

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

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## Abstract

When workers decide how hard to work, they consider not only extrinsic factors, such as the salary, but also the type of work and the mission of the organization. In this paper we study the relationship between monetary compensation and effort for workers in non-profit and for-profit settings using a modified gift-exchange lab experiment. In our experimental setting, there are workers, managers, and firm owners. Managers decide how much to pay their workers, workers then decide how much effort to provide. These decisions determine the profit created for the firm which is shared by the firm owner and manager. By changing the identity of the firm owner, we study whether workers and managers behave differently when they work for a non-profit versus a for-profit firm. Contrary to some of the findings in prior research, we find that the presence of a mission does not reduce the responsiveness of effort to increasing wages. Workers are more responsive to higher wages when they work for a non-profit firm (where the firm owner is a charitable organization) relative to a for-profit firm (where the firm owner is another subject). On the other hand, the managers' behaviors are similar across these two types of firms. Overall, these result in higher overall profit generated for the non-profit firm. Our research contributes to the literature by studying how pro-social motivation interacts with monetary payments to effort choices in the workplace, particularly when the job involves “doing good.”

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

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## 1. Introduction

One crucial aspect of a successful charitable organization is the people – the workers who often accept lower monetary compensation in order to give their time and talents to the mission of the organization. Selecting and motivating effective workers is an important challenge for such organizations. In the United States, workers in nonprofit organizations earn less than their for-profit counterparts: Preston (1989) finds a pay gap of 18%, controlling for industry and human capital characteristics. According to previous research, there may be multiple reasons of why this pay gap exists.<sup>1</sup> For example, one factor contributing to the wage difference could be that workers in the nonprofit sector receive nonpecuniary rewards by working for a mission they support, and the lower salary constitutes a compensating differential. Also, some nonprofit firm workers may perceive the wage difference as “labor donation” where they effectively donate a portion of their effort to the firm.<sup>2</sup> Another factor may be that the lower pay in the non-profit sector may be necessary to ensure that only intrinsically motivated workers select into the industry.<sup>3</sup> Because of the demographic make-up of the non-profit sector, this wage differential between the non-profit and for-profit sector contributes to overall racial and gender disparities in pay. Thus, it is important to understand the relationship between monetary compensation and workers’ productivity and whether this relationship is different based on the type of the organization. In this paper, our main research goal is to study this relationship between monetary compensation and worker effort decisions in non-profit and for-profit settings.

There is a large literature that studies worker motivation and the factors that encourage workers to exert higher levels of effort in the workplace. In general, this research is restricted to for-profit settings, and confirms that employees provide more effort for higher wage levels, other factors equal (see Lazear 2018 for a survey). A complementary literature explores non-pecuniary factors affecting motivation: Workers may also exert more effort if their work is in the service of a mission that they support.<sup>4</sup> Mission motivation becomes particularly relevant as a source of worker motivation in settings where outcomes and individual performance are not easy to measure, making it difficult to incentivize productivity directly; this is often the case for firms in the public and nonprofit sectors (Delfgaauw and Dur 2007, 2008). The selection of prosocial workers then takes precedent because they bring their own motivation with them into the workplace, and much of the literature in this area focuses on this selection. Indeed, using data from 50 countries, Dur and Zoutenbier (2014) document a strong positive relationship between intrinsic motives of mission preferences and altruism, and employment in the public sector.

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<sup>1</sup> We provide a thorough examination of the literature in Section 2.

<sup>2</sup> 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, due primarily 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.

<sup>3</sup> Further, evidence exists to show that monetary compensation can crowd out intrinsic motivation. Therefore increasing the pay in the nonprofit sector could have a detrimental effect overall by decreasing intrinsic and mission motivation in the applicant pool, and by crowding out intrinsic motivation by existing workers (e.g., see Frey and Jegen 2001).

<sup>4</sup> Besley and Ghatak 2018 provide a survey of models of mission motivation; Cassar and Meier 2018 survey experimental evidence.

Importantly, this selection of workers means that high mission motivation goes hand-in-hand with lower wages in the field. However, with observational field data it is difficult to isolate the impact of incentives on effort in mission-oriented jobs because selection into the job has already occurred. Any difference found in the motivation of workers in the two sectors could be due to selection or compensation, or their interaction: It is not possible to test whether higher compensation will crowd out worker motivation in non-profit firms. In this paper, 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. By randomly allocating workers to the two types of firms, we remove the selection effect.

We study our research question by using a modified gift exchange environment that consists of three types of actors: worker, manager, and firm owner.<sup>5</sup> We implement the difference in organizations by varying the identity of the “firm owner”. The decisions made by the worker and manager generate a payment to the firm owner who is either another subject in the lab (which represents working for a for-profit firm) or a non-profit organization. Because we randomly assign workers into either a non-profit firm or a for-profit firm, self-selection into a mission is not possible, removing the inherent correlation between mission motivation and non-profit employment. This design captures the differences in a key factor that motivates workers – the mission of the firm – and allows us to study the relationship between financial compensation and effort in the two settings.

First, we study whether workers exert more effort when they are randomly assigned to an exogenously chosen mission-oriented job. More specifically, we ask whether workers exert more effort, for a given a wage level, when they work for a non-profit firm rather than a for-profit firm. We find that workers respond to wages by exerting higher effort in both treatments. However, we also find that their response to higher payments relative to lower payment levels is *larger* for the non-profit firm. Since workers exert more effort when offered high levels of payment in the non-profit firm relative to the for-profit firm, we also ask whether managers offer different wage levels across these two types of firms. We find that the wages offered by the managers are similar. Thus, by looking at managers’ wage offer decisions, we do not find any significant evidence that managers expect this differential response to wages by workers.

To mimic the effect that selection would have had, we also collect information using survey questions on motivation. We show that subjects who report high levels of pro-societal motivation (i.e. individuals who care about making a difference in society more than personal gains) exert similar levels of effort in both firms, while those with lower levels exert lower effort levels in the for-profit firm. It is likely that the more pro-socially oriented workers would select into the non-profit firm, given the choice, and if so, then the pattern of effort observed would be similar to that found in observational data with higher prosocial motivation and effort levels in the nonprofit sector, masking the true differences in motives.

Our research contributes to a large several strands of research. In section 4, we provide a survey and a more detailed discussion of this literature. Here, we provide a comparison with the studies

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<sup>5</sup> 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).

that are closest to ours. These studies differ from ours in several key ways. First, some of these studies use a piece-rate contract with both a fixed and a variable component that depends on effort. The piece rate component implies that effort can be monitored, a requirement which seems unlikely to hold in many non-profit settings. A second issue is that some studies comparing for-profit and non-profit workers do not hold constant the efficiency of the exchange, with non-profit firms generating additional payments to charitable organizations, over and above any revenues produced for the worker-manager pair. While it is true that non-profit organizations generate a positive externality to the society and thus have higher social efficiency, we believe it is important to hold the overall efficiency constant in the lab across treatments to make comparisons as valid as possible.<sup>6</sup> A third issue is that some studies use stable worker-employer pairs, with the same pairs playing repeatedly over all rounds, while others (like ours) rematch the pairs each round. This design choice tends to make the “relationship” within the team an important determinant of behavior, a potential confound we would prefer to avoid. Thus, we contribute to this literature by studying the workers’ response to fixed wages where the efficiency of the exchange is held constant, and the intra-team relationship is minimized.

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.

In another related paper, Gerhards (2015) finds that mission-match increases workers’ effort. In their experiments, subjects are either matched with a mission of their preference (mission match treatment) or a randomly and exogenously-chosen mission (low mission match). Subjects exert more effort in the mission match treatment. They have another experiment which is more closely related to our paper. In this second experiment, subjects participate in the high and low mission match treatments (within-subjects design) and play multiple rounds with a perfect stranger matching rule. When the game is played repeatedly like this, they do not find any difference between the two treatments. 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. Like Fehrler and Kosfeld (2014), her labor contracts also include a piece rate. In addition, her mission and non-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. She suggests that increasing the quality of the mission-match does not generate any further gains. Similar to Cassar (2019), we also find that pro-social mission results in higher effort, but only if 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

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<sup>6</sup> It is important to note that the social efficiency is still higher in our non-profit treatment since the donations made to the non-profit organization create a positive externality to the society. However, the social efficiency in the lab is held constant across the two treatments.

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) also 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.

Our findings are important for understanding the management of workers in non-profit organizations. Contrary to prior theoretical arguments, we do not find that paying someone appropriately for the value that they bring to an organization harms their effort. Rather, paying efficiency wages further increases their effort and engagement with the organization. We find that, even in this abstract setting, managers do not recognize this important truth. Outside of the lab, failure to fully recognize that individuals do not have to be underpaid in order to work hard in a charitable organization contributes to gender and racial inequality in the labor market and likely affects retention.

## 2. Experimental Design

We modify the standard gift exchange game to mimic two types of firms: for-profit and non-profit. Our goal is to develop experimental models that are as equivalent as possible, except for the distribution of the profit. To that end, we add a third player to the standard two-player game and vary the identity of the third player to capture this key factor.

In this modified version, subjects are randomly assigned to one of three roles: a worker, a manager, and 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.<sup>7</sup> Both the wage paid, and the effort level provided determines the earnings for all three group members. The payoff functions are as follows:

$$\pi_W = wage - c(e) \tag{1}$$

$$\pi_M = 0.40 \times \text{Profit} \tag{2}$$

$$\pi_F = 0.60 \times \text{Profit} \tag{3}$$

$$\text{Profit} = 2 \times (100 - wage) \times e \tag{4}$$

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 ( $wage \in \{10, 20, 30, 40, 50\}$ ,

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<sup>7</sup> 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.

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.

While the wage increases the worker's payoff, it decreases the profit. Both wage and effort determine the profit which in turn determines 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%. In this game, the firm owner does not make any decisions: They simply collect their share of the profit.

At the beginning of each session, the roles are assigned randomly and are fixed for the duration of the experiment, consistent with most of the literature. Subjects are placed in groups of three that consist of one worker, one manager and one firm owner. Although the roles are fixed, 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.<sup>8</sup> Subjects play this game for 20 rounds and are paid at the end for two randomly selected 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 Treatment and Non-Profit Treatment. The only 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, the firm owner is a non-profit organization. We chose Operation Kindness, which is the largest and oldest no-kill animal shelter in North Texas, as the non-profit organization for this experiment. We made this choice because in our prior work we observed that animal-related charitable organizations were particularly popular with student 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 make sure 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 would indeed be donated.

### 3. Results

We ran a total of eleven sessions in the Economic Research Lab at Texas A&M University in February and March 2018, with a total of 251 subjects. The experiment was programmed in z-tree (Fischbacher, 2007), and the undergraduate students at Texas A&M University were recruited through ORSEE (Greiner, 2004). We used tokens, where 6 tokens were worth 1 USD. Subjects earned \$19 on average including a \$10 show-up fee. 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 2 presents the key subject demographic variables. We do not find any statistically significant differences across the two treatment groups.

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<sup>8</sup> There are several studies in the public goods literature showing that "partners" matching design lead to more extreme results (more groups converging toward zero and toward full contributions) than "strangers" matching design. This can make treatment differences more difficult to detect. See, for example, Andreoni and Croson (2008).

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.

### 3.1. Workers

Similar to previous studies using the gift-exchange game (or variants of it), we do not find support for Nash equilibrium (NE) predictions. The workers provide significantly higher effort levels than the NE prediction of 0.1; the average across both treatments is 0.44. Table 3 and Figure 1(a) show the average effort provided across treatments and wage levels. In both treatments, there is a positive relationship between the wage offered and the effort provided. This reciprocal relationship that we observe is similar to the findings in the literature. When we compare the effort levels across treatments, 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. 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.

Next, we compare at the average effort provided over time which is presented in Figure 1(b). We see that the behavior is consistent with slight decline over time. Although there are some fluctuations, the average effort provided in the non-profit treatment is mostly above the average effort provided in the for-profit treatment.

When we compare the distribution of effort levels provided across treatments, we see a similar story. Figures A.1 and A.2 in the appendix present these distributions for low and high wages, respectively. Using the Epps-Singleton test,<sup>9</sup> 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 < 0.01 for all).

To check the robustness of these findings, we run a panel data random effects Tobit regression and the results are presented in Table 4. In our experiment, workers cannot provide an effort level lower than 0.1 or higher than 1. Thus, by using a Tobit model, we take this censoring into account. 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 females. Looking at columns (1) and (2) in Panel A of Table 4, 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.

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<sup>9</sup> Findings are similar if we use the Kolmogorov-Smirnov test.

We are also interested in the workers' responsiveness to the wages in the non-profit treatment compared to the for-profit treatment (see Table A1 in Appendix A). We find weak evidence of higher responsiveness to wages in the non-profit treatment. However, this impact is not statistically significant when we control for period and gender (see column (2) in Table A1). Based on the findings presented above, we next examine this behavior separately for high and low wages, and the regression results are presented in Panel B of Table 4. Here, instead of using the actual wage offered, we construct an indicator variable which takes the value of 1 if the wage offered is high (i.e., 40, 50, or 60), and otherwise zero. 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. 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.*

We next explore heterogeneous treatment effects by including a variable that measures the mission motivation of subjects. We measure mission motivation by assessing subjects' social orientation using the Public Service Measure (PSM) (Perry, 1996). Perry's PSM is designed to measure "an individual's predisposition to respond to motives grounded primarily or uniquely in public institutions" (Perry, 1996). Many studies have tested Perry's PSM and they found strong support for its validity (e.g. Coursey et al., 2008; Coursey and Pandey, 2007; Gan et al., 2013). We constructed the variable 'Society Oriented' by using the answers to the following item from the PSM: "Making a difference in society means more to me than personal achievements."<sup>10</sup> The answers range from 1 ("Strongly Disagree") to 5 ("Strongly Agree").

As can be seen in column (3) of Panel B in Table 4, 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). Being society oriented creates an extra incentive for these individuals to work harder and thus exert higher level 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 is not significantly different from zero). This is perhaps because all subjects in the non-profit treatment could exhibit mission motivation, and thus there is no differential impact coming from how society oriented one is.

### 3.2. Managers and Profits

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

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<sup>10</sup> This item is listed as PSM1 under the self-sacrifice subscale in Perry (1996).



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. In this section, we first study the managers' behavior and then compare the profits generated across two treatments.

First, similar to what is observed for worker behavior, we do not find support for Nash equilibrium predictions for the managers. Although the managers are predicted to offer the lowest possible wage of 10, the average wage offered across both treatments is 38.65 tokens. Figure 2 – (a) shows the average wage paid across treatments. On average, managers paid workers 38 and 39 tokens in the for-profit and non-profit treatments, respectively, and they are not statistically different from one another (Mann-Whitney test p-value: 0.207). Figure 2 – (b) shows the average wage offered over time across treatments. Average wages seem consistent over time and across treatments.

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 5. 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 do not anticipate that workers will respond to higher wages differently based on the type of the firm.*

Above, 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. In this section, we show that all of these translate into higher overall profits for the non-profit firm compared to the for-profit firm. Figure 3(a) shows the average profits generated across treatments. 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). Figure 3(b) illustrates the profits generated across different wage levels. We find that 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 < 0.05 for all).<sup>11</sup> More formally, Table 6 presents the panel data Tobit model regression where the dependent variable is the profits generated in each period. As presented in column (1) of Table 6, we find that profits are significantly higher in the non-profit treatment. Moreover, looking at column (2), we find that wages of 40 and 50 result in the highest profits generated in both treatments and the increase in profits in the non-profit treatment is higher than the one in the for-profit treatment.

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<sup>11</sup> Since our experiment uses a partner-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 using manager's earnings. And then, using the Mann-Whitney test, we test for treatment differences.

## 4. Discussion and 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). Standard economic analysis tends to focus on the tradeoff between leisure and work, where work is seen as unpleasant and requiring monetary compensation. But research in other fields, and a bit of introspection, lead us also to conclude that work is a primary source of meaning for individuals. If work is, in a sense, its own reward, this complicates the analysis of the employer/worker relationship. A further complication is that workers are likely to be heterogeneous in this respect. For some workers, meaning may consist of earning income so as to support self and family and therefore they are motivated primarily by financial rewards, while for others, meaning may require that the work itself contribute to social welfare, or that the workplace provide some other source of meaning, with less importance placed on financial rewards.<sup>12</sup> How financial incentives interact with these other motivations is an open question.

There is a vast literature looking into this question and we provide a thorough review of this literature below. The key issues are: the importance of pro-social motivation for selection into nonprofit or public sector jobs; the extent to which mission match increases worker motivation; and the crowding out of pro-social motivation by monetary incentives. Pro-social motivation – finding meaning in work that increases social welfare – is likely to affect workers’ choice of profession. Pro-social preferences play a role in the choice of profession on the part of workers, and the selection of workers on the part of employers. Whether and to what extent workers are motivated by the mission of the organization, or other non-monetary factors, is a second key question. How important is a mission match in determining a worker’s effort on behalf of the organization? Third is the question of whether financial incentives could crowd out mission motivation, or whether instead financial incentives can be seen as a complement to other sources of motivation.

### 4.1. Importance of pro-social preferences and intrinsic motivation for selection

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, Dur and Zoutenbier (2014, 2015) document significantly higher levels of altruism and mission motivation among public sector workers. However, most of the work to date on this topic focuses on the worker’s choice – the relationship between a worker’s social preferences and their choice of profession. Banuri and Keefer (2016b) recruit students from two schools in Indonesia that specialize in training students primarily for careers in private or public sector employment. They use variations on dictator games and show that higher levels of pro-social behavior in lab

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<sup>12</sup> For example, there may be gender differences in pro-social motivation. Tonin and Vlassopoulos (2010) report that warm glow altruism and pure altruism have been the two sources of workers’ pro-social motivation considered in the literature. They disentangle these two sources by using a controlled field experiment and find heterogeneous results by gender. In their study, men do not exhibit either of these pro-social motivations. On the other hand, women exert more effort due to warm glow altruism, but there is no additional impact coming from pure altruism.

experiments predict a preference for public sector jobs. Similarly, in the US, Carpenter and Myers (2010) find that the decision to volunteer as a firefighter is correlated with measures of altruistic preferences.<sup>13</sup>

These correlations raise the possibility that workers also become more pro-social as a result of working in this sector. By comparing individuals' pro-social behavior after they move between sectors, Gregg et al. (2011) shows that more pro-social individuals self-select into non-profit and public sectors. Banuri and Keefer (2016a) also find that working on the public sector shapes preferences; workers with longer tenure in a public-sector job have stronger pro-social preferences.

The decision to select into public service jobs may not always be positively related to pro-social preference, but instead may depend on the perceived integrity of the organization itself. Cowley and Smith (2014), using data from the World Values Survey, show that intrinsically motivated workers are more likely to work in the public sector. Moreover, they report variation across countries and argue that this variation could be partially explained by public corruption at those countries. Corrupt firms do not attract workers with high social preferences. Indeed, using a similar strategy to Banuri and Keefer, Banerjee et al. (2015) also study students in schools that act as feeders for private and public sector jobs in India, where the government sector has a high level of corruption. Subjects participate in a corruption-game lab experiment. Their results show that students who aspire to public-sector jobs exhibit higher levels of corrupt behavior. These studies suggest that selection may play a large role in determining worker performance in the two sectors, which is an important factor making direct comparison of worker motivation with field data problematic.

## **4.2. Mission match and 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) developed a theory regarding mission alignment and its impacts on worker motivation. They predict that workers self-select into missions, as discussed above, 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 mis-match. There have been some studies testing the implications of this model and the findings are generally in line with the predictions (e.g. Serra et al., 2011; Carpenter and Gong, 2016; Smith, 2016; Banuri et al., 2018).

Banuri and Keefer (2016b) show that workers with stronger prosocial preferences exert more effort in pro-socially motivated tasks, with the implication that such motives enhance effort for compatible missions. Banuri et al. (2018) put mission motivation in perspective by comparing it with “task motivation:” Subjects perform tasks that are either low-motivation or high-motivation

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<sup>13</sup> A recent paper by Brown et al. (2018) investigates why people donate their time although the opportunity cost of their time is probably higher than the benefit created to the charity. They explain this by showing how people may have differential “warm glow” preferences depending on the form of the donation (cash or work).

(corresponding roughly to boring and meaningful). The experiment is conducted with health workers in Burkina Faso, and the meaningful task is related to their expertise. These tasks are performed with and without a “mission,” with tasks in the latter treatment generating a contribution to a poor school. They find that task motivation has a much larger impact on effort than mission *per se*. In addition, only low-motivation tasks respond to mission motivation. Other studies compare worker’s behavior across for-profit and non-profit sectors. Gregg et al. (2011) find that workers in non-profit firms behave more pro-socially than workers in for-profit firms by comparing the amount of unpaid overtime labor provided across these types of firms. They find that workers in the non-profit sector are more likely to do unpaid overtime, a clear donation of labor. Presuming the selection of pro-social or mission motivated workers, this clearly suggests that those factors play an important role on worker effort.

Finally, research also shows that most workers care about positive externalities that their firms create.<sup>14</sup> But in this effect is likely to be strongest when working for the “right” mission (i.e. mission alignment).

### **4.3. Crowding out**

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. This phenomenon, termed by psychologists the “undermining effect,” was first highlighted in economics by two studies: The first shows that introducing fines for bad behavior can have the perverse effect of increasing that behavior (Gneezy and Rustichini 2000a); and the second shows that paying intrinsically-motivated volunteer fundraisers can lower work effort unless those incentives are sufficiently high (Gneezy and Rustichini 2000b). 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 are important, and that their interaction depends on the nature of the task: When compensation is closely tied to (measurable) output, crowding out is stronger. They argue that monetary and non-monetary compensation should be used in partnership to motivate workers.

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). By acting as a screening device, barriers to entry such as occupational licensing can reduce this problem, and at the same time reduce the pay gap (Budig et al. 2019). 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

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<sup>14</sup> In a related strand of literature, researchers have studied the impact of employers’ decision to make a donation (i.e. corporate social responsibility (CSR)), thereby signaling that they “care,” on workers’ motivation (e.g. Koppel and Regner, 2014, 2019; Tonin and Vlassopoulos, 2015; Charness et al., 2016; Kajackaite and Sliwka, 2017, 2020; Cassar, 2019). See Kitzmueller and Shimshack (2012) for a comprehensive literature review on CSR.

idea that pro-social motivation is related to selection, and hints at the possibility that higher wages will select the “wrong” workers.

## 5. Closing

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 pressures 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 a wage level, when they work for a non-profit firm rather than a for-profit firm.

We find a significant amount of reciprocity in both the for-profit and non-profit firms. 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.

Interestingly, we also find 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 but not in the non-profit treatment. This occurs because the less-social workers work less hard without a mission motivation; the society-oriented workers are ‘better’ workers (providing higher effort, contingent on wage) regardless of whether they are working for a for-profit or non-profit firm. The increase in effort associated with working for the non-profit firm comes from the less-society-oriented individuals.

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 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.

To conclude, our research is important 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.

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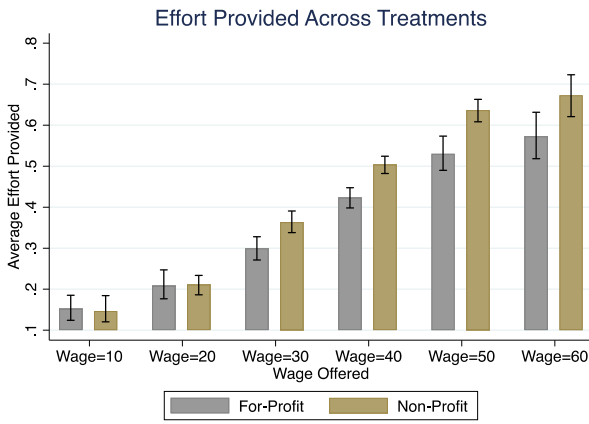
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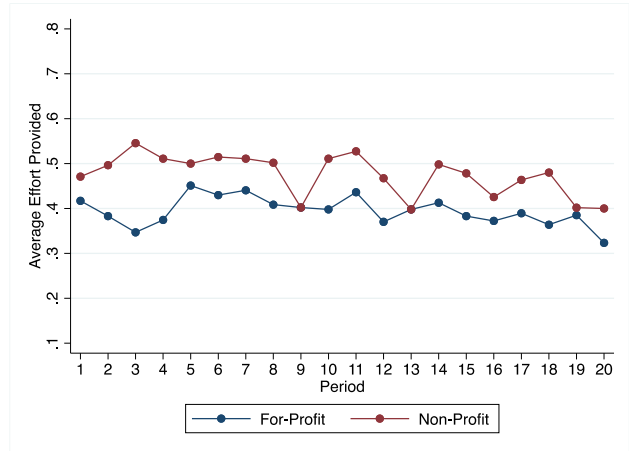


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## FIGURES

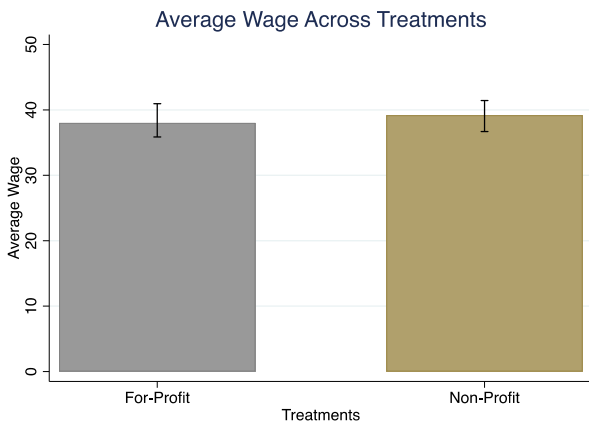


(a) by treatment and wage levels

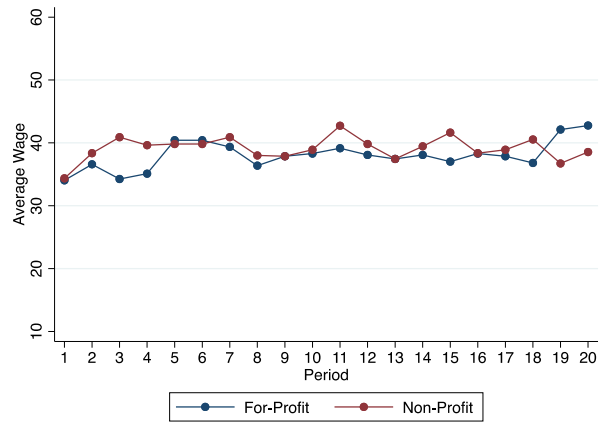


(b) by treatment and period

**Fig 1: Average Effort.** Vertical lines on bars are the bootstrapped 95% confidence intervals.

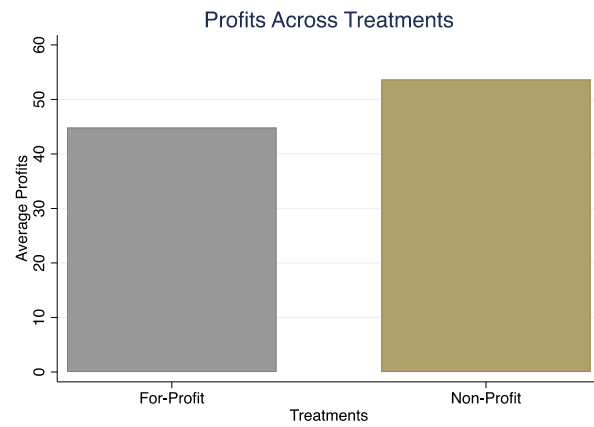


(a) by treatment

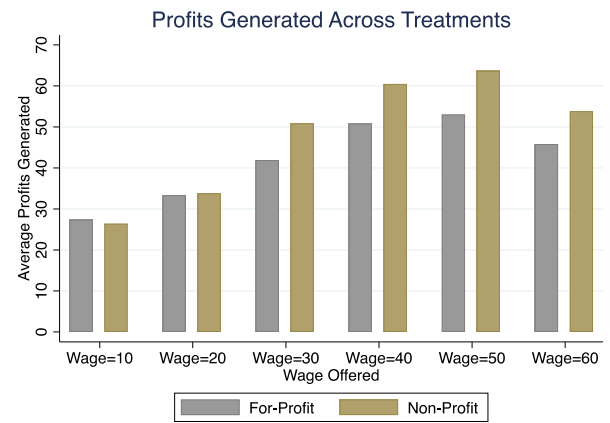


(b) by treatment and period

**Fig 2: Average Wage.** Vertical lines on bars are the bootstrapped 95% confidence intervals.



(a) by treatment



(b) by treatment and wage levels

**Fig 3:** *Average Profits.*

## TABLES

**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

**Table 2: Subjects' Demographics Across Treatments**

	<b>Non-Profit</b>	<b>For-Profit</b>	<b><i>p-values</i></b>
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†
<i>Number of Subjects</i>	<i>110</i>	<i>141</i>	

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 3: Average Effort Provided**

<b>Treatment</b>	<b>Wage Paid</b>					
	<b>10</b>	<b>20</b>	<b>30</b>	<b>40</b>	<b>50</b>	<b>60</b>
<b>Non-Profit</b>	0.17 (0.02) n=41	0.21 (0.01) n=38	0.31 (0.01) n=47	0.41 (0.01) n=47	0.51 (0.01) n=43	0.59 (0.03) n=42
<b>Profit</b>	0.15 (0.02) n=46	0.21 (0.02) n=45	0.34 (0.01) n=53	0.49 (0.01) n=55	0.64 (0.02) n=55	0.72 (0.03) n=47
<i>p-values</i> †	0.422	0.968	0.364	0.030	0.014	0.042
<i>p-values</i> ‡	0.882	0.694	0.286	0.031	0.006	0.054

The average efforts for each wage and treatment are computed by taking the average effort provided across all 20 periods by each subject. Standard deviations are in parentheses. †Bootstrapped t-test †Mann-Whitney test.

**Table 4:** Panel Data Random Effect Tobit Regression Results for Worker's Effort

	(1)	(2)	(3)	(4)
<b>Panel A</b>				
Wage	0.015*** (0.001)	0.015*** (0.001)	0.015*** (0.001)	
Non-Profit	0.106** (0.050)	0.099* (0.051)	0.473** (0.185)	
Period		-0.008*** (0.001)	-0.008*** (0.001)	
Female		-0.085** (0.039)	-0.067* (0.038)	
Society Oriented			0.110*** (0.036)	
Society Oriented*Non-Profit			-0.099** (0.044)	
Constant	-0.247*** (0.041)	-0.126** (0.060)	-0.550*** (0.154)	
<i>Number of Observations</i>	2040	2040	2040	
<i>Number of Groups</i>	102	102	102	
<b>Panel B</b>				
High Wage (40-60)	0.376*** (0.021)	0.334*** (0.034)	0.344*** (0.029)	0.344*** (0.033)
Non-Profit	0.113** (0.049)	0.062 (0.060)	0.058 (0.044)	0.444** (0.205)
High Wage*Non-Profit		0.073** (0.036)	0.070* (0.043)	0.070* (0.038)
Period			-0.008*** (0.002)	-0.008*** (0.002)
Female			-0.078* (0.049)	-0.059 (0.051)
Society Oriented				0.113*** (0.042)
Society Oriented*Non-Profit				-0.102** (0.051)
Constant	0.086** (0.036)	0.114*** (0.035)	0.237*** (0.042)	-0.198 (0.172)
<i>Number of Observations</i>	2040	2040	2040	2040
<i>Number of Groups</i>	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 has to be between 0.1 and 1, the left censoring is set to 0.1 and the right censoring is set to 1.

**Table 5:** Panel Data Random Effects Tobit Regression Results for Wage

	(1)	(2)
Non-Profit	0.747 (2.334)	-0.447 (2.275)
Female		-1.639 (1.983)
Period		0.135** (0.058)
Lagged Effort		13.818*** (2.004)
Constant	38.682*** (1.810)	32.699*** (2.480)
<i>Number of Observations</i>	2040	2040
<i>Number of Groups</i>	102	102

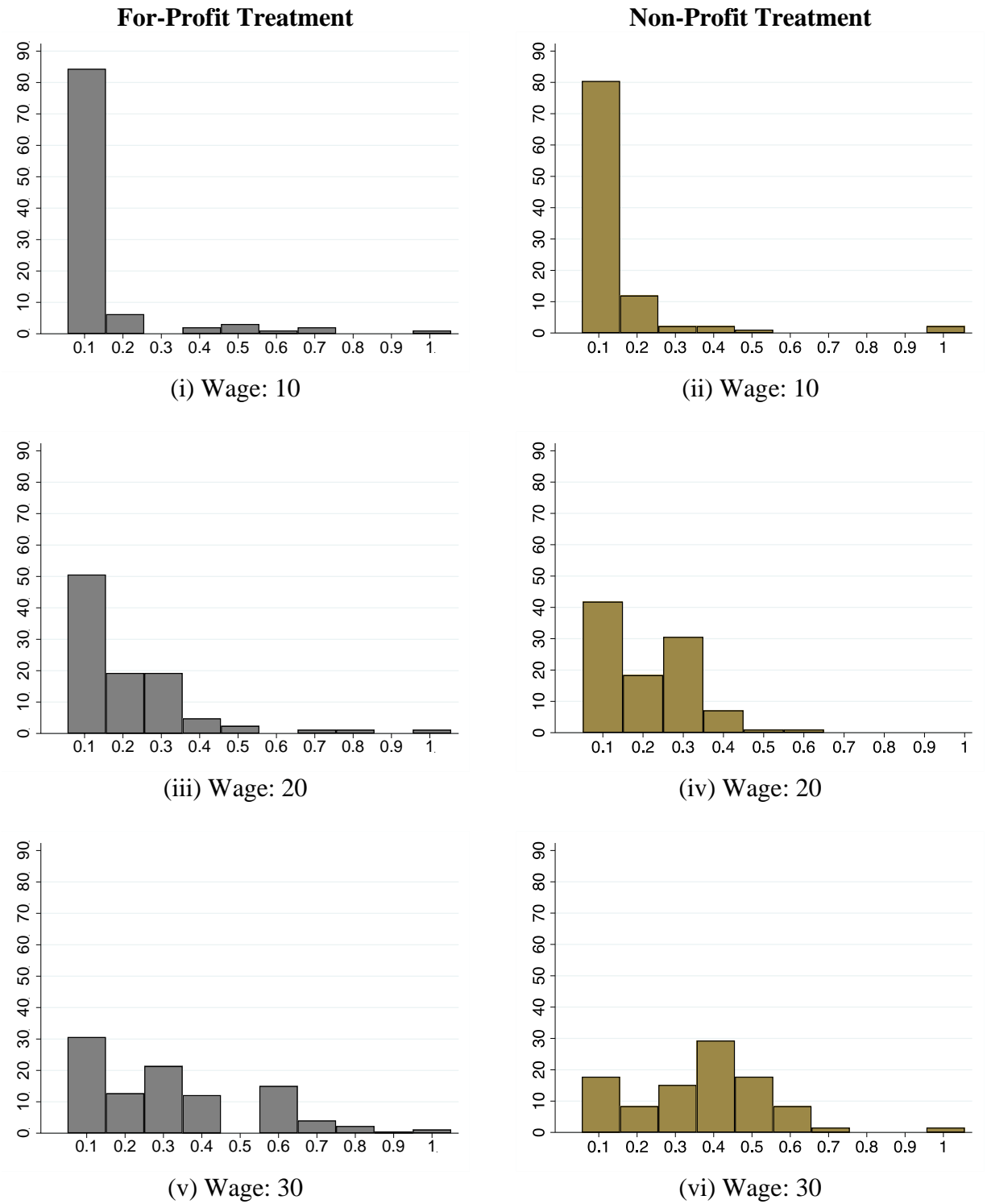
\*p < 0.10, \*\*p < 0.05, \*\*\*p < 0.01. Bootstrapped standard errors are in parentheses. Dependent variable is the wage paid by the managers. Since the wages have to be between 10 and 60, the left censoring is set to 10 and the right censoring is set to 60.

**Table 6:** Panel Data Random Effect Tobit Regression Results for Firm Profits

	(1)	(2)
Non-Profit	9.172*** (3.337)	0.324 (5.666)
Period	-0.582 *** (0.114)	-0.602*** (0.114)
Wage 20		6.448** (3.243)
Wage 30		13.604*** (3.485)
Wage 40		20.832*** (4.247)
Wage 50		23.755*** (4.645)
Wage 60		15.863*** (5.740)
Wage 20*Non-Profit		-1.274 (4.610)
Wage 30*Non-Profit		5.204 (4.238)
Wage 40*Non-Profit		10.217* (5.367)
Wage 50*Non-Profit		11.586** (5.721)
Wage 60*Non-Profit		10.388 (6.824)
Constant	50.389*** (2.495)	34.847*** (3.890)
<i>Number of Observations</i>	2,040	2,040
<i>Number of Groups</i>	102	102

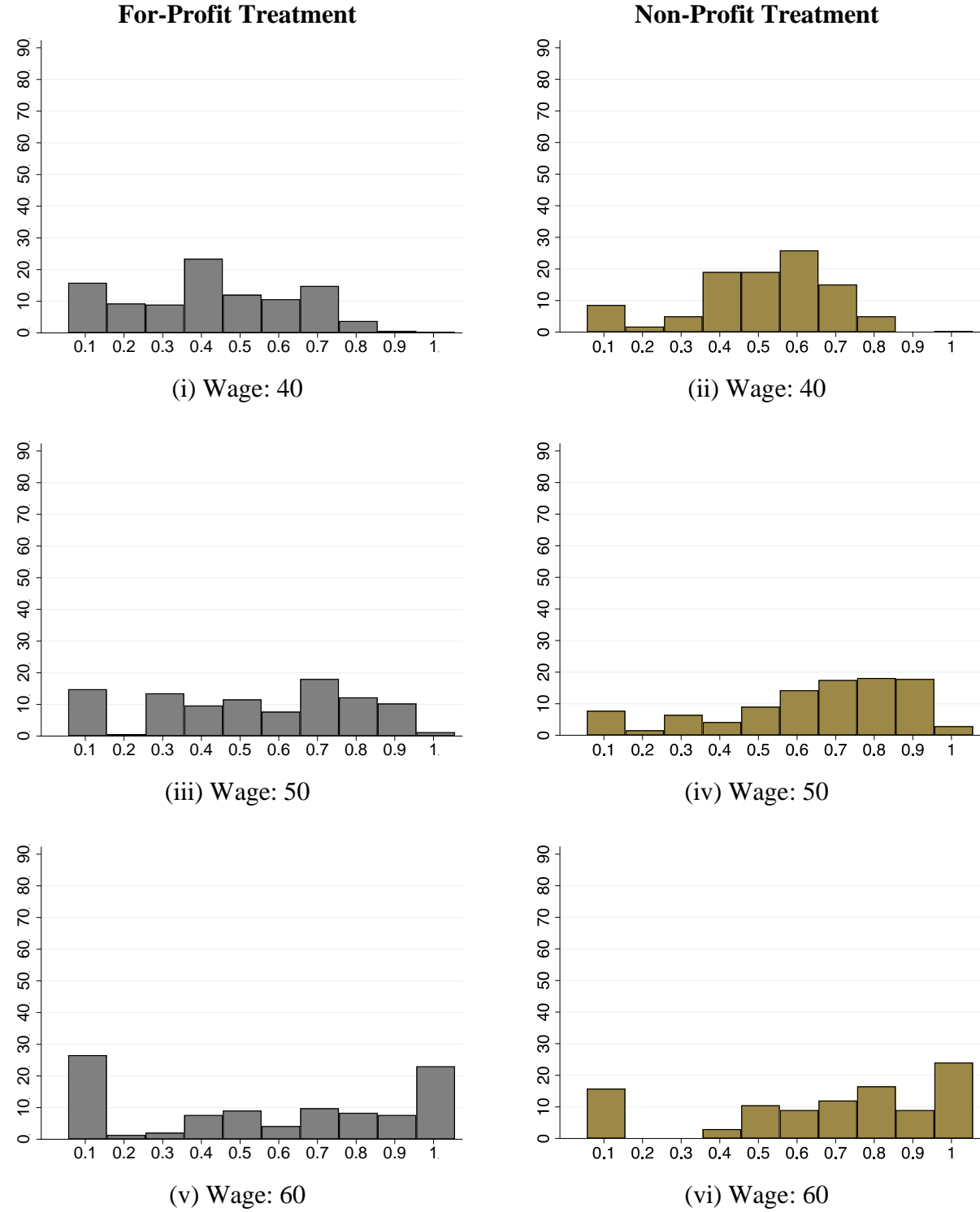
\*p < 0.10, \*\*p < 0.05, \*\*\*p < 0.01. Bootstrapped standard errors are in parentheses. The dependent variable is the profits generated in each round. Minimum possible profit of 8 occurs when the manager pays the highest wage of 60 and the worker provides the lowest effort of 0.1. Maximum possible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

## APPENDIX A



**Fig A1:** Distributions of Effort provided Across Low Wages and Treatments.





**Fig A2:** Distributions of Effort provided Across High Wages and Treatments.

**Table A1:** Panel Data Random Effects Tobit Regression Results

	(1)	(2)	(3)
Wage	0.013*** (0.001)	0.014*** (0.001)	0.014*** (0.001)
Non-Profit	0.001 (0.078)	0.002 (0.083)	0.368* (0.210)
Wage*Non-Profit	0.003* (0.002)	0.002 (0.002)	0.002 (0.002)
Period		-0.008*** (0.001)	-0.008*** (0.001)
Female		-0.085* (0.039)	-0.067* (0.038)
Society Oriented			0.109*** (0.036)
Society Oriented*Non-Profit			-0.096** (0.045)
Constant	-0.188*** (0.052)	-0.072 (0.067)	-0.491*** (0.161)
<i>Number of Observations</i>	2040	2040	2040
<i>Number of Groups</i>	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.