/high effort strategy than in low wage/low effort strategy implies reciprocal behavior and enhances relational efficiency.

Table 5: Wage and Profit Levels Observed in OS Treatment

Effort	Wage	N	Average profit of Firm	Average Profit of Worker	Average Joint Profit
0.1	61.42	47	6.82	41.06	47.88
0.2	45.71	16	15.68	23.88	39.56
0.3	60.31	17	18.97	36.41	55.38
0.4	58.60	10	24.56	34.60	59.16
0.5	67.37	17	26.88	39.29	66.18
0.6	71.89	9	28.87	43.89	72.76
0.7	80	2	31.50	45	76.5
0.8	79.33	3	32.53	47.33	79.87
0.9	80.75	4	35.33	45.75	81.08
1	89	2	31	51	82
Average	69.43		25.21	40.82	66.03

Table 6: Wage and Profit Levels Observed in RG Treatment

Effort Exerted	Wage Offered	No of Trades	Average Profit of Firm	Average Profit of Worker	Average Joint Profit
0.1	44.29	48	7.63	25.02	32.13
0.2	68.17	20	10.25	49	57.77
0.3	67.10	10	15.99	45.1	61.09
0.4	73.67	9	18.47	49.66	68.13
0.5	78	6	21	52	73
0.6	82.75	4	22.45	54.75	77.2
0.7	74.20	5	32.16	44.20	76.36
0.8	81	2	31.4	49	80.4
0.9	68.50	2	46.5	33.5	80
1	82	3	38	44	82
Average	72.02		24.38	44.57	68.80

4.2 Regularities in Gift Exchange with Social Comparison

In this section, we focus on reciprocal behaviors when information about average wage is introduced. The treatment is a modification of RG treatment with social information about market wage. The main results are:

R4: Workers play reciprocally to rent offered by employers.

Workers compare own wage or wage received to market wage to decide on effort level. If own wage received is higher than market wage, it is interpreted as the employer offers positive wage rent, and if own wage is lower than market wage it is interpreted as the employer offers negative wage rent.

Workers perceive positive rent as fair and negative rent as unfair. Positive rent is interpreted as generosity and is the intention of the employer to induce high effort levels from workers, and therefore, the worker perceives it as fair and reciprocates with high effort levels. If the rent is negative, workers will perceive it as unfair and will reciprocate with low effort levels. If the worker is reciprocal, he will react to wage rent more than own wage.

Table 4 shows the effect of both own wage and wage rent on effort levels in a Tobit regression. On average, each 1 unit increase of wage rent causes efforts to rise by 0.0458 unit. This is equivalent to a 6.189 unit increase in own wages.

R5 : High effort workers are more responsive to fairness than low effort workers.

The effect of wage rent on effort depends on the type of worker. High effort workers will reduce effort levels more than low effort workers when the rent is negative. If the rent is positive, high effort workers will increase effort levels but the degree is less than low effort workers.

Figure 2 shows the response of workers to the wage level when the rent is negative. The y-axis measures the average change of effort for different types of workers. For example, workers who exerted effort at $e=0.1$ reduced their effort by -0.025 when they were offered a negative wage rent in the next round. For the workers who exerted $e=0.7$, efforts were reduced in the next round by -0.4 and workers who exerted $e=0.8$ reduced efforts by -0.2.

Figure 2: The Average Change of Effort Level According to Category of Initial Effort Levels When the Rent is Negative
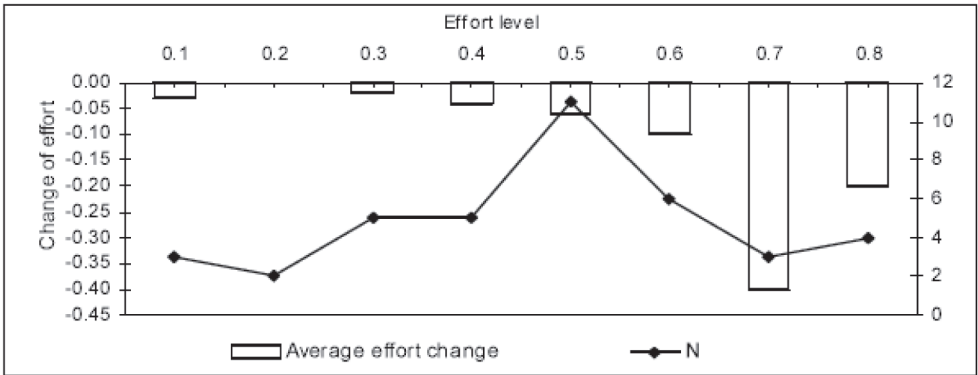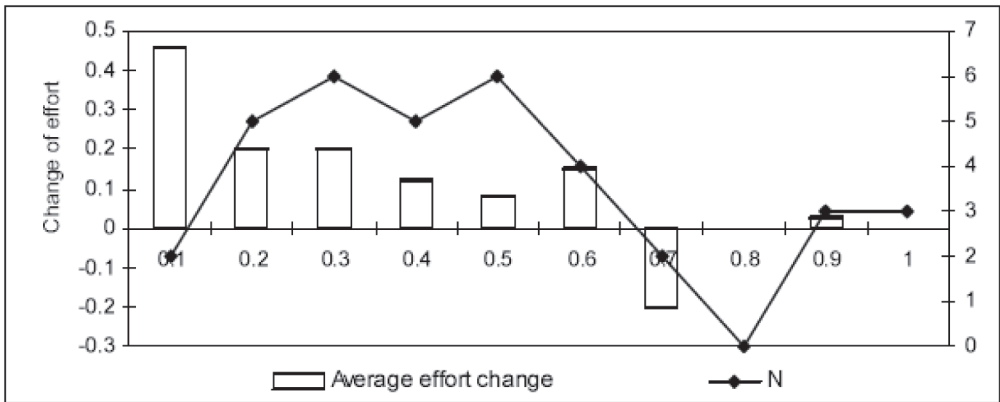

Figure 2 shows that high effort workers (i.e., 0.6, 0.7 and 0.8 workers) are more responsive to the negative rent; the reduction of effort among high effort workers are higher than the reduction of effort among low effort workers. Workers who exerted initial effort at 0.6, 0.7 and 0.8, reduce the effort level by -0.1, -0.4 and -0.2 respectively. The average reduction of effort change is -0.153 and -0.042 for high and low effort workers respectively. Wilcoxon matched-paired test reveals the difference of effort exerted between the two types of workers is significant at 5 percent level.

Figure 3 shows the effort change when the wage rent is positive. The response of high effort workers to positive wage rent is lower than low effort workers. Theaverage change of effort among the workers from effort category 0.1-0.5 is 0.204 and the effort change among workers from category 0.6-1 is 0.03. The difference of effort change between low and high effort workers are significant at the 1% level.

Figure 3: The Average Change of Effort Level According to Category of Initial Effort Levels When the Rent is Positive

We further test the perception of fairness of high effort workers under positive and negative rent. If high effort workers perceive negative rent as unfair, workers will reduce efforts more than when the rent is positive. Wilcoxon statistical tests reveal that the effort reduction when wage rent is negative is higher than effort reduction when wage rent is positive at the 5% significance level.

On the contrary, low effort workers perceive positive rent as fair and will reciprocate with effort levels higher than the effort level when the wage rent is negative. The difference of effort change is significant at the 1 percent level.
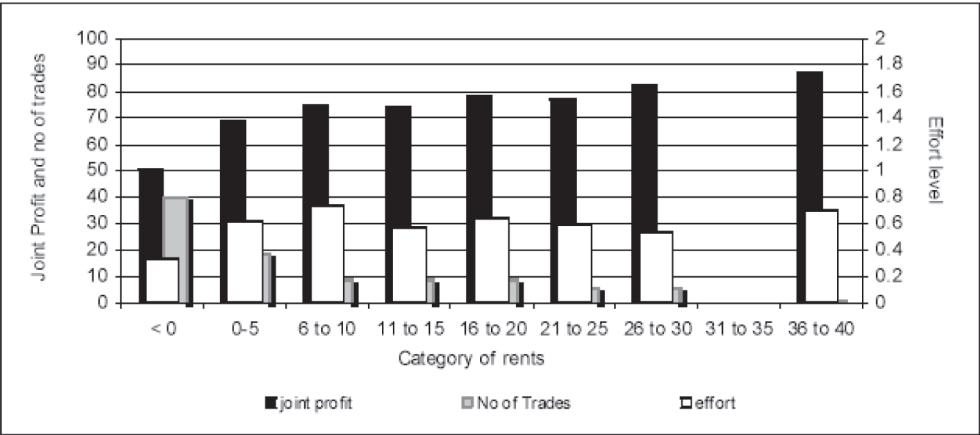
The different response of workers to levels of rent can be interpreted when workers form different levels of expectation based on own effort level. Hard working individuals expect higher compensation from the employers regardless of effort levels from other workers. If the expectation is not fulfilled, workers will perceive he/she is under-compensated which results in a significant reduction in effort levels. However, when the effort level is compensated with positive rent, workers perceive it as fair treatment from the employers. This also explains the reciprocal behavior of low effort workers; the only difference is that low effort workers are more responsive to positive rent than high effort workers.

R6: Reciprocal fairness between workers and employers increases overall joint profit.

At average rent of 3.3, the firms' profit is 28.65 and the overall joint profit is 68.60. In order to distinguish between profits of high *(e,r)* and low *(e,r)* we take profits obtained at 3.3 as our benchmark case. Specifically, we want to investigate if profit levels at high *(e,r)* are higher than profit levels at low *(e,r)*.

Figure 4 shows the responses of effort levels to the different levels of rent offered by employers. Our benchmark rent lies in the 0-5 category: joint profits increase with rent offered except in 11-15 and 26-30 categories as shown by the black bars. One sample t-test reveals that when wage rent is higher than average, joint profit is significantly higher than the average joint profit (p=0.0000).

Figure 4: Levels of Joint Profit According to Rents Offered and Effort Level.

5. Conclusion

I study how workers form fairness and its effect on reciprocal behavior in a gift exchange game environment. I conclude that besides evaluating material offers to form notions of equality in distribution and intention of proposer, workers also perceive fairness based on implicit factors such as their own effort levels. The different capability and individual efforts extended enable workers to form different beliefs and evaluations through the offers made by employers. We conducted three experimental sessions with different treatments: One Shot (OS), Repeated Game (RG) and Repeated Game Market Wages (RGMW) in order to show the behavior.

I find that when workers do not know the intentions of the employer or intentions of the proposer, workers evaluate fairness of offers based on previous offers made by the same proposer. Particularly, if current offers deviate negatively from past offers, it is construed as unfair and workers reciprocate with lower effort levels and reciprocate with higher effort levels if current wages are higher than previous wages.

When market wage information is introduced, workers treat the market wages as references in order to evaluate the fairness of the current offer. I find when both current own wages and market wages are known to workers, relative own wage to market wage has more influence than own wage alone on effort levels.

The effect of relative wage on effort levels depends upon the type of workers. The effect is more pronounced among high effort workers when relative wage is negative than low effort workers. Therefore, the effort is stickier among high effort workers than low effort workers when relative wages are positive. But when employers pay less than market wage, the morality of high effort workers decrease more than low effort workers.

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