WORKERS' RESPONSE TO MONETARY INCENTIVES IN FOR-PROFIT AND NON-PROFIT JOBS

Billur Aksoy[1, *] **Angela C. M. de Oliveira**[2] **Catherine Eckel**[3]

Version: June 8, 2024

Abstract

When workers decide how hard to work, they consider not only extrinsic factors (e.g., the salary), but also the type of work and the mission of the organization. We study the relationship between monetary compensation and worker effort in non-profit and for-profit settings using a modified gift-exchange experiment. Contrary to some prior research, we find that having a mission does not reduce the responsiveness of effort to increasing wages. Workers are more responsive to *higher* wages in a non-profit setting, contributing to our understanding of how the presence of a mission and monetary payments interact in work settings.

Keywords: worker motivation, non-profit, gift-exchange game, lab experiment.

JEL Classifications: C90, L31, J20.

Funding and Ethics Approvals: This project was funded by National Science Foundation (SES-1062055 and SES-1344018). The funding source had no direct involvement in this study. IRB approval was obtained from Texas A&M University (*IRB2013-3026D*).

[*] Corresponding author.
[1] Department of Economics, Rensselaer Polytechnic Institute, 3404 Russell Sage Laboratory, 110 8th Street, Troy, NY 12180. Email: aksoyb3@rpi.edu
[2] 203 Stockbridge Hall, University of Massachusetts, Amherst, MA 01003. Email: adeolive@resecon.umass.edu
[3] Department of Economics, Texas A&M University TAMU 4228, College Station, TX 77845-4228. Email: ceckel@tamu.edu

1. Introduction

The workplace culture has been undergoing significant changes with the emergence of Millennials and Generation Z adults who have distinct preferences and motivations compared to prior generations. These generations, currently representing roughly half of the US workforce and continuing to grow, place a high value on social issues. This cultural shift underscores the importance of examining the relationship between monetary incentives and mission-driven motivations on productivity in the workplace.

One crucial aspect of a successful charitable or mission-driven organization is its people – the workers who often accept lower monetary compensation to dedicate their time and talents to the organization's mission. Selecting and motivating effective workers presents a significant challenge for such organizations. In the United States, workers in non-profit organizations earn less than their for-profit counterparts: Preston (1989) finds a pay gap of 18%, controlling for industry and human capital characteristics.[1] Previous research suggests several reasons for this pay gap, including workers receiving nonpecuniary rewards, viewing their work as a form of "labor donation," or lower wages being necessary to attract more intrinsically-motivated individuals (see footnote 4). Due to the demographic makeup of the non-profit sector, this wage differential may contribute to overall racial and gender disparities in pay. Therefore, it is important to understand the relationship between monetary compensation and workers' productivity, and whether this relationship differs based on the type of organization. The main goal of this paper is to study the relationship between monetary compensation and worker effort decisions in non-profit and for-profit settings.

The dynamics of the labor market and the determinants of worker motivations are commonly studied in the experimental literature through the use of a gift-exchange game.[2] Typically, a standard gift-exchange game consists of a bilateral relationship between a worker and a manager, in which the manager determines the wage and the worker, upon observing the wage, decides how much effort to exert. The majority of the research in the gift-exchange literature has traditionally focused on a simplified environment where the roles of the firm owner and manager are merged. Yet, in many organizational settings, these roles are distinct. For example, in corporate structures, shareholders own the firm while managers (e.g., CEOs) control and oversee its operations. A similar structure also exists for charitable organizations, with the distinction that instead of shareholders receiving the benefits, the benefits are the public good being created. Our experiment considers this by separating the owner and manager. We create a trilateral setting by adding a third role to the standard two-player game, which allows us to examine the relationship between monetary compensation and worker effort in comparable non-profit and for-profit environments.

[1] More recent evidence suggests that this pay gap has decreased over time (Hirsch et al., 2018). Additionally, some studies show that in more profitable sectors, where for-profit and non-profit firms coexist (as in health care) non-profit workers may earn more than their for-profit counterparts, primarily due to upward pressure from the non-distribution constraint. This constraint specifies that profits cannot be distributed to shareholders. Consideration of the impact of such factors is beyond the scope of our paper. See Ruhm and Borkowski (2003) for a survey of studies of non-profit compensation.

[2] See Fehr et al. (1993) for the first gift-exchange (efficiency-wage) experiment, which translates the idea of efficiency wages (Akerlof and Yellen 1990) into the lab. See also Fehr et al. (1998). For a survey of lab labor experiments including gift-exchange game that is utilized in this paper, please see Charness and Kuhn (2011).

More specifically, we use a modified gift exchange game that includes three types of actors: workers, managers, and firm owners. The difference in organizations is implemented by varying the identity of the "firm owner," who can be either another subject in the lab (representing the residual claimant in a for-profit firm) or a non-profit organization. The decisions made by workers and managers generate payments for the passive firm owner who does not make any decisions.[3] Since workers are randomly assigned to either a Non-Profit or For-Profit firm in the experiment, self-selection into a mission is not possible, eliminating the inherent correlation between mission motivation and non-profit employment in observational data. In practice, self-selection, the presence of a mission, and monetary compensation can all impact worker motivation. However, by removing self-selection, our design captures the difference in a key motivating factor: the mission of the firm. Thus, our controlled experiment enables us to investigate the causal relationship between financial compensation and effort across the two settings, which is the focus of this paper. Section 2 provides a detailed discussion of the related literature, including the impact of self-selection into non-profit employment on worker motivation and the role of mission motivation.

First, we find that workers exert more effort when randomly assigned to an exogenously chosen mission-oriented job, but only when the wages are sufficiently high. For low wages, workers provide similar levels of effort. This finding contributes to the literature that examines the extent to which the existence of a mission increases worker effort. Next, we investigate whether managers offer different wage levels between Non-Profit and For-Profit firms, considering the observed difference in effort exertion. Surprisingly, we find that the wages offered by managers are similar across these two types of firms. As a result of the behaviors exhibited by workers and managers, the Non-Profit firm generates higher surplus (i.e. profits).

While we discuss the related literature and the differences and contributions of our paper in Section 2, overall, we contribute to the existing literature in two main ways. Firstly, by randomly assigning workers to either a Non-Profit firm or a For-Profit firm, we eliminate the possibility of self-selection into a particular mission, thus removing the inherent correlation between mission motivation and non-profit employment. This design allows us to isolate and study the impact of financial compensation on worker effort in both settings, providing valuable insights into the relationship between compensation and motivation. Secondly, the trilateral setting in our treatments– an aspect that remains underexplored in this literature– ensures equivalence by generating external payments to a third party in both the Non-Profit and For-Profit settings. As a result, the total benefits generated by worker effort are similar across the two settings, enabling us to compare the effects of compensation on effort without confounding factors. All in all, our research sheds light on the intricate interplay between financial incentives and mission motivation in organizational settings.

Our findings have significant implications for managing workers in non-profit organizations. Contrary to prior theoretical arguments, we found no evidence that appropriately compensating individuals based on their value to the organization hinders their effort. In fact, paying efficiency wages further enhances their effort and engagement. Surprisingly, we observe that managers, even in this abstract setting, fail to recognize this important truth. In real-world scenarios, the failure to recognize that individuals do not have to be underpaid to exhibit strong dedication in a

[3] In Section 3.2., we discuss design decision details and explain how and why we designed our experiment this way.

charitable organization may contribute to gender and racial inequality in the labor market and likely affects retention rates.

2. Related Research

What motivates workers? Many studies have addressed aspects of this question. While monetary incentives are clearly important, the employment relation is broader and more complex than its characterization by economists (Lazear 2018 reviews the former, while Cassar and Meier 2018 review research on nonmonetary incentives). There is a vast literature looking into this question and addresses several key issues.

The first key issue is the importance of pro-social motivation for selection into non-profit or public sector jobs. Employment is a two-sided selection process, with firms choosing workers, and workers choosing jobs. Organizations selecting more pro-social workers, and pro-social workers preferring non-profit sector jobs, produce powerful selection effects. Indeed, several studies document higher levels of pro-social behavior among public sector workers (e.g., Dur and Zoutenbier 2014, 2015; Banuri and Keefer 2016a; Banuri and Keefer 2016b; Carpenter and Myers 2010; Gregg et al. 2011).

The second key issue is the crowding out of pro-social motivation by monetary incentives.[4] Many prior studies examine the relationship between intrinsic motivation and incentives. This literature tends to focus on the extent to which financial compensations crowds out intrinsic motives (e.g., Frey and Jegen 2001). This phenomenon, termed by psychologists the "undermining effect," was first highlighted in economics (specifically in our context) by Gneezy and Rustichini (2000) which shows that paying intrinsically-motivated volunteer fundraisers can lower work effort unless those incentives are sufficiently high. Building on this notion, Cerasoli et al. (2014) note that, despite the existence of several meta-analyses, the question of how these different types of motivation interact has not been fully explored. Their own meta-analysis shows that that both monetary and non-monetary compensation are important and, they argue, should be used in partnership to motivate workers. Our findings of higher effort in response to higher wages in the Non-Profit setting relative to the For-Profit setting contribute to this literature by expanding our understanding of the role that monetary incentives play.

Finally, the third key issue, and the main contribution and focus of this paper, is the extent to which mission increases worker motivation. A considerable body of research is devoted to modeling and testing the role that pro-social preferences play in worker motivation, with altruism or pro-social motives contributing to greater worker effort in settings where the firm has a pro-social mission, as in a government or non-profit organization. Besley and Ghatak (2005)

[4] Crowding out can also occur in the selection process itself. It is sometimes argued that offering higher compensation to workers in the care sector, for example, could lead to the wrong kind of workers seeking those jobs, and to lower quality care (England et al. 2002; Folbre 2012). While higher monetary rewards increase the number of applicants for a position, it may also elicit applications from candidates with lower levels of commitment and intrinsic motivation (Delfgaauw and Dur 2007, 2008), "crowding out" the more highly-motivated workers. Banuri and Keefer (2016b) show in an experimental setting that higher payment attracts workers with less pro-social preferences to work on pro-social tasks. This confirms the idea that pro-social motivation is related to selection, and hints at the possibility that higher wages will select the "wrong" workers.

developed a theory regarding mission alignment and its impacts on worker motivation (see also Besley and Ghatak 2018 for a survey of models of mission motivation). They predict that workers self-select into missions and this mission match enhances their efficiency at work. They show that if the workers are matched with the right mission, they work hard even when the financial incentives are little. However, high-powered incentives are needed to get workers to exert effort in the case of a mission mismatch. There have been some studies testing the implications of this model and the findings are generally in line with the predictions (e.g. Gregg et al., 2011; Serra et al., 2011; Gerhards, 2015; Carpenter and Gong, 2016; Smith, 2016; Banuri et al., 2018).

On the contrary, Cassar (2019) does not find any difference in the effort when the mission is matched compared to random mission assignment, though the presence of *any* mission (random or matched) does increase effort compared to the no-mission treatment. However, her mission and no-mission treatments are not equivalent in that only the mission treatments generate an external payment to a third party, and therefore effort generates a larger total benefit (profit to the manager plus external payment to the nonprofit). This may be why the mission treatments lead to higher effort. Differently in our experiment, we fix the total monetary benefits generated. Similar to Cassar (2019), we also find that a pro-social mission results in higher effort, but in our case, only when the wage paid is high. In contrast to Cassar (2019), we find that managers offer the same wages across the two treatments, while her results show inefficiently low wages by for-profit managers. Our managers are unaffected by the mission in their choice of wages, and this results in higher profits generated in our Non-Profit treatment. Armouti-Hansen et al. (2020) explore efficiency wages as we do, in For-Profit and Non-Profit treatments (i.e. no piece rate). However, like Cassar (2019) the treatments are not equivalent, in that an external payment is only generated in the Non-Profit treatment. Moreover, unlike our study, effort choices by workers are elicited using a strategy method where the worker indicates for each possible wage whether they would accept the offer and their selected effort level. They find that workers will accept lower offers in the Non-Profit treatment and exert greater effort for a given wage level.

In a closely related study, Fehrler and Kosfeld (2014) conduct an experiment to investigate mission motivation and the importance of selection into mission-motivated organizations. Although their design is similar to ours, they are different in two important ways. First, they use a partner-matching design where subjects play in the same groups across all periods of the experiment. Second, their labor contracts are not efficiency wages, but rather include a fixed payment (set by the experimenter) and a piece rate (selected by the manager). Possibly due to these differences in design, in contrast to our findings, they find that workers are not motivated by the mission of their organization but rather selection plays an important role.

3. Experimental Design

3.1. Overview

We use a modified gift-exchange game. In this modified version, subjects are randomly assigned to one of three roles: a worker, a manager, or a firm owner. First, the manager determines a wage level to be paid to the worker. Then, the worker observes the wage and decides how much effort

to provide.[5] Both the wage paid, and the effort level provided determines the earnings for all three group members. The payoff functions, which are modified versions of Charness et al. (2004), are as follows:

$$\pi_w = wage - c(e) \quad (1)$$

$$\pi_M = 0.40 \text{ x Profit} \quad (2)$$

$$\pi_F = 0.60 \text{ x Profit} \quad (3)$$

$$\text{Profit} = 2 \text{ x } (100 - wage) \text{ x } e \quad (4)$$

where W, M, and F represent worker, manager, and firm owner respectively; and c(e) denotes the cost of providing the effort level, e. Worker receives the wage ($wage \in \{10, 20, 30, 40, 50, 60\}$) determined by the manager and bears the cost of their chosen effort level. We use the Charness et al. (2004) cost of effort schedule which is shown in Table 1.

Table 1: Worker's Cost of Effort Schedule

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

e is the effort level chosen by the worker. $c(e)$ is the worker's cost of providing effort, e.

While the wage increases the worker's payoff, it decreases the profit. Both wage and effort determine the profit which in turn determine the earnings for the manager and the firm owner. The profit is calculated according to eq. (4) and is shared between the manager and the firm owner. The firm owner receives 60% of the profit and the manager receives the remaining 40%.[6] In this game, reflecting the passive role of most shareholders, the firm owner does not make any decisions: They simply collect their share of the profit.

The roles are assigned randomly at the beginning and fixed across all rounds, consistent with most of the literature. Subjects are placed in groups of three that consist of one worker, one manager and one firm owner. Groups are re-matched randomly in each round. This design choice minimizes the impact of a specific history of play on the outcome of subsequent rounds, which can create a confound.[7] Subjects play this game for 20 rounds and are paid at the end for two randomly selected

[5] In a pilot experiment, we used a strategy method to elicit worker's response to wages. We found that the strategy method caused workers to focus mostly on the payment structure, which decreased the saliency of the treatments (i.e. the identity of the firm owner). As a result, we opted to take a more realistic approach and use the direct response elicitation method.

[6] One might wonder whether the relationship between effort and wage varies depending on the profit-sharing rules in place. While we did not include a treatment using a different profit-sharing rule, Maximiano et al. (2013) study this interesting question among other research questions. Using a trilateral setting, they study two different profit-sharing rules between the firm owner and the manager (with the firm owner, in both treatments, being another subject in the lab, similar to our For-Profit Treatment). They find no significant difference in wage-effort relationship across different profit-sharing rules.

[7] There are several studies in the public goods literature showing that "partners" matching designs lead to more extreme results (more groups converging toward zero and toward full contributions) than "strangers" matching designs. Partners matching can make treatment differences more difficult to detect. See, for example, Andreoni and Croson (2008).

rounds. At the end of each round, we provide feedback about the wage chosen, effort provided, and the earnings.

We have two treatments: For-Profit and Non-Profit. The difference between the two treatments is the identity of the firm owner. In the For-Profit treatment, the firm owner is another subject in the lab who receives a share of the profit, whereas in the Non-Profit treatment, it is a non-profit organization.

3.2. Key Experimental Design Considerations

In this subsection, we discuss the experimental design decision details that ultimately resulted in the design described in the previous section.

Ensuring that our two treatments are comparable, except for the identity of the firm owner, is critical. A trilateral setting in both treatments helps ensure that the total group benefits generated by worker effort is the same across the two treatments, thereby minimizing potential confounding factors by varying only the identity of residual claimant.

On the other hand, who should best act as the firm owner in these treatments is not immediately apparent. After carefully considering various options, we decided to use another lab participant as the firm owner in the For-Profit treatment and a local non-profit organization for the Non-Profit treatment. It is common in experimental economics for firm owners to be represented by subjects in the lab. Beginning with early experimental tests of oligopoly theory (e.g. Friedman 1967) it has been standard practice to do so. Having a firm represented by a single decision maker also is consistent with theoretical models that treat a firm as a single agent.[8] Specifically for our study's purposes, using another subject in the lab to represent a firm owner in our For-Profit treatment is a reasonable reflection of a real-world corporate environment, where residual claimants in for-profit firms are largely passive with respect to managerial decisions.

After completing our data collection, we came across two other studies discussed above, Maximiano et al. (2013) and Fehrler and Kosfeld (2014), which also use a trilateral gift exchange setting with separate roles of ownership and control. Interestingly, even though we designed our experiment before we became aware of these studies, they too used another subject as a firm owner, similar to our For-Profit treatment. The consistency in experimental design across these studies (which are, to the best of our knowledge, the only other studies that use a trilateral gift exchange setting) lends additional credibility to our design choices. Nevertheless, future research could explore the robustness of our results to alternate designs.

The charity selected for the Non-Profit treatment is Operation Kindness, which is the largest and oldest no-kill animal shelter in North Texas. We made this choice because in our prior work we observed that animal-related charitable organizations were particularly popular with student

[8] Having an individual make decisions as a firm also ensures internal validity. However, clearly firms are teams of agents, and even individual decisions within firms are made on behalf of groups of others. The external validity of this approach has been tested in a variety of settings, and for the most part the behavior of individuals as firms is indistinguishable from the behavior of teams as firms. See the recent discussion in Waichman and von Blanckenburg (2020).

subjects. At the end of the Non-Profit treatment sessions, we randomly select one of the subjects to be the monitor. The monitor is paid an extra $5 to stay a little longer to verify that earnings generated for Operation Kindness are donated on the organization's website. This is to increase subjects' trust in the experimenters that the earnings generated for the charity were indeed donated.

One may also wonder how our trilateral gift exchange experiment compares to the bilateral gift exchange experiments commonly conducted in the literature. Although this was not a focus of our study (and thus we do not have a treatment arm to study this issue), this specific question was the focus of Maximiano et al (2013). Maximiano et al (2013) is an interesting and related study which examines the robustness of the bilateral gift exchange experiment outcomes "when the labor relationship is placed in a more complex and more realistic social context" (p. 42). In their study, the firm is owned by a shareholder but controlled by a manager, mirroring the typical corporate structure and also aligning with our trilateral setting in the For-Profit Treatment. They found no significant differences in the wage-effort relationship when comparing bilateral to trilateral settings.

4. Conceptual Framework

In neo-classical economics, agents are characterized as selfish and rational utility maximizers, engaging in behavior that maximizes their own monetary payoffs. Under these assumptions, the Subgame Perfect Nash equilibrium (SPNE) can provide theoretical predictions for a two-person gift-exchange game. This game involves a bilateral relationship between a worker and a manager where a manager sets the wage level and the worker, upon observing the wage, decides how much effort to exert. According to the SPNE in this standard gift-exchange game, workers are predicted never to reciprocate beyond the minimum possible effort (i.e. 0.1). This is because, although a higher level of effort increases the manager's earnings, it is costly for the worker to exert effort. Anticipating this response, managers then offer the lowest possible wage (i.e. 10).

As described in Section 3, we use a modified (i.e. trilateral) gift exchange game where we introduce a passive third party who plays the role of a firm owner. Neither the inclusion of a third party nor the identity of this third party alters the strategic interplay between worker and manager. Thus, the SPNE predictions of low effort and low wage hold true in our modified game, across both treatments. Overall, from a purely self-interested theoretical perspective, one would not expect to see a difference in behavior of either the worker or the manager across our Non-Profit and For-Profit treatments.

Despite these theoretical predictions, prior research in economics using gift-exchange games– and research in experimental and behavioral economics more broadly– has shown that behavior frequently deviates from these self-interested predictions. In the context of a gift-exchange game, workers tend to exhibit reciprocity (both positive and negative) and often exert higher levels of effort than predicted by theory. Similarly, perhaps in anticipation of such behavior, managers often offer higher wages than theoretically predicted. Higher wages accompanied by higher levels of effort lead to mutually beneficial relationships where both workers and managers can be financially better off. Indeed, there is a large literature documenting a positive relationship between wages and effort (for a review, see Fehr and Gächter, 2000). Informed by these

findings, one would expect to see wages and effort levels exceeding theoretical predictions, along with a positive relationship between wage and effort. In terms of treatment differences in our experiment, two competing hypotheses can be developed.

On one hand, the workers and the managers may not care who owns the firm and they may be more focused on the reciprocal relationship among decision-making agents (i.e. workers and managers). That is, the reciprocal dynamics between manager and worker might overshadow any potential influence of the firm owner's identity.[9] This would lead to no significant differences in behavior across the two treatments.

On the other hand, the workers might care about the mission of the organization they work for, and the pro-social motivation in the Non-Profit treatment might induce higher levels of effort. This does not necessarily negate the presence of pro-social motivation in a for-profit setting altogether. Indeed, nonmonetary motives do play an important role for worker motivation and effort (for a review, see Cassar and Meier, 2018). However, considering the distinctive nature of employment in a non-profit organization, where the social benefits generated are more pronounced, workers may feel a stronger drive to exert greater effort.[10] Consequently, this would lead to a steeper, stronger reciprocal relationship or increased effort across all wages, both boosting the profits and, by extension, the firm owner's earnings.

The prediction for manager behavior (i.e., the wages) in this case is more complex. First, the manager makes a decision without complete information, based on beliefs about how the worker will respond. These beliefs might vary across the two treatments. Second, higher wages decrease the profits generated unless the increased wages lead to sufficiently greater effort to offset the lost profits. If the manager believes that the worker will exert higher levels of effort, even for low wages, due to the mission of the firm, they may offer relatively low wages. However, if the manager believes that the net impact of increasing wages will be positive (i.e. the worker will show stronger reciprocity towards higher wages), this could lead to higher wages. Overall, because of the uncertainty about worker's response and the tradeoff between higher wages and profits, it is unclear how the manager will respond to the treatment differences. Thus, this is an empirical question, which we now explore.

5. Results

We conducted eleven sessions in the Economic Research Lab at Texas A&M University (TAMU) in February and March 2018, with a total of 251 subjects. The experiment was

[9] Indeed, Fehrler and Kosfeld (2014) do not find a difference in behavior consistent with this prediction. This might be attributed to the use of a partner-matching design, which might have accentuated the reciprocal relationship between the worker and the manager. However, despite also employing a partner-matching design, the results of Armouti-Hansen et al. (2020) do not align with this prediction. Nonetheless, making an exact comparison between these papers (including ours) is challenging due to other design differences between the studies, as discussed in Section 2. Future research could explore the role of such design decisions (e.g., the use of partner- vs. stranger-matching) in this context.

[10] Alternatively, the workers might exhibit inequality aversion "against" the for-profit owner (e.g., shirking because of the belief that the firm owners are benefiting disproportionately without actually "doing the work"). However, considering the extensive literature on Dictator Games, where subjects in the lab often exhibit pro-social attitudes towards other passive subjects (i.e. "receivers" in a dictator game), we believe this factor likely plays a negligible role.

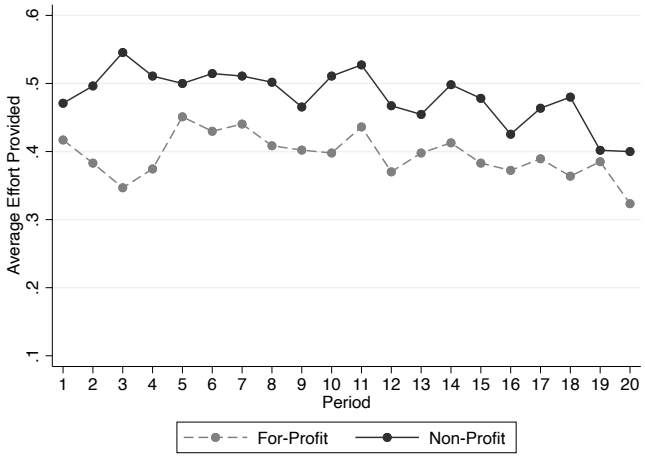
programmed in z-tree (Fischbacher, 2007), and the undergraduate students at TAMU were recruited through ORSEE (Greiner, 2015). The number of subjects in the For-Profit treatment was 141, with the remaining 110 participating in the Non-Profit treatment. Thus, we have 47 workers and managers in the For-Profit treatment; and 55 workers and managers in the Non-Profit treatment. Table B.1. in the Online Appendix presents the key subject demographic characteristics. We do not find any statistically significant differences across the two treatment groups.

We used tokens, where 6 tokens were worth 1 USD. At the end of each experimental session, the computer randomly chose 2 periods to be the paying rounds and subjects were paid the summation of their earnings in these randomly chosen periods. In the For-Profit treatment, workers, managers, and firm owners on average earned \$10.74, \$5.81, and \$8.71, respectively. In the Non-Profit treatment, they earned an average of \$10.83, \$7.41, and \$11.11, respectively.[11] Overall, participants earned an average of \$19 including a \$10 show-up fee.

In what follows, we first present findings on workers' behavior, then we present the findings on managers' behavior and finally present and discuss the impact of these observed behavior on firm profits.

5.1. Workers

Figure 1: Average Effort Provided in For-Profit and Non-Profit Treatments across all Periods



In this subsection, we present our data on worker behavior. Figure 1 shows the average effort provided over time separately for each treatment. First, similar to previous studies using the gift-exchange game (or variants of it), we do not find support for self-interested theoretical predictions. As can be seen in Figure 1, the workers provide significantly higher effort levels than the rational theoretical prediction of 0.1 in both treatments. Second, although there are some

[11] It is important to note that comparing actual earnings across treatments is not valid due to the fact that subjects were only paid for 2 out of the 20 rounds, which were chosen randomly at the session level. Additionally, readers should notice that the firm owner in the Non-Profit treatment was a charitable organization and thus those earnings were donated on the organization's website at the end of each session.

minor fluctuations over time, the average effort provided in the Non-Profit treatment is almost always above the average effort provided in the For-Profit treatment. We see that this behavior is consistent over time with a slight decline.

To investigate the worker behavior further, Table 2 presents the average effort provided across treatments. The first column presents the overall average effort separately for each treatment and the last six columns also present average effort but separately for each possible wage level. Looking at the first column, we see that, on average, workers provide significantly higher effort in the Non-Profit treatment (0.48) compared to the For-Profit treatment (0.39). Looking at the remaining six columns, we see that there is a positive relationship between the wage offered and the effort provided in both treatments. This reciprocal relationship that we observe is similar to the findings in the literature. When we compare the effort levels across treatments for a given wage level, we notice that the treatment does not have a significant impact on effort for wages lower than 40. However, workers provide significantly higher levels of effort if the wage offered is 40 or higher. Overall, these findings imply that the workers reciprocate significantly more when they work for a Non-Profit firm relative to a For-Profit firm when the wages are sufficiently high. Otherwise, the workers' reciprocal behavioral is similar across these two types of firms.

Table 2: Average Worker Effort

		Wage Offered					
	Average	**10**	**20**	**30**	**40**	**50**	**60**
For-Profit	0.39	0.17	0.21	0.31	0.41	0.51	0.59
Treatment	(0.17)	(0.18)	(0.13)	(0.16)	(0.19)	(0.23)	(0.33)
	n=47	n=41	n=38	n=47	n=47	n=43	n=42
Non-Profit	0.48	0.15	0.21	0.34	0.49	0.64	0.72
Treatment	(0.14)	(0.10)	(0.11)	(0.15)	(0.16)	(0.21)	(0.28)
	n=55	n=46	n=45	n=53	n=55	n=55	n=47
p-values†	*0.006*	*0. 391*	*0. 965*	*0.341*	*0.028*	*0.006*	*0.044*
p-values‡	*0.009*	*0.885*	*0.698*	*0.288*	*0.030*	*0.006*	*0.054*

The average efforts reported in the table are computed by taking the average effort provided across all 20 periods by each subject. They are reported separately for a given wage level and treatment in the first 6 columns and the last column reports the average effort across all 20 periods separately for each treatment. Standard deviations are in parentheses. †two-sided t-test †Mann-Whitney test.

When we compare the distribution of effort levels provided across treatments, we see a similar story. Figures A.1. and A.2. in the Online Appendix present these distributions for low and high wages, respectively. Using the Epps-Singleton test,[12] we compare these distributions across Non-Profit and For-Profit treatments. We find that the distributions are not statistically significantly different if the wage offered is 10 (p-value: 0.105) or 20 (p-value: 0.311). On the other hand, the distributions of efforts are significantly different across For-Profit and Non-Profit treatments if the managers offer 30 or more (p-value $\leq$ 0.01 for all).

[12] Findings are similar if we use the Kolmogorov-Smirnov test.

Table 3: Panel Data Random Effects Tobit Regression Results for Worker's Effort

	(1)	(2)	(3)	(4)
Panel A				
Wage	0.015***	0.015***	0.015***	
	(0.001)	(0.001)	(0.001)	
Non-Profit	0.106**	0.099*	0.473***	
	(0.054)	(0.056)	(0.168)	
Period		-0.008***	-0.008***	
		(0.002)	(0.002)	
Female		-0.085*	-0.067	
		(0.051)	(0.051)	
Society Oriented			0.110***	
			(0.036)	
Society Oriented*Non-Profit			-0.099**	
			(0.042)	
Constant	-0.247***	-0.126*	-0.550***	
	(0.056)	(0.067)	(0.160)	
Number of Observations	*2040*	*2040*	*2040*	
Number of Groups	*102*	*102*	*102*	
Panel B				
High Wage (40-60)	0.376***	0.334***	0.344***	0.344***
	(0.020)	(0.030)	(0.030)	(0.030)
Non-Profit	0.113**	0.062	0.058	0.444***
	(0.053)	(0.055)	(0.056)	(0.162)
High Wage*Non-Profit		0.073**	0.070*	0.070*
		(0.036)	(0.036)	(0.036)
Period			-0.008***	-0.008***
			(0.002)	(0.002)
Female			-0.078	-0.059
			(0.049)	(0.049)
Society Oriented				0.113***
				(0.035)
Society Oriented*Non-Profit				-0.102**
				(0.041)
Constant	0.086*	0.114**	0.237***	-0.198
	(0.050)	(0.047)	(0.056)	(0.149)
Number of Observations	*2040*	*2040*	*2040*	*2040*
Number of Groups	*102*	*102*	*102*	*102*

*p < 0.10, **p < 0.05, ***p < 0.01. Bootstrapped standard errors are in parentheses. Dependent variable is the amount of effort provided by the worker. Since the effort must be between 0.1 and 1, the left censoring is set to 0.1 and the right censoring is set to 1.

To check the robustness of these findings, we run a panel data random effects Tobit regression and the results are presented in Table 3. In both Panels A and B, the dependent variable is *Worker Effort* which is the level of effort provided by the worker. *Wage* is the wage offered by the manager to the worker in that period. *Non-Profit* is the indicator variable that takes the value of 1 for the Non-Profit treatment, otherwise 0. *Period* is the trend variable and *Female* is the indicator variable for female subjects. Looking at columns (1) and (2) in Panel A, we see that workers are responsive to the wages offered. Workers provide significantly higher effort for

higher wage levels. Additionally, we see that workers provide significantly higher effort when they are in the Non-Profit treatment compared to the For-Profit treatment. This provides further evidence that working for a Non-Profit firm results in a stronger drive to exert greater effort.

We next examine workers' *responsiveness to the wages* in the Non-Profit treatment compared to the For-Profit treatment. To investigate this, we interact *Wage* and *Non-Profit*, and these results are presented in Table B.2 in the Online Appendix. We find some evidence of higher responsiveness to wages in the Non-Profit treatment. However, given the findings presented above, we next examine worker's behavior separately for high and low wages, and the regression results are presented in Panel B of Table 3. We use an indicator variable, *High Wage*, which takes the value of 1 if the wage offered is high (i.e., 40, 50, or 60), and otherwise zero. As presented in columns (1) - (3) of Panel B, although workers in both treatments respond to the higher wages by increasing their effort level, we find that workers in the Non-Profit treatment are significantly more responsive to the higher wages compared to the For-Profit treatment.[13] We summarize as follows.

Result 1 *Workers exert significantly higher levels of effort when they work for a Non-Profit firm relative to a For-Profit firm, but only when the wages are sufficiently high*.

As an exploratory analysis, we study heterogenous treatment effects by including a variable to measure the mission motivation of subjects. Inspired by the Public Service Measure (PSM) of Perry (1996), we construct a new variable, *Society Oriented*, by using the answers to the following question: "Making a difference in society means more to me than personal achievements."[14] The answers range from 1 ("Strongly Disagree") to 5 ("Strongly Agree"). As can be seen in column (3) of Panel A (and column (4) of Panel B) in Table 3, what distinguishes Society Oriented subjects is their behavior in the For-Profit treatment. Society-oriented individuals provide significantly higher levels of effort when they are in the For-Profit treatment (see the coefficient of Society Oriented).

As briefly discussed in Section 4, prior research shows that nonmonetary incentives are important for worker motivation in general and thus pro-social motivation can also exist in for-profit settings as supported by the extensive literature on reciprocal relationship in gift-exchange games. This specific finding in our data expands our understanding of the nature of this reciprocal relationship. Meaning, although the reciprocal relationship exists between managers and workers, workers who are more society-oriented provide even higher levels of effort. Arguably, these are the individuals who would have selected into the Non-Profit treatment, given the choice. If they had, then comparing their effort levels in the Non-Profit treatment with others in the For-Profit treatment would have led us to believe (erroneously) that mission motivation contributed substantially to their productivity. On the other hand, caring about making a difference in society does not impact behavior in the Non-Profit treatment (the summation of the coefficients of Society Oriented and Society Oriented*Non-Profit in either regression is not significantly different from zero). This may be due to a general presence of mission motivation

[13] We study the robustness of this finding by using alternative definitions of High Wage. In one case, High Wage takes the value of 1 if the wage offered was 30, 40, 50, or 60, and in another case, it takes the value of 1 if the wage offered was 50 or 60. Although we lose significance in some models, our results are directionally the same.
[14] This item is listed as PSM1 under the self-sacrifice subscale in Perry (1996).

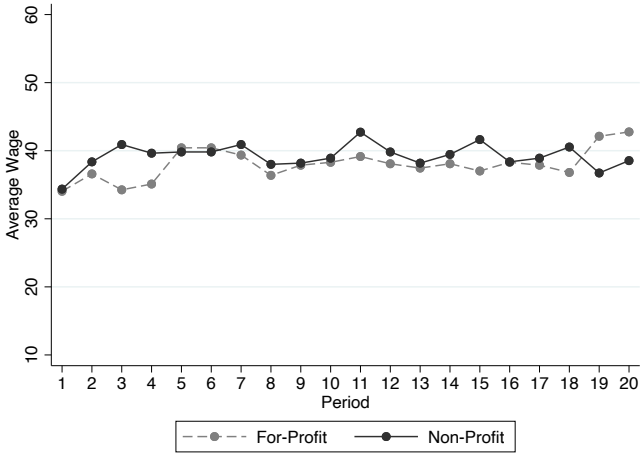
among all Non-Profit workers, diminishing any differential impact coming from society orientation. Given the unique characteristics of Non-Profit work, where social benefits are more significant, all workers may be motivated exert increased effort regardless. Future research could investigate this interesting finding further.

Finally, we also test whether higher wages crowd out intrinsic motivation of those who are more society oriented by interaction *Society Oriented* with *Wage* (Panel A) and *High Wage* (Panel B) (results are not reported in the table). If higher wages crowd out intrinsic motivation for those who are more society oriented, then one might expect to see negative coefficients on these interaction terms. In order to examine the question of crowding-out without the interpretation issues that arise in three-way interactions, we run separate regressions for the Non-Profit and For-Profit treatments. For both treatments, we do not find a significant coefficient for the *Society Oriented *Wage* or the *Society Oriented * High Wage* interactions. This indicates that there is no evidence of higher wages crowding out intrinsic motivation of society-oriented individuals in these settings.

5.2. Managers and Profits

Next, we examine managers' behavior. Figure 2 presents the average wage offered over time across treatments. First, similar to the workers' behavior, we do not find support for self-interested theoretical predictions. The managers offer significantly higher wages than the SPNE prediction of 10 in both treatments. Given that we see a differential worker response across treatments based on whether the wage offered was high, we also investigate the managers' response to the treatment. If the managers expect workers to respond to wages differently across treatments, then we would also expect to see a difference in wages offered across For-Profit and Non-Profit firms. However, this is not what we find. Looking at Figure 2, we see that wages offered across treatments are similar (and also consistent over time). On average, managers paid workers 38 and 39 tokens in the For-Profit and Non-Profit treatments, respectively (Mann-Whitney test p-value: 0:207).

Figure 2. Average Wage Paid in Non-Profit and For-Profit Treatments across all Periods



To check the robustness of these findings, we run a panel-data random-effects Tobit model regression where the dependent variable is the wage paid in each period and the findings are presented in Table 4. According to these results, wages paid across treatments are not statistically different. Although we see that managers respond positively to the effort provided in the previous round, we do not find any evidence that managers respond to the treatment. These results suggest that managers do not anticipate workers to be more responsive to wages across treatments. We summarize as follows.

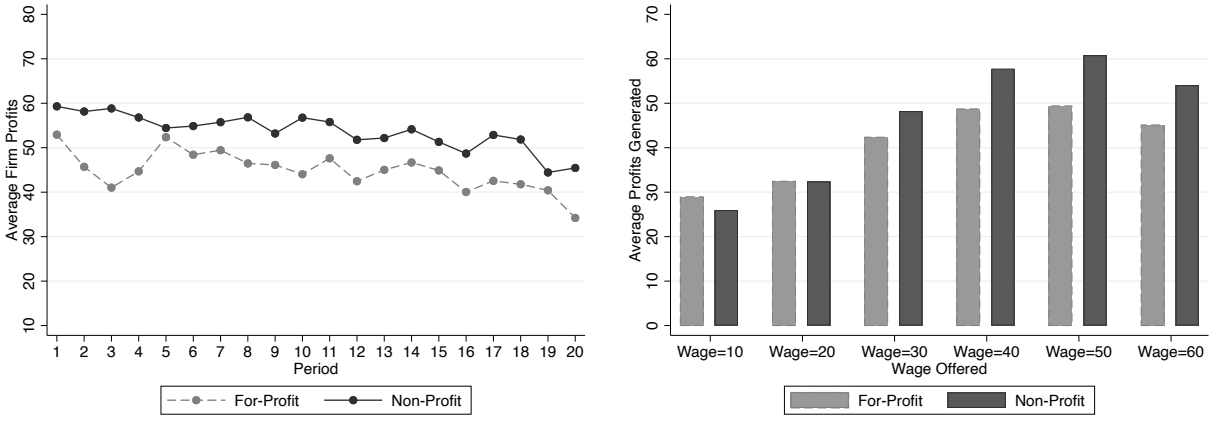
Result 2 *Managers pay similar wages to workers independent of whether they work for a Non-Profit firm or a For-Profit firm. This implies that managers in the Non-Profit treatment do not anticipate that their workers will respond more to higher wages.*

Table 4: Panel Data Random Effects Tobit Regression Results for Wage

	(1)	(2)
Non-Profit	0.747	-0.588
	(2.274)	(2.164)
Female		-1.887
		(2.340)
Period		0.089
		(0.085)
Lagged Effort		14.410***
		(1.968)
Constant	38.682***	33.329***
	(1. 540)	(2.437)
Number of Observations	*2040*	*1938*
Number of Groups	*102*	*102*

*p < 0.10, **p < 0.05, ***p < 0.01. Bootstrapped standard errors are in parentheses. Dependent variable is the wage paid by the managers. Since the wages must be between 10 and 60, the left censoring is set to 10 and the right censoring is set to 60. Due to the inclusion of Lagged Effort variable in the second column, the first period observations are dropped from analysis and thus the total number of observations decreases by 102.

Figure 3. Average Profits Generated in Non-Profit and For-Profit Treatments Across all Periods and Across Wage Levels



(a) Average Profits over Periods (b) Average Profits Across Wage

So far, we showed that the workers exert more effort when offered higher wages in the Non-Profit treatment compared to the For-Profit treatment, and there is no difference in managers' wage selection. All of these translate into higher overall profits for the Non-Profit firm compared to the For-Profit firm. Average profits are 44.85 and 53.67 tokens in the For-Profit and Non-Profit treatments respectively (Mann-Whitney test p-value < 0.001).

Table 5: Panel Data Random Effects Tobit Regression Results for Firm Profits

	(1)	(2)
Non-Profit	9.172**	0.324
	(3. 926)	(4.492)
Period	- 0.582 ***	-0. 602***
	(0.123)	(0. 121)
Wage 20		6.448**
		(2.908)
Wage 30		13. 604***
		(3.135)
Wage 40		20.832***
		(3.641)
Wage 50		23.756***
		(3.746)
Wage 60		15.863***
		(4.521)
Wage 20*Non-Profit		-1.274
		(4.289)
Wage 30*Non-Profit		5.204
		(4.094)
Wage 40*Non-Profit		10.217**
		(4.407)
Wage 50*Non-Profit		11.586**
		(4.794)
Wage 60*Non-Profit		10.388**
		(5.070)
Constant	50.389***	34.847***
	(3.458)	(3.894)
Number of Observations	*2,040*	*2,040*
Number of Groups	*102*	*102*

*p < 0.10, **p < 0.05, ***p < 0.01. Bootstrapped standard errors are in parentheses. The dependent variable is the profits generated in each round. Minimum possible profit of 8 occurs when the manager pays the highest wage of 60 and the worker provides the lowest effort of 0.1. Maximum possible profit of 180 occurs when the manager pays the lowest wage of 10 and the worker provides the highest effort of 1. Thus, the left censoring is set to 8 and the right censoring is set to 180.

Figure 3 (a) present average firm profits generated across treatments over time. Firm profits are mostly stable over time with some minor fluctuations, and they are consistently higher for the Non-Profit firm relative to the For-Profit firm. Figure 3 (b) shows the average profits generated across treatments for different wage levels. The profits across treatments are not significantly

different when the wages are either 10 or 20. However, the profits are higher in the Non-Profit treatment when the wage offered is 30 or higher (Mann-Whitney test p-values < 0.01 for all).[15]

More formally, Table 5 presents the panel data Tobit model regression where the dependent variable is the profits generated in each period. As shown in column (1) of Table 5, we find that profits are significantly higher in the Non-Profit treatment. Moreover, looking at column (2), we see that high wages result in the higher profits in both treatments. Additionally, the increase in profits in the Non-Profit treatment is higher than the one in the For-Profit treatment when the wages are high (40, 50, or 60). We summarize as follows.

Result 3 *Overall, firm profits are larger in the Non-Profit treatment compared to the For-Profit treatment, but only when the wages paid are sufficiently high.*

6. Conclusion

While significant research examines the impact of incentives on effort in for-profit settings, largely showing that employees provide more effort for higher wage levels (Lazear 2018), less direct evidence exists for mission-oriented organizations. Prior work argues that we cannot pay higher wages – or even, in some cases, living wages – in mission-oriented organizations because the incentives will reduce effort by crowding out intrinsic motivation. This relationship is difficult or impossible to test with observational data because of selection issue that result in more pro-social workers selecting into non-profit organizations.

We take advantage of the control available through experiments to systematically test whether and how individuals differentially respond to financial incentives in equivalent non-profit and for-profit jobs. In the lab, we remove the selection effect by randomly allocating workers to the two types of firms and ask whether workers exert more effort, for a given wage level, when they work for a non-profit firm rather than a for-profit firm.

We find a substantial amount of reciprocity in both the For-Profit and Non-Profit treatments. That is, the presence of a mission does not eliminate or reduce the responsiveness of effort to increasing wages. Rather, the responsiveness to wages is identical for For-Profit and Non-Profit firms at lower wages. At higher wages, on the other hand, workers in the Non-Profit firms exert *higher* levels of effort than the workers in the Non-Profit firms. This directly contradicts prevailing theoretical arguments that higher wages will crowd out mission motivation, intrinsic motivation or both. These results show that higher wages are an effective way to motivate workers in both sectors and even more in the non-profit sector. Exploratory analysis also shows that individuals who self-report that they care about making a difference in society provide significantly higher levels of effort than their less-society-oriented counterparts when they are in the For-Profit treatment. This finding implies that more society-oriented workers are "better" workers. In addition to our focus on worker responses, we also examine whether managers in the For-Profit and Non-Profit firms offer different wage levels. We do not find any evidence that

[15] Since our experiment uses a stranger-matching design, the group members who generate the profits in each round are determined randomly. In order to account for this, we conduct these tests using average profits per manager. First, we calculate the average profits across all rounds for each manager at a given wage level. Then, using the Mann-Whitney test, we test for treatment differences.

managers respond to the treatment: For-Profit and Non-Profit managers offer similar wages. These results suggest that managers do not anticipate workers to be more responsive to wages across treatments. All in all, these behavioral responses result in higher profits generated for the Non-Profit firm.

Overall, our research provides important insights for understanding the management of workers in non-profit organizations. Our findings on worker behavior contradict the claim in prior research that paying workers in non-profit organizations higher wages will harm their effort. On the contrary, paying efficiency wages increases their engagement with the organization. Managers not anticipating or noticing this behavioral response by workers to higher wages curbs the organizations' ability to increase efficiency and further contributes to gender and racial inequality in the labor market.

Finally, our study opens up several interesting avenues for future research. In our experiment, we use another subject in the lab as the firm owner. Although this design choice offers reasonable depiction of a real-world corporate setting and aligns with other papers in this nascent literature, future research could benefit from exploring alternative design choices. For example, it would be interesting to study whether and to what extent the social distance between the firm owner and the worker impact worker behavior. In our experiment, both the worker and the firm owner (in the For-Profit setting) are subjects in the lab, likely resulting a smaller social distance than the social distance that exists in firms outside the lab. Thus, our findings might be a lower bound of the treatment effect. Additionally, future research could also explore how certain parameters in the experiment, such as the firm profit-sharing rule, might impact behavior. Also, the finding of workers exerting higher effort in the non-profit setting, but only when the wages are sufficiently high, warrants further investigation. Future research could explore the mechanism behind this finding and its robustness in other experimental design settings. Lastly, the finding that managers pay similar wages across treatments (despite workers' response to higher wages in the Non-Profit treatment) is another avenue that future research can explore further. For example, it would be interesting to explore the beliefs that managers hold in these settings to get a better understanding of the manager behavior. That would also help us better understand the role of managerial expectations in shaping workplace dynamics and worker motivation, specifically in the context of non-profit settings.

REFERENCES

Akerlof, G. A., & Yellen, J. L. (1990). The fair wage-effort hypothesis and unemployment. *The Quarterly Journal of Economics*, *105*(2), 255-283.

Andreoni, J., & Croson, R. (2008). Partners versus strangers: Random rematching in public goods experiments. In Plott, C. and Smith, V.L., eds., *Handbook of Experimental Economics Results*, *1*, 776-783.

Armouti-Hansen, J., Cassar, L, and Dereky, A. (2020). Efficiency wages with motivated agents. CESifo Working Paper ISSN 2364-1328

Banuri, S. and Keefer, P. (2016a). Mellowing with tenure? socialization increases prosocial behavior in public organizations. *Experiments in Organizational Economics*, pp. 127-140.

Banuri, S. and Keefer, P., (2016b). Pro-social motivation, effort and the call to public service. *European Economic Review*, *83*, pp.139-164.

Banuri, S., P. Keefer, and D. de Walque (2018). Love the job. . . or the patient? Task vs. mission-based motivations in health care. The World Bank.

Besley, T. and Ghatak, M. (2005). Competition and incentives with motivated agents. *American Economic Review* 95 (3), 616-636.

Besley, T., & Ghatak, M. (2018). Prosocial motivation and incentives. *Annual Review of Economics*, *10*, 411-438.

Carpenter, J. and E. Gong (2016). Motivating agents: How much does the mission matter? *Journal of Labor Economics* 34 (1), 211- 236.

Carpenter, J. and C. K. Myers (2010). Why volunteer? evidence on the role of altruism, image, and incentives. *Journal of Public Economics* 94 (11-12), 911- 920.

Cassar, L. (2019). Job mission as a substitute for monetary incentives: Benefits and limits. *Management Science*, *65*(2), 896-912.

Cassar, L., & Meier, S. (2018). Nonmonetary Incentives and the Implications of Work as a Source of Meaning. *Journal of Economic Perspectives*, 32(3), 215-38.

Cerasoli, C. P., Nicklin, J. M., & Ford, M. T. (2014). Intrinsic motivation and extrinsic incentives jointly predict performance: A 40-year meta-analysis. *Psychological Bulletin*, *140*(4), 980.

Charness, G., G. R. Frechette, and J. H. Kagel (2004). How robust is laboratory gift exchange? *Experimental Economics* 7 (2), 189 - 205.

Charness, G. and P. Kuhn (2011). Lab labor: What can labor economists learn from the lab? *Handbook of Labor Economics*, Volume 4, pp. 229-330.

Delfgaauw, J., & Dur, R. (2007). Signaling and screening of workers' motivation. *Journal of Economic Behavior & Organization*, *62*(4), 605-624.

Delfgaauw, J., & Dur, R. (2008). Incentives and workers' motivation in the public sector. *The Economic Journal*, *118*(525), 171-191.

Dur, R. and R. Zoutenbier (2014). Working for a good cause. *Public Administration Review* 74 (2), 144-155.

Dur, R. and R. Zoutenbier (2015). Intrinsic motivations of public sector employees: Evidence for Germany. *German Economic Review* 16 (3), 343- 366.

England, P., Budig, M., & Folbre, N. (2002). Wages of virtue: The relative pay of care work. *Social Problems*, *49*(4), 455-473.Fehr, E., & Gächter, S. (2000). Fairness and retaliation: The economics of reciprocity. *Journal of Economic Perspectives*, 14(3), 159-182.

Fehr, E., Kirchsteiger, G., & Riedl, A. (1993). Does fairness prevent market clearing? An experimental investigation. *The Quarterly Journal of Economics*, *108*(2), 437-459.
Fehr, E., Kirchsteiger, G., & Riedl, A. (1998). Gift exchange and reciprocity in competitive experimental markets. *European Economic Review*, *42*(1), 1-34.
Fehrler, S. and M. Kosfeld (2014). Pro-social missions and worker motivation: An experimental study. *Journal of Economic Behavior & Organization* 100, 99-110.
Fischbacher, U. (2007). z-tree: Zurich toolbox for ready-made economic experiments. E*xperimental Economics* 10 (2), 171-178.
Folbre, N. (Ed.). (2012). *For love or money: Care provision in the United States*. Russell Sage Foundation.
Frey, B. S., & Jegen, R. (2001). Motivation crowding theory. *Journal of Economic Surveys*, *15*(5), 589-611.
Friedman, J. W. (1967). An experimental study of cooperative duopoly. *Econometrica, 35(3/4),* 379-397.
Gerhards, L. (2015). The incentive effects of missions-evidence from experiments with ngo employees and students. *European Economic Review* 79, 252-262.
Gneezy, U., & Rustichini, A. (2000). Pay enough or don't pay at all. *The Quarterly Journal of Economics*, *115*(3), 791-810.
Gregg, P., P. A. Grout, A. Ratcli_e, S. Smith, and F. Windmeijer (2011). How important is pro-social behaviour in the delivery of public services? *Journal of Public Economics* 95 (7-8), 758-766.
Greiner, B. (2015). Subject pool recruitment procedures: organizing experiments with ORSEE. *Journal of the Economic Science Association*, *1*(1), 114-125.
Hirsch, B. T., D. A. Macpherson, and A. E. Preston. "Nonprofit wages: Theory and evidence." *Handbook of research on nonprofit economics and management* (2018): 146-179.
Lazear, E. P. (2018). Compensation and Incentives in the Workplace. *Journal of Economic Perspectives*, *32*(3), 195-214.
Maximiano, S., Sloof, R., & Sonnemans, J. (2013). Gift exchange and the separation of ownership and control. *Games and Economic Behavior*, 77(1), 41-60.
Perry, J. L. (1996). Measuring public service motivation: An assessment of construct reliability and validity. *Journal of public administration research and theory* 6 (1), 5- 22.
Preston, A. E. (1989). The nonprofit worker in a for-profit world. *Journal of Labor Economics*, *7*(4), 438-463.
Ruhm, C. J., & Borkoski, C. (2003). Compensation in the nonprofit sector. *Journal of Human Resources*, *38*(4), 992-1021.
Serra, D., P. Serneels, and A. Barr (2011). Intrinsic motivations and the non-profit health sector: Evidence from ethiopia. *Personality and Individual Differences* 51 (3), 309- 314.
Smith, J. (2016). The motivational effects of mission matching: A lab-experimental test of a moderated mediation model. *Public Administration Review* 76 (4), 626-637.
Waichman, I., & K. von Blanckenburg. (2020). Is there no "I" in "Team"? Interindividual-intergroup discontinuity effect in a Cournot competition experiment. *Journal of Economic Psychology*, *77*, 102181.

ONLINE APPENDIX

Workers' Response to Monetary Incentives in For-Profit and Non-Profit Jobs

APPENDIX A: ADDITIONAL FIGURES

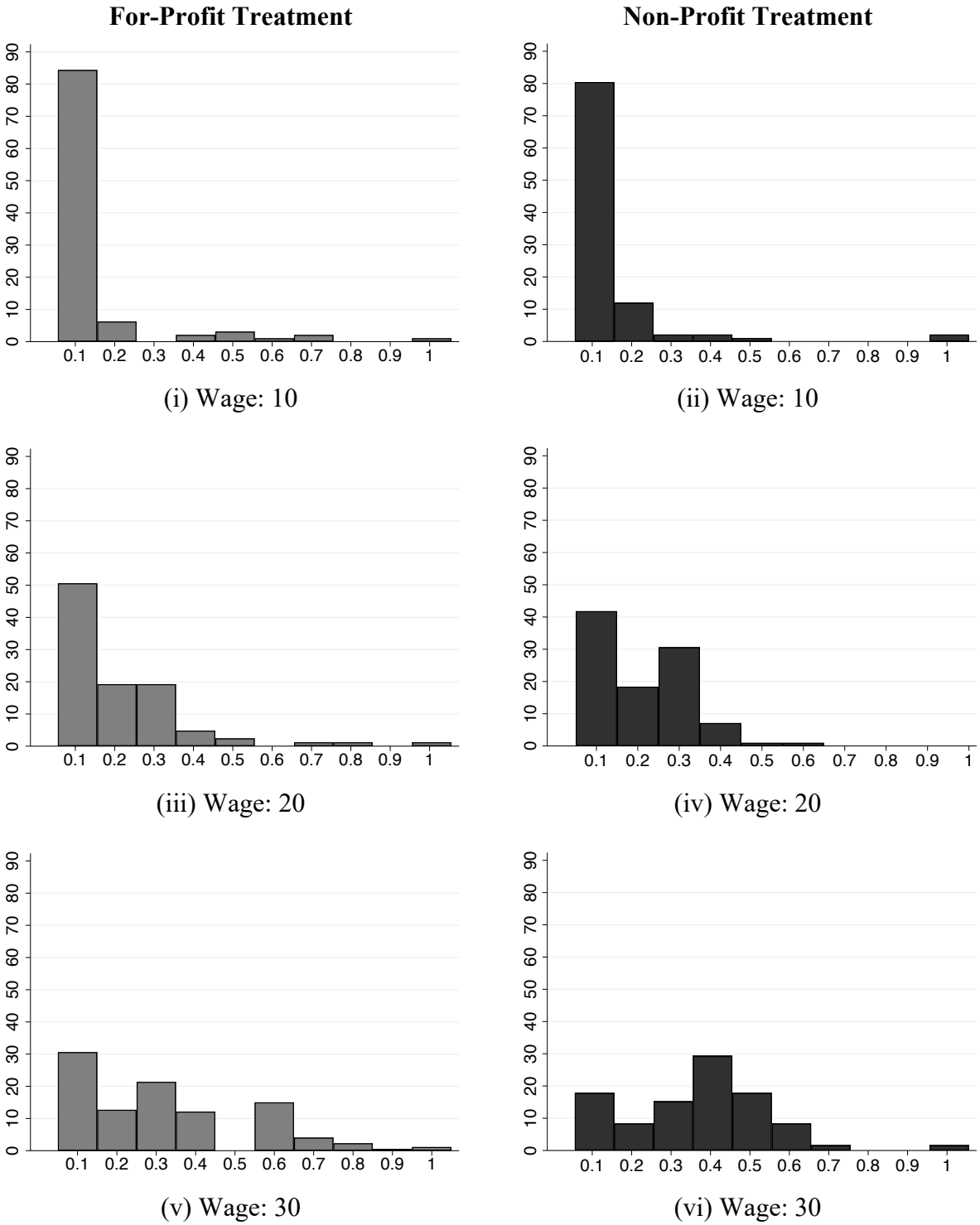
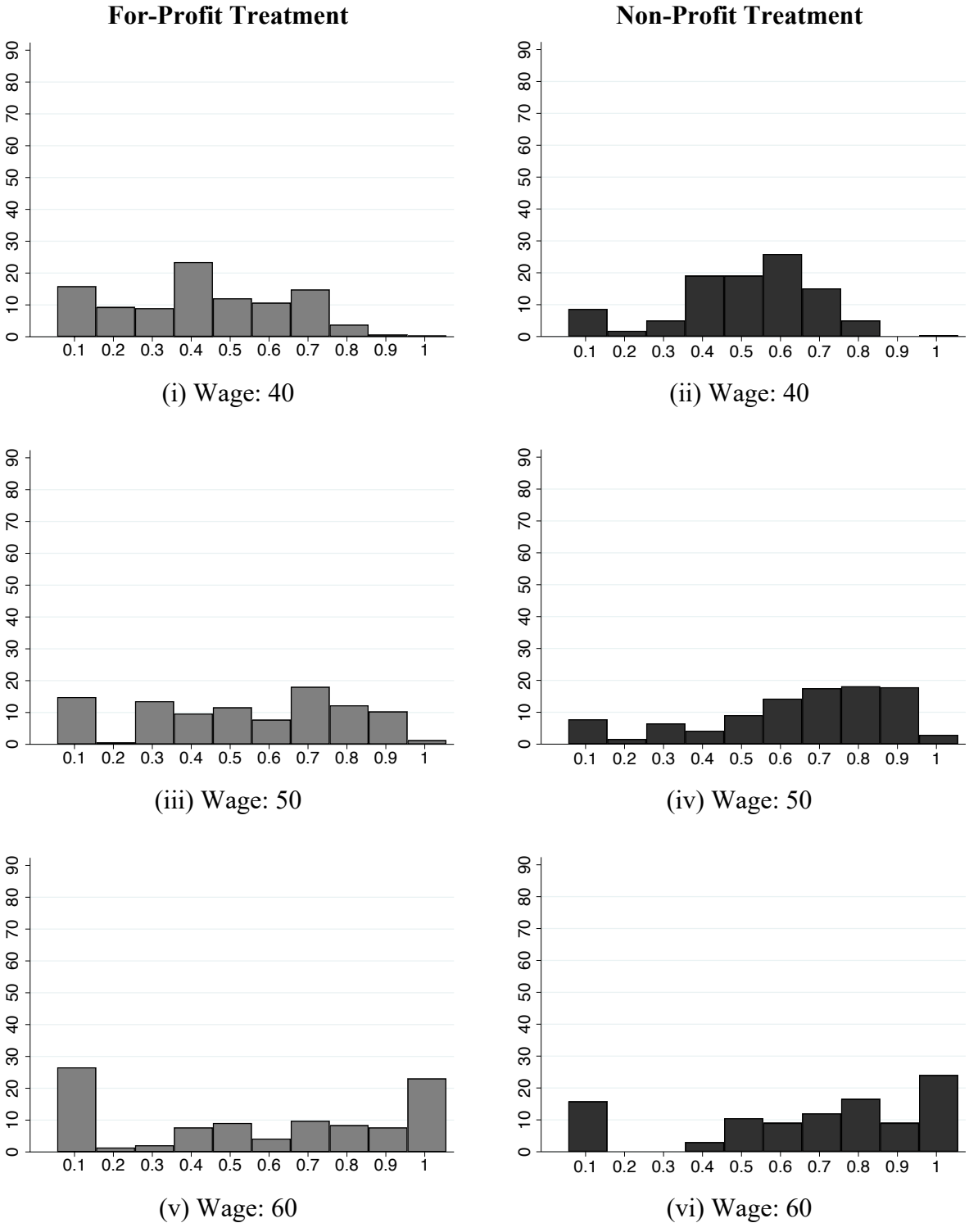


Fig A.1. Distributions of Effort provided Across Low Wages and Treatments.



(i) Wage: 40 (ii) Wage: 40

(iii) Wage: 50 (iv) Wage: 50

(v) Wage: 60 (vi) Wage: 60

Fig A.2. Distributions of Effort provided Across High Wages and Treatments.

APPENDIX B: ADDITIONAL TABLES

Table B.1. Subjects' Demographics Across Treatments

	Non-Profit	**For-Profit**	***p-values***
Female	0.53 (0.50)	0.51 (0.50)	*0.801*†
Age	20.09 (1.56)	20.22 (3.02)	*0.452*††
White	0.53 (0.50)	0.53 (0.50)	*1.000*†
Economics or Business Major	0.30 (0.46)	0.38 (0.49)	*0.183*†
College Year	2.56 (1.22)	2.33 (1.09)	*0.145*††
Relative Family Income	2.95 (1.20)	2.96 (1.00)	*0.932*††
Work While Schooling	0.37 (0.49)	0.32 (0.47)	*0.422*†
Number of Subjects	*110*	*141*	

Standard deviations are in parentheses. †Fisher's Exact Test ††Mann-Whitney test.
Relative family income variable is subjects' answer to the following survey question: Relative to other students at Texas A&M University, would you say your income is (1) much below average … (5) much above average. *Work While Schooling* is the indicator variable if the subject works while attending school.

Table B.2. Panel Data Random Effects Tobit Regression Results

	(1)	(2)	(3)
Wage	0.013***	0.014***	0.014***
	(0.001)	(0.001)	(0.001)
Non-Profit	0.001	0.002	0.368**
	(0.073)	(0.072)	(0. 178)
Wage*Non-Profit	0.003*	0.002*	0.002*
	(0.001)	(0.001)	(0.001)
Period		-0.008***	-0.008***
		(0.001)	(0.002)
Female		-0.085*	-0.067
		(0.050)	(0.051)
Society Oriented			0.109***
			(0.036)
Society Oriented*Non-Profit			-0.096**
			(0.042)
Constant	-0.188***	-0.072	-0.491***
	(0.063)	(0.068)	(0.161)
Number of Observations	*2040*	*2040*	*2040*
Number of Groups	*102*	*102*	*102*

*p < 0.10, **p < 0.05, ***p < 0.01. Bootstrapped standard errors are in parentheses. Dependent variable is the amount of effort provided by the worker. Since the effort has to be between 0.1 and 1, the left censoring is set to 0.1 and the right censoring is set to 1.