

Reciprocity or Rewards? Analyzing Motivational Impacts on Employee Effort in the Chinese Labor Market

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Abstract. Reciprocity in the labor market has always sparked an intense debate in society. In this study, we explore the complex role of reciprocity in the labor market, in particular its interaction with extrinsic and intrinsic motivation, and the phenomenon of the "crowding-out effect". The research is based on economic and psychological theories and aims to elucidate how various factors affect work effort. We conducted extensive investigations in multiple regions of China, using a controlled experimental design to isolate specific effects. Through regression analysis, our results show that intrinsic motivation has a more significant impact on work effort than extrinsic motivation, while excessive reliance on extrinsic rewards weakens intrinsic motivation. These insights are critical to designing balanced incentive structures to optimize employee performance and efficiency.

Keywords: Reciprocity, Labor Market, Intrinsic Motivation, Extrinsic Motivation, Crowding-Out Effect

1. Introduction

Nowadays, most people are not putting their full potential into their jobs. Although the average workday for U.S. employees is 6.88 hours, recent research shows that the actual time spent working is just 2 hours and 53 minutes [1]. Additionally, researchers at the University of California, Irvine [2] found that people are interrupted every 3 minutes and 5 seconds during their work time. Given the complexities of today's labor market, understanding what motivates employees is more crucial than ever for boosting efficiency and saving the large amount of time that has been wasted.

We aim to examine the connections between reciprocation factors and their impact on employee work effort levels. To ensure data accuracy, we carried out a detailed survey across various regions of China, targeting diverse groups of workers aged 24 and above. The survey included specific questions, for instance, factors employees value most in their work, their current work effort, and how their effort would change under different conditions.

Upon analyzing both uncleaned and cleaned data, we discovered that intrinsic motivation, such as a sense of social responsibility and interest in the job, plays a more significant role in work effort

than extrinsic rewards like bonuses. Furthermore, our findings suggest that relying too much on extrinsic rewards can decrease intrinsic motivation, leading to a reduction in overall work effort.

Our study expands on existing research about reciprocity. It goes beyond the traditional gift exchange game experiment [3] and offers more practical recommendations for the labor market. Additionally, we contribute to the application of reciprocity in the labor market by examining the impact of various motivations on employee effort. Drawing on previous studies by Pereira [4] and Fehr [5] on wage-effort relationships, our study analyzes six different scenarios, including both extrinsic and intrinsic motivations, to provide a more comprehensive understanding of employee behavior beyond just wage increases.

This research offers valuable insights for employers or leaders in firms who want to develop an effective plan to increase the productivity and efficiency of their workers. By balancing intrinsic and extrinsic motivators, companies can achieve a more motivated and productive workforce.

2. Literature review

Reciprocity is a complex and multi-dimensional phenomenon in the labor market, which affects the relationship between employers and employees as well as labor productivity. Our paper contributes to several fields of research.

First, we contribute to the literature studying reciprocity. Gächter [3] explores the role of equity and reciprocity in the labor market, with a focus on gift exchange. They experimentally investigate the interaction effects of reciprocity and repeated game incentives in two treatments (one-shot and repeated) of a gift-exchange game. They observed reciprocity in both treatments, and this reciprocity was enhanced in repeated games. and concluded that long-term interaction is a "mutually compatible" contract enforcement device. Reciprocity and repetition incentives reinforce each other through the interaction between reciprocity and repetition incentives in the gift exchange game. Our paper differs from Gächter [3] because we looked at the effects of intrinsic and extrinsic motivation on reciprocity rather than the usual gift exchange game experiment. Besides, we are closer to real life, with results that can make more relevant recommendations for the labor market.

Second, we contribute to the literature on the application of reciprocity in the labor market. Now, we will talk about two papers. Using traditional designs, Pereira [4] found that effort is an increasing function of wages for middle-wage levels, but the relationship is not significant for high and low-wage levels. In addition, they also used a second treatment with internal equilibrium, asymmetric reciprocal marginal costs, and lower efficiency gains and found that this phenomenon still exists. Fehr [5] summarized the main findings of the five experimental studies. These studies were primarily designed to test the fair wage-effort hypothesis in the context of competitive experimental markets. The study also used the gift exchange game, in which the first stage was a wage-setting stage, and in the second stage, workers had to choose an effort level; the higher the level, the higher the profit of the corresponding company. This experiment verifies the fair wage-effort hypothesis that an increase in wages will increase the level of effort of workers. Our results are similar, but we examine six different scenarios to see whether different extrinsic and intrinsic motivations have an impact on employee effort, not just in terms of material benefits such as salary. Our experiment was conducted in terms of whether they had extrinsic motivation (such as material welfare and spiritual welfare), and whether they had intrinsic motivation (work challenge and social responsibility).

3. Experimental design and data overview

We designed questionnaires for detailed investigation of different groups of workers aged 24 and above in different regions of China. The questionnaire has nine specific questions, and the first and eighth questions are optional questions. The rest of the questions are scoring questions, and participants need to score according to their own situation on a scale of 1-10.

The following is the detailed content of the questionnaire. The first question asks participants what they value most at work, including health insurance, paid vacation, psychological counseling services, flexible working hours, job accomplishment, work interest and social responsibility of work content. The second question asked participants to rate how hard they were currently working. The third and fourth questions, related to extrinsic motivation, asked participants to rate their efforts in the context of material or mental well-being. The fifth and sixth questions were related to intrinsic motivation and observed how the participants' effort level changed under two conditions, namely, interest in work and social responsibility in work. The seventh question is about our control group, which asks participants to rate how well they worked without either material benefits or enthusiasm for work. Question 8 lists whether participants agree or disagree with the statement that over-reliance on extrinsic motivation leads to a weakening of intrinsic motivation. The ninth question is related to the eighth question, and the question is "if you find that your work is interesting and challenging, but the company will only give you material benefits such as salary increases, bonuses, and prizes according to your business volume and output, how hard will you work?".

After three days of questionnaire collection, we received a total of 387 questionnaires. Of the 387 questionnaires, 223 were valid, excluding those that took too short to answer and were marked arbitrarily. We also analyzed and compared the data of the uncleaned questionnaires and the cleaned questionnaires and found that the trend of the two was the same; only the average score was different. So we finally used 223 valid questionnaires for our data and results analysis.

We divided all the data into six groups. The control group is 0 in each treatment group, and each treatment group is relatively independent. The variable of the first group is 'Material Welfare', which is regarded as 1. The other groups are the same as the first group. The variables are 'Mental Welfare,' 'Challenging/Interesting Work,' 'Social Responsibility,' and 'both extrinsic and intrinsic motivation,' and each variable is 1 in the group.

Table 1 shows an overview of data on the working effort level for 6 groups. The mean of one group without extrinsic and intrinsic motivation is 5.239, and the standard deviation is 2.076, which indicates that the effort level of this group fluctuates greatly. The mean of other groups that have variables is higher than that of the first group, indicating that these groups performed better on the effort level. The standard deviation is between 1.363 and 1.718. Especially the group with challenging or interesting work has the highest mean and lowest standard deviation.

Table 1: The working effort level for 6 groups

	Mean	St.Dev.	Min	Max	Obs.
Control Group					
No extrinsic motivation and intrinsic motivation	5.239	2.076	1	10	223
Treatment Group					
Material Welfare	8.414	1.474	3	10	223
Mental Welfare	7.649	1.718	3	10	223
Challenging/Interesting Work	8.847	1.363	5	10	223
Social Responsibility	8.541	1.550	3	10	223
Both Extrinsic and Intrinsic motivation	8.000	1.414	4	10	223

Note: The first column shows the mean of effort for each group, and the second column shows the standard deviation for each group. The third and fourth columns are respectively the lowest and highest values of effort level in each group. The last column is the number of samples observed.

4. Main results

In this part of the study, we conducted a comprehensive analysis of the effects of different types of extrinsic rewards and intrinsic motivation on the effort level of Chinese employees. The results were based on a controlled experiment in which employees were grouped, each group exposed to a specific motivator. Below, we discuss these findings in detail and provide an in-depth analysis of the effects of each type of incentive and its impact on labor market behavior. We also contextualize our findings with relevant insights from the existing literature.

4.1. The results of the survey

First, the control group had an average effort level of 5.239 out of 10 and did not receive any specific motivational stimuli. This baseline level is critical to understanding the incremental impact of different incentive strategies. At the same time, it is worth mentioning that previous studies have shown that employees generally maintain a certain baseline effort level due to normative work expectations and self-regulation [6].

Let's first look at the consequences of extrinsic motivation. In our study, extrinsic rewards were tested in two different forms: physical benefits and mental caring. These strategies are commonly used in organizations to improve employee performance. According to Table 2, employees who received material benefits, such as bonuses and other material incentives, significantly increased their effort levels by 3.176 points, reaching an average effort level of 8.415. This result also supports the work of Eisenberger and Cameron [7], who suggested that explicit rewards can improve performance, especially on routine or uninteresting tasks. From our survey, it can be seen that the provision of spiritual care services increased the effort level by 2.410 points, as shown in Table 2, and the average effort level reached 7.649 points. Although this strategy was also effective, it was less effective than material welfare. This finding is consistent with the work of Rhoades and Eisenberger [8], who noted that perceived organizational support (including mental health care) can positively influence employee effort levels, but the motivational effects may not be as direct as tangible rewards. These results suggest that in extrinsic motivation, physical benefits are seen as more valuable and therefore more effective than mental caring in enhancing work effort.

As for intrinsic motivation, which derives from personal satisfaction and intrinsic pleasure in performing a task, we analyze it in the two key forms of task fun and social responsibility. In our third experimental group, the tasks were designed to be both fun and challenging, which led to the most significant increase in effort levels, reaching an average effort level of 8.847 (a rise of 3.608 points). This result is consistent with research by Amabile [9], who showed that intrinsically motivating tasks, especially those that are challenging and engaging, are more likely to lead to higher levels of effort, creativity and innovation. At the same time, combining work with social responsibility increased the effort level by 3.302 points, with the average effort level reaching 8.541 points. This result is supported by research such as Grant [10], who found that employees tend to be more enthusiastic and positive when their work is connected to a broader social purpose or certain social issues, thus enhancing their sense of meaningfulness and commitment. These findings clearly suggest that intrinsic motivation may be more effective than extrinsic rewards in driving employee effort, especially when the work is perceived as attractive or socially valuable.

Our research also explores the effects of combining extrinsic rewards with intrinsic motivation to see if there is a synergistic effect. Combining extrinsic rewards (e.g. bonuses), with intrinsic motivation (e.g. interesting tasks), resulted in an average effort level of 8.000, an increase of 2.761 points. However, it is worth noting that this increase is lower than the effect observed by intrinsic motivation alone, suggesting a possible "crowding out effect." The "crowding-out effect" theory described by Frey and Jegen [11] states that external incentives may weaken intrinsic motivation by diverting attention from intrinsic satisfaction in the task itself to the pursuit of rewards. This phenomenon suggests that although both extrinsic and intrinsic motivation can improve effort levels, they do not always work together effectively; In contrast, extrinsic rewards may diminish the natural appeal of intrinsically motivated tasks.

Table 2: The survey results

Dependent Variable: Working Effort Level	(1)	(2)	(3)	(4)	(5)
Material Welfare	3.176*** (0.171)				
Mental Welfare		2.410*** (0.181)			
Challenging/Interesting Work			3.608*** (0.167)		
Social Responsibility				3.302*** (0.174)	
Both Extrinsic and Intrinsic motivation					2.761*** (0.169)

Note: The columns show the coefficients for each type of factors. Standard errors are in parentheses under coefficients; *, **, and *** represent 10%, 5%, and 1% significant levels, respectively.

4.2. A comparison of all the results

To clarify further, we compared average effort levels across all treatment groups with the control group. The results were as follows (see Table 3).

Table 3: Influence of different factors on working effort level

Dependent Variable: Working Effort Level	(1)	(2)
Interesting and Challenging Tasks	8.847	68.9%
Social Responsibility	8.541	63.0%
Physical Benefits	8.415	60.6%
Combined Motivations	8.000	52.7%
Mental Caring	7.649	46.0%
Control Group	5.239	/

Note: Column (1) shows the employees' working effort levels with different factors and Column (2) shows the percentage increase in these results compared to the baseline (Control Group).

This comparison highlights that intrinsic motivation, especially those related to the nature of work, is more effective than extrinsic rewards in boosting employee effort. This finding is consistent with the theory proposed by Deci and Ryan [12], which emphasizes the importance of autonomy and intrinsic motivation in achieving optimal performance.

4.3. Key insights and implications

Summarizing our findings and distilling key insights and implications, our findings are consistent with previous research showing that intrinsic motivation is generally more effective than extrinsic rewards in increasing employee effort. This means that employers should focus on creating roles and tasks that are inherently engaging and aligned with employees' values [13]. In the external reward, material welfare is more effective than spiritual care; In intrinsic motivation, interesting and challenging work is slightly better than social responsibility, although both are highly effective.

However, our comprehensive analysis reveals a key phenomenon, the "crowding-out effect," which may actually reduce the effectiveness of intrinsic motivation when extrinsic rewards are offered. This is because extrinsic incentives, such as bonuses or tangible rewards, may divert employees' attention from the intrinsic satisfaction and enjoyment of the job itself to external rewards. As a result, employees may become less intrinsically motivated and passionate about their tasks, thus relying on external rewards for motivation [11].

This shift is particularly problematic in tasks that are naturally appealing or aligned with an employee's personal values. For example, when employees are rewarded financially for tasks they enjoy that are intrinsically motivated, they may begin to view those tasks as obligations to perform solely for the reward, rather than for job satisfaction. This can weaken their motivation to initially invest in the task, thereby reducing the level of effort and quality of their work [14].

In addition, extrinsic rewards can also lead to dependency, where employees may expect to be rewarded for their efforts and reduce motivation when those rewards are not available. Over time, this dependency weakens intrinsic motivation, causing employees to no longer derive satisfaction from their work in the absence of external rewards. This undermines long-term motivation, leading to lower job satisfaction and lower overall performance [15].

Given these insights, employers must carefully balance their use of extrinsic rewards while employing strategies that support and foster intrinsic motivation. Rather than relying solely on monetary incentives or tangible rewards, organizations should consider fostering a work environment that emphasizes autonomy, mastery, and a sense of purpose - elements that have been shown to maintain and enhance intrinsic motivation. By doing so, employers can avoid the trap of

the "crowding out effect" and cultivate a workforce that is both driven by intrinsic satisfaction and committed to the larger purpose of the organization [16].

Conclusively speaking, while extrinsic rewards may be effective in some situations, their potential to undermine intrinsic motivation cannot be ignored. Employers must be aware of this dynamic when designing incentive structures to ensure that they do not inadvertently reduce the incentives they are trying to enhance. A delicate balance is needed, in which extrinsic rewards are used wisely and combined with efforts to foster a work environment that aligns with employees' intrinsic motivations and values [11].

These insights and implications are critical for organizations that aim to optimize employee performance. By focusing on intrinsic motivation and carefully balancing extrinsic rewards, employers can foster a more motivated and productive workforce that ultimately increases output and productivity.

4.4. A notable grouping

Finally, it is worth noting that our results and subsequent discussion are most applicable to participants who initially exhibited moderate levels of effort rather than those who consistently put in very high or very low effort. To better understand the effects of different motivational strategies on different pre-existing effort levels, as shown in Table 4, we divided participants into three distinct groups based on their initial effort levels.

Table 4: Grouping of initial working effort level

Dependent Variable: Working Effort Level	(1)
Low initial effort level group	1-4 (31.4%)
Middle initial effort level group	5-6 (43.6%)
High initial effort level group	7-10 (25.0%)
Baseline of Control group	5.239

Note: Column (1) shows the initial effort level for each group. This group is shown in parentheses as a percentage of all participants.

The low initial effort level group comprised 31.4% of participants, including those individuals who exhibited relatively low effort levels at the outset. These participants may represent employees who lack interest in their work or who are holding back their performance due to external pressures. Understanding how this group responds to different motivational strategies is important because these employees are often the primary targets of performance improvement interventions. However, our findings suggest that motivational strategies that are effective for the moderate effort group may not be as effective for the low effort group, and such employees may need to make more fundamental changes to their work environment or roles to see significant improvements.

The middle initial effort level group, which accounted for 43.6% of participants, was the largest group and covered those individuals with moderate initial effort levels. These participants were generally more sensitive to motivational interventions because their effort levels were neither low enough to show a significant sense of disengagement nor high enough to have reached their maximum effort capacity. The medium effort group is particularly important for organizational strategy because they tend to be the most susceptible to motivational changes and are therefore a key group to test the effects of different motivational approaches. Our study found that motivational

strategies, both extrinsic and intrinsic, had the most significant impact on this group, suggesting that targeted interventions could significantly improve their productivity.

The high initial effort level group comprised 25.0% of participants, including those individuals who exhibited high effort levels at the outset. These individuals are likely to be highly engaged, driven by intrinsic motivation in the work itself or by strong personal or professional goals. The challenge is that this group may have reached a level close to their maximum effort capacity, making it difficult to move up further through standard motivational strategies. In fact, our results suggest that for this high-effort group, additional extrinsic rewards may have limited effect and may even interfere with intrinsic motivation in accordance with the "crowding-out effect" discussed earlier. Therefore, strategies that work well for moderate effort groups may not work here, as these participants may need more sophisticated or personalized forms of recognition and support to maintain or enhance their already high effort levels.

The average initial effort level in the control group was 5.239, providing a key reference point for evaluating the effectiveness of motivational strategies. This benchmark was in the moderate effort range, indicating that the initial effort level of the control group represented a moderate level of commitment to the work of the broader group. By comparing the responses of the three effort-level groups to this benchmark, we can better assess how different work groups respond to motivational interventions and thus adjust strategies accordingly.

Grouping participants according to their initial level of effort helped us identify subtle differences in the impact of motivational strategies on employee performance. It also highlights the importance of a personalized approach to motivation - strategies that work for one group may not work so well for another. This insight is critical for organizations that aim to optimize incentive structures and create work environments that meet the diverse motivational needs of their employees.

5. Conclusion

Our research discusses motivations' impacts on employee effort in the Chinese labor market. When employees and employers take the right approach, the company can reach a higher income. In the previous part of this paper, it discussed the result of our research. We came to two main conclusions. Both of them can contribute to society in many fields, and companies, employees, and even governments can take methods to reach reciprocity in the job market.

The first one is that intrinsic motivations like fun or challenging work and responsibility (like when the work is related to social issues) are obviously more effective than extrinsic motivations like extra wages and mental caring. So, what can people do to promote intrinsic motivation so that companies can reach higher achievement? For individuals, they can identify personal values and passions and focus on skill development. Employees should reflect on personal values and seek roles that resonate with those and continuously develop their skills that contribute to personal satisfaction and make work more enjoyable and engaging. These alignments enhance intrinsic motivation. Companies need to cultivate intrinsically and positive work environments. When companies design jobs that offer meaningful work, autonomy, and opportunities for personal growth and implement programs that emphasize skill development and challenges, the work will be engaging and rewarding, which can develop employees' intrinsic motivations. In addition, they should also foster a culture of collaboration and support where fun and enjoyment in work are prioritized, encouraging creativity and innovation by allowing employees to experiment and take risks. Not only individuals and companies can make changes, but the government can also introduce policies to support employees' work-life balance. To be more specific, it is economically beneficial

to implement regulations that encourage flexible work arrangements, allowing employees to manage their work-life balance and improving intrinsic motivation.

Although the fact that intrinsic motivation is more effective than extrinsic motivation is distinctly right, it does not mean that extrinsic motivations are not useful for boosting efforts. Individuals can take initiative like volunteering for additional responsibilities or projects, which can lead to recognition and potential promotions or raises. And they should also proactively negotiate for additional pay, such as overtime wages. Companies can balance their extrinsic rewards by offering competitive salaries and benefits while ensuring these do not overshadow intrinsic motivations. If companies do not pay extra wages for extra working time, or employees will be disgruntled then lose their passion for work and just slack off. The government can incentivize employee engagement, such as designing tax incentives or grants for companies that prioritize employee engagement strategies over mere financial incentives.

In addition to the characteristics of intrinsic and extrinsic motivation, our research also found a relationship between them. They will affect each other, and extrinsic motivations will crowd out intrinsic motivations, which means that too many extrinsic motivations will weaken the impact of intrinsic motivations. This is called the overjustification effect in psychology, which is a phenomenon in which being offered an external reward for doing something we enjoy diminishes our intrinsic motivation to perform that action. So, companies should control the level of their extra rewards for employees to make sure that the extrinsic motivations are within limits.

References

- [1] Ltd, I. D. (2018). Survey Reveals Employee Productivity Averages 2 Hours and 53 Minutes a Day. Vouchercloud. <https://www.vouchercloud.com/better-living/office-worker-productivity>
- [2] Schulte, B. (2015). Work interruptions can cost you 6 hours a day. An efficiency expert explains how to avoid them. The Washington Post. <https://www.washingtonpost.com/news/inspired-life/wp/2015/06/01/interruptions-at-work-can-cost-you-up-to-6-hours-a-day-heres-how-to-avoid-them/>
- [3] Gächter, S., & Falk, A. (2002, March). Reputation and Reciprocity: Consequences for the Labour Relation. The Scandinavian Journal of Economics, pp. 104(1), 1-26.
- [4] Pereira, P. T., Silva, N., & Silva, J. (2006, March). Positive and negative reciprocity in the labor market. Journal of Economic Behavior & Organization, pp. 59(3): 406-422.
- [5] Fehr, E., & Falk, A. (2008). Reciprocity in Experimental Markets. In Handbook of Experimental Economics Results (pp. 325-334).
- [6] Deci, E. L., Ryan, R. M., & Williams, G. C. (1996). "Motivational Antecedents of Adherence to Long-term Medical Regimens: Applications of Self-determination Theory." Journal of Personality and Social Psychology, 71(6), 1104-1113.
- [7] Eisenberger, R., & Cameron, J. (1996). "Detrimental Effects of Reward: Reality or Myth?" American Psychologist, 51(11), 1153-1166.
- [8] Rhoades, L., & Eisenberger, R. (2002). "Perceived Organizational Support: A Review of the Literature." Journal of Applied Psychology, 87(4), 698-714.
- [9] Amabile, T. M. (1993). "Motivational Synergy: Toward New Conceptualizations of Intrinsic and Extrinsic Motivation in the Workplace." Human Resource Management Review, 3(3), 185-201.
- [10] Grant, A. M. (2007). "Relational Job Design and the Motivation to Make a Prosocial Difference." Academy of Management Review, 32(2), 393-417.
- [11] Frey, B. S., & Jegen, R. (2001). "Motivation Crowding Theory: A Survey of Empirical Evidence." Journal of Economic Surveys, 15(5), 589-611.
- [12] Deci, E. L., & Ryan, R. M. (1985). Intrinsic Motivation and Self-Determination in Human Behavior. New York: Springer US.
- [13] Gagné, M., & Deci, E. L. (2005). "Self-determination Theory and Work Motivation." Journal of Organizational Behavior, 26(4), 331-362.
- [14] Deci, E. L., Koestner, R., & Ryan, R. M. (1999). "A meta-analytic review of experiments examining the effects of extrinsic rewards on intrinsic motivation." Psychological Bulletin, 125(6), 627-668.

- [15] Ryan, R. M., & Deci, E. L. (2000). "Intrinsic and extrinsic motivations: Classic definitions and new directions." *Contemporary Educational Psychology*, 25(1), 54-67.
- [16] Pink, D. H. (2009). *Drive: The Surprising Truth About What Motivates Us*. Riverhead Books.