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The right person for the right job: workers' prosociality as a screening device

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Abstract

The impact of workers' non-pecuniary motivation on their productivity is a fundamental issue in labor economics. Previous studies indicate that prosocially motivated workers may perform better when assigned to jobs having socially desirable implications – even if effort is non-contractible and they are offered a low-powered fixed-compensation scheme – as compared to a standard job with an effort-contingent payment. This suggests that profit-maximizing employers should assign workers to different jobs, based on workers' prosociality. We run an experiment to explore the link between workers' prosociality and their level of effort under a prosocial and a standard job. Our experimental results provide some support to the hypothesis that selfish employers exploit the information on workers' prosociality to assign them the type of job that would be most profitable from the firm's perspective. However, the prosocial motivation of employers emerges as a second important determinant of their contract choice: employers' prosociality drives their contract choice, when the worker is not prosocial.

Keywords: Dictator game; incentives; laboratory experiment; principal-agent game; real-effort task
JEL Codes: C91, D63, D64

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1. Introduction

The integration of social preferences into workers' motivation is a substantive issue in labor economics. In recent years, laboratory experiments provided an important contribution to the development of this strand of research (Dohmen, 2014). Specifically, a lot of attention has been paid to the implications of workers' prosocial motivation (i.e., the desire to exert effort to benefit others) for the design of incentive contracts, the selection of workers, the provision of effort and organizational design (see Charness and Kuhn, 2011; Francois and Vlassopoulos, 2008; Cassar and Meier, 2018, for thorough reviews). These studies do concur that prosocial workers provide more effort in prosocial tasks (i.e., tasks yielding an outcome that benefits others) but require lower monetary compensation than non-prosocial workers. This suggests that both not-for-profit and for-profit organizations could take advantage of their workers' prosocial incentives by linking workers' effort to their prosocial motivation.

While the vast majority of research has focused on the effect of prosocial motivation on workers' behavior and optimal incentive design, little is known about how employers use the information they have on their workers' prosociality. In real-world labor relationships, employers usually collect some information, though noisy, about their employees' prosociality even before recruiting them (e.g., a track record of extra-circular activities and charity activities on employee's CV). A number of experimental studies have shown that employers are able to recognise and value the positive link between workers' social engagement (e.g., charity and volunteer activities) and their cooperativeness by screening their CVs (Heinz and Schumacher, 2017; Baert and Vujić, 2016a,b). Yet, it is still unknown whether employers can really make use of their workers' prosociality to increase their profits. Employers can make two possible mistakes: (1) they fail to initiate prosocial motivation and, thus, fail to take advantage of their workers' prosociality; (2) they mistakenly offer a job with prosocial implications to non prosocial workers. To the best of our knowledge, there is still a lack of direct evidence on whether employers make these kinds of mistakes or, alternatively, if they successfully exploit the information they have about their workers' prosocial motivation.

In this study, we investigate whether providing employers with information about the workers' prosociality induces them to condition the job assignment on the worker's characteristics, in a profitable way. We consider the relationship between an employer and a worker; the employer chooses which job the worker

should do, and the worker then decides how much effort to exert, which in turn determines the employer's revenues. The employer can either offer a standard job with an effort-contingent payment and no prosocial implications, or a job with prosocial implications, where effort is *non-contractible* and generates a relatively lower revenue for the employer but a positive externality on a third party (charity organization). Within this set-up, we manipulate the information provided to the employers when they choose which job to assign to the worker. In our Baseline scenario *(No Information)*, the employer knows nothing about the worker, while in our *Information* treatment she can observe two measures of the worker's prosociality, given by his donations in two Dictator Games in which the recipient is either another player or a charity.

We investigate three main aspects of the employer-worker relationship. First, we study whether prosocially motivated workers exert more effort in the prosocial job than in the standard one. Second, we verify whether employers condition their job-assignment choice on the information they have about their worker's prosociality. Finally, we check if granting employers access to information about their workers' prosociality allows them to secure higher profits than what they get when such information is not available.

First, we confirm that, when assigned to the prosocial job, prosocial workers provide higher effort compared to selfish ones, and both prosociality dimensions – towards another person or towards a charity – are positively associated with workers' effort provision. Second, in our experiment, a non-negligible fraction of employers exhibit prosociality. In line with our theoretical model, we observe that prosocial employers are more likely to choose the prosocial contract, irrespective of the workers' characteristics, while non prosocial employers condition their job assignment on workers' prosociality towards another person. Nevertheless, we fail to find any significant between-treatment differences in profits over all periods. Only in the last period, when they have acquired experience with the task, employers who receive information about workers' prosociality earn more than those who do not. Our results, however, should be taken with a grain of salt, since they are based on a relatively small and homogeneous sample of students; the external validity of our findings should be corroborated by further studies involving a larger and more diverse pool of participants.

The rest of the paper is organized as follows: the next section reviews the relevant literature, while Section 3 introduces our theoretical framework. Section 4 describes the experimental design. The experimental results are

presented in Section 5, and Section 6 offers some concluding remarks.

2. Related literature

This paper belongs to the burgeoning literature that investigates the nexus between prosocial incentives, workers' performance and contract design (see Cassar and Meier, 2018, for a thorough review). Prior experimental research has studied prosocial incentives in the form of donations to a charity (e.g., Cassar and Meier, 2021; Imas, 2014; DellaVigna and Pope, 2017), to a non-governmental organization (NGO) (e.g., Gerhards, 2015; Fehrler and Kosfeld, 2014; Deserranno, 2019) or as contributions to a social project (e.g., Carpenter and Gong, 2016). Previous contributions have shown that prosocial motivation can boost workers' effort. Among others, Banuri and Keefer (2016) experimentally study the interaction between pro-social motivation and wages and find that workers with greater pro-social motivation exert higher effort in pro-socially motivated tasks. Tonin and Vlassopoulos (2010) disentangle the two sources of workers' prosocial motivation, namely pure and warm-glow altruism. They find that warm-glow altruism accounts for an increase in effort provision. Imas (2014) focuses on warm-glow altruism and finds that: (1) workers perform better when their effort is tied directly to charitable contribution than when they only have a standard incentive scheme; (2) an increase in charity piece rate does not lead to an increase in effort provision.

In the broad literature about prosocial incentives, our paper closely relates to previous studies in which workers care about the mission of their jobs. The way mission preferences shape the design of optimal incentives has been theoretically studied in Besley and Ghatak (2005), Besley and Ghatak (2017) and Cassar and Armouti-Hansen (2016). Specifically, Besley and Ghatak (2005) show that the use of workers' mission motivation to design optimal compensation schemes depends on employers' own motivation: employers not caring about mission will offer a lower piece-rate in the presence of a mission, exploiting the substitution effect between monetary and prosocial incentives. In this respect, Besley and Ghatak (2017) study the optimal organizational setting among for-profit, non-profit and social enterprises when founders and managers have different degrees of social mission drive (i.e., the intensity with which one is motivated by mission). Their findings suggest that when both founders and managers are moderately prosocial, social enterprise is the best form. Differently, when the founder is not concerned about the social mission, for-profit is the preferred setting.

Given the importance of prosocial incentives, the choice of a mission is of crucial importance for organizations. Cassar and Armouti-Hansen (2016) focus on this issue and study how organizations can choose a mission to attract, incentivize, and screen workers. They deviate from Besley and Ghatak (2005) by assuming that the stake of the mission is endogenously chosen by employers and by studying contracting in different settings, namely contractible versus non-contractible effort and asymmetric versus symmetric information. It is shown that when workers' mission drive is observable, it is optimal for employers to select a mission that is more aligned with workers' preferences. In contrast, when workers' mission drive is unobservable, the optimal mission is the one that is more aligned with employers' preferences. These findings stress the strategic importance of mission choice when designing a contract.

Experimental evidence on the relevance of mission matching for workers' performance and employers' incentive choice is mixed. Fehrler and Kosfeld (2014) analyse workers' effort and employers' piece-rate choice in two cases: (1) when workers' effort generates a donation to an NGO of their choice (i.e., matched-mission treatment); (2) when workers' effort generates no donation (i.e., no-mission treatment). They find no support for the effect of mission on workers' effort as well as no difference in piece-rate pay offered by employers across treatments. Gerhards (2015) finds a positive impact of mission-matching on workers' effort exertion in a one-shot online experiment with both NGO employees and college students. However, as in Fehrler and Kosfeld (2014), this effect is null in a finitely repeated principal-agent laboratory experiment. More importantly, in Gerhards (2015), employers fail to make use of workers' motivation, offering a higher piece-rate in the matched-mission treatment.

Together with mission-matching, an important role is played by employers' intentions when selecting a mission. Cassar (2018) investigates how active deliberation of the employer impacts workers' effort, in an experiment in which either computers or employers decide whether employers or workers can choose the charity for donations. Collected evidence provides support for the benefit of adding a mission as an additional source of incentives. Nevertheless, the source of the mission, that is, whether it is randomly given to workers or chosen by them, plays no role in workers' effort provision. As predicted by Besley and Ghatak (2005), Cassar (2018) finds evidence that unmotivated employers exploit the benefits of mission, offering a lower piece-rate compensation in the presence of a charity donation.

Koppel and Regner (2019) also investigate the relevance of employers'

intentions and identify two possible explanations for the increase in effort by workers with mission-related motivations: (1) workers care about the mission of the job; (2) workers care about whether employers share their own mission preference. They set up a principal-agent lab experiment in which the charity donation is conditional upon workers' performance and either employers or workers choose the charity to which they send a donation, depending on the treatment. Their results show that these two dimensions play a similar role in determining workers' level of effort. This suggests that workers may reciprocate the contract choice of the employer, when this squares with the mission preference of the worker. Thus, the increase in effort of a prosocial worker who is offered a contract with social spillovers may also be interpreted from the perspective of a gift-exchange labor contract (Akerlof, 1982). The choice of the "right" contract by the employer is perceived as a kind act that is reciprocated with higher effort. Support for this channel of motivation as a way to foster effort beyond levels predicted by selfish maximization is provided by established experimental evidence, both in the lab (e.g., Fehr et al., 1998) and in the field (e.g., Falk, 2007).

Our paper also relates to the Corporate Social Responsibility (CSR) literature. Economists have so far mainly examined CSR in the form of firms' profits sent to a charity and how CSR can help firms enhance profitability with the presence of prosocially motivated workers and customers (e.g., Bagnoli and Watts, 2003; Backhaus et al., 2002; Gneezy et al., 2010). More recently, Briscese et al. (2019) investigate CSR's implications on both workers' performance and firms' contract design. Their experimental results show that wages are more effective in attracting and incentivising workers than CSR, and firms strategically use CSR as a complement to wages and reduce wages to compensate for the share of profits sent to a charity. Two main differences between our setting and that of Briscese et al. (2019) can be identified: first, we introduce a screening mechanism based on workers' prosociality before contract offer; second, in our set-up prosocial incentives do not complement worker's monetary compensation, but completely replace it: in our prosocial contract, workers do not have any monetary incentive to perform and the only motivation for them to exert any effort is their possible desire to benefit the charity, or the employer, or both.

According to Cassar and Meier (2018), the evidence that workers provide effort for non-monetary reasons suggests that firms can increase their earnings by economizing on monetary incentives if their workers are, to some extent, prosocially motivated. In particular, in the public sector, which is characterized

by low pay and high prosocial incentives, firms' performance can be dependent on whether they can choose the most motivated workers (Delfgaauw and Dur, 2007). Furthermore, setting the right compensation scheme also plays an important role in choosing the right worker. Deserranno (2019) provides evidence that financial incentives change applicants' perceptions of the jobs and the types of applicants for these jobs. More specifically, a higher expected return from a prosocial job posting signals that jobs are business-oriented, increasing the size of the pool of applicants but decreasing the number of prosocial ones. In the same line, Ashraf et al. (2020) find that adding individualistic benefits such as career opportunities leads to the increase of less prosocial applicants in a civil service job and consequently, health practices and outcomes are lower.

To sum up, the recent literature suggests that workers' pro-sociality and monetary incentives can be substitutes and hence, employers can save on monetary incentives, especially when performance is difficult to measure. Nevertheless, a contract with prosocial incentives is optimal only if it is offered to prosocially motivated workers. In this perspective, revealed workers' prosociality is an indispensable screening device. Here, we do not distinguish between the public and private sector, as also in the private sector, firms can associate a social mission to some of their jobs and possibly target this mission to different categories of recipients to motivate workers having different preferences.

To the best of our knowledge, our experiment is the first to focus on how information on the worker's prosociality affects the employer's decision on which type of job or contract to offer. In this respect, our work is close to Cunyat and Sloof (2011) who treat social preferences as a screening device in a contractual environment. They examine whether and how organisations use managers' social preferences to motivate workers. In their settings, owners can observe employees' social preferences before assigning them a role as a manager or as a worker. The manager chooses one of the two organisational settings, namely bonus or monitor system, to incentivize workers. Their findings suggest that owners fail to make use of managers' social preferences in motivating workers' effort provision.

Our study contributes to the literature on incentive design by investigating employers' job-assignment decisions given the observability of workers' prosociality. We introduce a novel setting in which the employer endogenously chooses whether to assign the worker a standard job, with no positive externalities, or a prosocial job in which effort is non-contractible and generates lower revenues

for the employer, but yields a positive externality on a deserving third party. By treating workers' prosociality as a screening device, our paper provides a novel insight into strategies to make workers' prosociality profitable.

3. Experimental Design

Our experiment consists of three stages.

Stage 1: Real-effort task with a piece-rate compensation
Subjects are asked to complete the slider task introduced by Gill and Prowse (2019), under a piece-rate pay scheme. The task requires moving the mouse and adjusting the cursor to a pre-specified position on a slider. Subjects have 150 seconds to complete as many sliders as they can. They earn 5 tokens for every correctly positioned slider. This stage provides a control for ability and motivation to work under a piece-rate compensation of subjects. Besides, this stage also works as practice so that all subjects know what the real-effort task is and get a sense of its difficulty.

Stage 2: Dictator games
Subjects play two Dictator Games (DG) with two different Recipients who are respectively another participant (PDG) and a charity (CDG). All subjects make choices in the role of Dictators and, in each game, they have an endowment of 100 tokens and must decide how much to keep for themselves and how much to give to the recipient. In the CDG, subjects are provided with a list of six charity organizations, together with some information about each of them, and they have to select their preferred charity before choosing how much to donate.[1] At the end of the experiment, one of the two Dictator Games will be randomly selected for payment: if the PDG is chosen, subjects will be randomly assigned as Dictators or Recipients and decisions of those who are assigned as Dictators will be taken for payment; if the CDG is chosen, subjects will earn the number of tokens they keep for themselves while their donation will be sent to the charity they had chosen. We use subjects' decisions in these two DGs as proxies for their prosocial motivation.[2]

[1]The six organizations include Save the Children, Red Cross, EMERGENCY, Telefono Azzurro (an association protecting children's rights and preventing any kind of child abuse), Fondo Ambiente Italiano (a non-profit organization protecting and conserving the Italian historical, artistic and landscape heritage) and Fondazione ANT Italia (a non-profit organization providing home-based care for cancer patients and free prevention).

[2]Prior experimental studies have only used the donation to the charity as a proxy of

We elicit two separate measures of prosociality, since – as illustrated in Section 4 – in theory, they could both be relevant in determining the employer's and the worker's behavior in the subsequent stages. Indeed, prosocial workers assigned to the prosocial contract could put effort into the task because they care about the payoff of the beneficiary, or of their matched employers, or both.

Stage 3: Principal-agent game
At the beginning of this stage, each subject is randomly matched with another one, and in each pair, subjects are assigned the role of either worker or employer.[3] Workers must carry out the same real-effort task as in Stage 1, but now their performance determines the employer's profits in a way that depends on the job they are assigned to. Before the worker starts performing the task, the employer must choose whether to assign the worker to a standard job (Contract P) or a prosocial job (Contract F). Contract F offers the worker a fixed wage of 60 tokens regardless of the number of sliders completed, and for each slider it grants 8 tokens to the employer, and 2 tokens to the charity chosen by the worker; Contract P offers workers a piece-rate pay of 5 tokens for each slider completed, grants the employer 10 tokens per slider, and entails no donation to the charity. The employer's profit is given by his revenues net of the wage paid to the worker.

Our treatment manipulation consists in providing employers with information on their matched worker's choices in the PDG and CDG of Stage 2, before they assign the worker to a specific job in Stage 3. To avoid deceiving subjects, we delivered instructions for Stage 2 and Stage 3 at the same time, and informed subjects in advance (before they make any decision in Stage 2) that – if in Stage 3 they are assigned the role of workers – with 50% probability their choices will be revealed to their employer before she chooses the assigned job, while with 50% probability they will remain undisclosed. In Stage 3, however, the worker will not know whether their matched employers received

subjects' prosociality (e.g., Banuri and Keefer, 2016; Tonin and Vlassopoulos, 2010; Fehrler and Kosfeld, 2014). Even though it has been shown that sharing in dictator games is substantially affected by the choice set (List, 2007; Bardsley, 2008; Zhang and Ortmann, 2014), consistently with Cappelen et al. (2013) we think that the standard "giving" version of this game captures at least in part the giver's desire to signal that they are not strictly selfish.

[3]We adopt a perfect stranger matching procedure, so that subjects in Stage 3 cannot be matched with the subject they were matched to in the PDG of Stage 2.

this information or not. In the *Information* treatment, the worker's choices in the CDG and PDG are hidden behind two boxes on the employer's computer screen, and the employer can only open one box at a time by clicking on it, so we can control whether and for how long each employer looked at that information.[4] The workers' performance in Stage 1 is not observable by employers, and workers cannot reject the contract they are offered. Our design closely resembles the real world: employers can always, to some extent, have access to workers' prosociality before assigning jobs to workers, while workers know about the potential observability of their prosociality in advance (see Appendix B for the experimental instructions).

The principal-agent relation in Stage 3 is repeated for three periods, with fixed roles and perfect-stranger matching. This gives the employers a chance to see how their workers respond to the two jobs, and to adjust their choices as they gain experience. After each period, both employers and workers will receive feedback about the number of completed sliders and their earnings in that period. One of three periods will be randomly selected for payment, at the end of the experiment. We adopt a between-subject design, so that each employer either has access to the information about his workers' donations of Stage 2 in each period of Stage 3, or never has it.

Subjects' final earnings are given by the sum of their earnings in each stage. They will only receive feedback about their final payment at the end of the session.

3.1. Experimental procedures

We ran 8 experimental sessions between May 2018 and March 2019 at the Cognitive and Experimental Economics Lab (CEEL) at the University of Trento using z-Tree (Fischbacher, 2007). The experiment involved 160 subjects who are students at the University of Trento recruited through online recruitment software. Among 160 subjects, 75 subjects are male, and 85 subjects are female.

A session lasted, on average, 1 hour 30 minutes. All values were expressed in tokens and were converted at the end of the experiment at the rate of 1 Euro for 25 tokens. Subjects knew the conversion rate in advance and were paid their earnings privately in cash at the end of the session. Subjects

[4]This technique has been first proposed by Johnson et al. (2002), in the context of a bargaining game.

earned, on average, 10.8 euros, not counting the show-up fee of 3 euros and the charity donation they made (if any).[5]

4. Theoretical framework

In this Section, we introduce a simple theoretical framework (based on the benchmark model of Besley and Ghatak (2005)), to provide the basic intuition behind our research question.

Consider a situation in which each worker is matched with an employer. The employer assigns the worker to a job, and the worker decides how much effort e to exert. Each unit of effort generates a cost $C(e)$ for the worker, and a revenue $e\rho_J$ for the employer, where $J \in \{F, P\}$ depends on the type of job assigned to the worker, and $\rho_F < \rho_P$. The cost of effort for the worker does not depend on the type of job J but it depends on the worker's ability a_i. We assume that the cost increases with effort and decreases with ability.

Job P is the standard job, where effort is contractible and generates no positive externalities. The worker's compensation for job P is determined by *Contract P*, which grants the worker a piece-rate pay of $w < \rho_P$ tokens per unit of effort. Hence, the employer's profit under *Contract P* is given by $e(\rho_P - w)$.

Job F is the prosocial job: effort is non-contractible, but generates a positive externality η for a deserving third party (represented by a charity, in our experiment).[6] The worker's compensation for job F is given by *Contract F*, which grants the worker a fixed wage F, independent of effort. Hence, the employer's profit under *Contract F* is given by: $e\rho_F - F$.

If workers are selfish profit maximizers, they will not exert effort under *Contract F*, hence a rational and selfish employer should always offer *Contract P*. Here, we instead consider the case in which both workers and employers can be prosocially motivated: apart from the direct utility of their monetary payoff, there is also an outcome-contingent component of motivation, denoted by $G(.)$, which depends on the payoffs of the charity and of other players (π_c and π_j, respectively), and on the prosocial motivation of the worker towards

[5]The dataset and replication files are available upon request of the editors and reviewers, and will be uploaded on an open-access repository https://amsacta.unibo.it/ after publication.

[6]In the experiment, we set $\eta = \rho_P - \rho_F$.

the charity and towards other people – measured by θ_i^c and θ_i^{-i} respectively, where $\theta_i^r \geq 0,\ r \in \{-i, c\}$.

We argue that – under reasonable assumptions on the functional forms of the utility and cost functions – two predictions hold. First, under *Contract F* workers may receive lower monetary compensation than under *Contract P* and yet exert a higher effort level, if their prosocial motivation is strong enough. This means that hiring a motivated worker can be profitable for employers since effort can be incentivized at lower cost. Hence, the extent of workers' prosociality is a crucial determinant in employers' job-assignment decisions for two reasons: (1) to minimize the wage payment to prosocially motivated workers; (2) to avoid erroneously assigning a prosocial job to unmotivated workers who would not exert any effort under *Contract F*.

Second, when the employer can observe the worker's prosocial motivation, her preference for *Contract F* over *Contract P* depends both on the employer's and on the workers' prosociality. Instead, when the information on the worker's prosociality is not observable, the contract preference only depends on the employer's prosociality.

4.1. Workers

To illustrate our reasoning, let us assume that the worker's utility depends on the vector of payoffs $\pi = \{\pi_i, \pi_{-i}, \pi_c\}$, on the cost of effort $C(e, a_i)$, and on his prosociality $\theta_i = \{\theta_i^c, \theta_i^{-i}\}$:

$$U(\pi, e, \theta_i, a_i) = u(\pi_i) - C(e, a_i) + G(\pi, \theta_i).$$

We assume that the material component of the utility function $u(.)$ is non-decreasing and concave, and that the cost of effort $C(e, a_i)$ is such that $\frac{\partial C}{\partial e} > 0$, $\frac{\partial^2 C}{\partial e^2} > 0$, $\frac{\partial^2 C}{\partial e \partial a_i} < 0$, $\frac{\partial C}{\partial a_i} \leq 0$. We also assume that the non-pecuniary part of the utility function $G(\pi, \theta_i)$ is 0 when $\theta_i^c = \theta_i^{-i} = 0$ and that $\frac{\partial G}{\partial \pi_r} \geq 0$ and $\frac{\partial^2 G}{\partial \theta_i^r \partial \pi_r} > 0$, $r \in \{-i, c\}$.

Stage 1. In Stage 1 of our experiment the worker receives a piece-rate payment w for his performance in the slider task and his effort generates no externalities, hence he will choose his effort e^* so to maximize

$$u(we) - C(e, a_i)$$

Our assumptions imply that the worker's effort in Stage 1 increases in his ability. Hence, workers' performance in Stage 1 gives us a proxy of their ability.

Stage 2. In the two dictator games, the worker has to choose how to allocate a fixed amount of money (normalized to 1) between himself and a recipient r, which could be either a charity c or another participant $-i$.

According to our model, he will transfer to the other person or to the charity of his choice a fraction x_r of the endowment so as to maximize:

$$u(1 - x_r) + G(\pi(x_r), \theta_i).$$

Under our assumptions, x_r^* is non-decreasing in θ_i^r: that is, the choices made by subjects in Stage 2 provide a measure of their prosociality.

Stage 3. At this stage, the worker has to take into account all components of his utility function, including both the cost of effort, and the payoff generated by his effort for the employer, and possibly also for the charity.

Contract F. If he is assigned the prosocial job (*Contract F*), he will choose an effort e^F so to maximize:

$$U(\pi, e, \theta_i, a_i) = u(F) - C(e, a_i) + G(\pi_F, \theta_i), \text{ where } \pi_F = (F, e\rho_F - F, e\eta).$$

Our assumptions imply that a non-prosocial worker with $\theta_i^c = \theta_i^{-i} = 0$ will not exert any effort under *Contract F*, and that the optimal effort e_F^* is increasing in θ_i^{-i} and θ_i^c.

Contract P. Under the standard job (*Contract P*) the worker will choose the effort to maximize:

$$U(\pi, e, \theta_i, a_i) = u(ew) - C(e, a_i) + G(\pi_P, \theta_i), \text{ where } \pi_P = (ew, e(\rho_P - w), 0).$$

Our assumptions imply that a non-prosocial worker with $\theta_i^c = \theta_i^{-i} = 0$ will exert a positive effort under *Contract P*, and that the optimal effort e_P^* is increasing in θ_i^{-i} but not in θ_i^c.

The framework we have set up illustrates how, when workers are not prosocial, *Contract P* induces higher levels of effort than *Contract F*; however, it also allows for the possibility that – for sufficiently high values of the prosociality parameters θ_i – the incentives for the worker to exert high levels of effort are stronger under *Contract F*, so that $e_F^* > e_P^*$.

4.2. Employers

We solve the employer's problem by backward induction, computing the level of effort the worker would exert, given the job he is assigned, and his degree of prosociality.

Perfect information. Consider first the case where the information about workers' prosociality is exogenously given. Here, the employer is perfectly able to anticipate the worker's level of effort e_J^*, conditional on the job $J \in \{P, F\}$. The employer h will then choose the contract that maximizes her own utility, given her and the worker's level of prosociality. *Contract F* will be preferred to *Contract P* if:

$$u(e_F^* \rho_F - F) + G(\pi_F, \theta_h) > u(e_P^*(\rho_P - w)) + G(\pi_P, \theta_h)$$

This implies that: (i) a non-prosocial employer may choose *Contract F* if the worker is very pro-social, and $e_F^* \rho_F - F > e_P^*(\rho_P - w)$; (ii) a strongly pro-social employer might choose *Contract F* even if this implies a cost for her in terms of material payoff.

Imperfect information. If the employer does not know θ_i and a_i, she has to form beliefs $\widehat{\theta_i}$ and $\widehat{a_i}$ in order to derive expectations on the level of effort the worker will exert under the two alternative jobs. In a one-shot interaction, since the employer cannot update her belief by observing behavior in previous periods, we assume that the employer's beliefs are exogenously given and based on a common prior. This implies that the choice of the type of contract will only depend on the employer's own prosociality θ_h.

4.3. Testable hypotheses

Within this simple framework, we can derive the following hypotheses.

Hypothesis 1*. Under Contract F, the workers' effort is positively correlated to both their charity donation in the CDG and their offer to another participant in the PDG.*

If they are assigned to the prosocial job, under *Contract F*, workers are not monetarily incentivized. Only prosocial workers would put effort into doing the slider task because they care about the payoff of the beneficiary – in our case, a charity of their choice – and of their matched employers. Hence, we

hypothesize that the number of correctly positioned sliders workers complete increases in workers' charity donation and offer in the two DGs.[7]

Hypothesis 2. *In the* Information *treatment the likelihood that employers choose Contract F is positively correlated with their matched workers' donations and with their own donations in the PDG and CDG.*

Given the information about workers' prosociality, employers would be able to make an optimal contract offer: a selfish employer should only assign the prosocial job to prosocial workers. We should observe this contingency of job-assignment decisions on workers' prosociality only in the *Information* treatment. In addition, we also conjecture that the likelihood of choosing the prosocial job increases in employers' prosociality.

Hypothesis 3. *On average, employers earn higher profits in the* Information *treatment than in the* No Information *treatment.*

When they have information about the workers' prosociality, selfish employers can use it to avoid assigning the prosocial job to non-prosocial workers – who would not exert any effort – and also save on the workers' compensation by assigning *Contract F* to the prosocial ones, who would exert a higher level of effort, for a lower salary. Hence, employers' profits should increase when they have access to this information.

5. Experimental results

We first summarize the results of the first two stages and then focus on the most substantial research issues of our study, which are the contingency of workers' effort, and of employers' job-assignment decision, on workers' prosociality, and the profitability of information about workers' prosociality for employers.

[7]This pattern might be further strengthened by reciprocity considerations embedded in the relation between the worker and the employer, similar to what happens in a gift-exchange labor relation. A contract matching the mission of the worker might be perceived as a kind action on the side of the employer that, in turn, might trigger a kind reaction in terms of effort by the worker. To keep our model simple, we decided to omit explicit modeling of this source of motivation.

In the Slider Task, on average subjects complete 19 sliders, the minimum and the maximum number of correct sliders are 9 and 28 respectively. The distribution of subjects' effort in the first stage is presented in Figure 1.

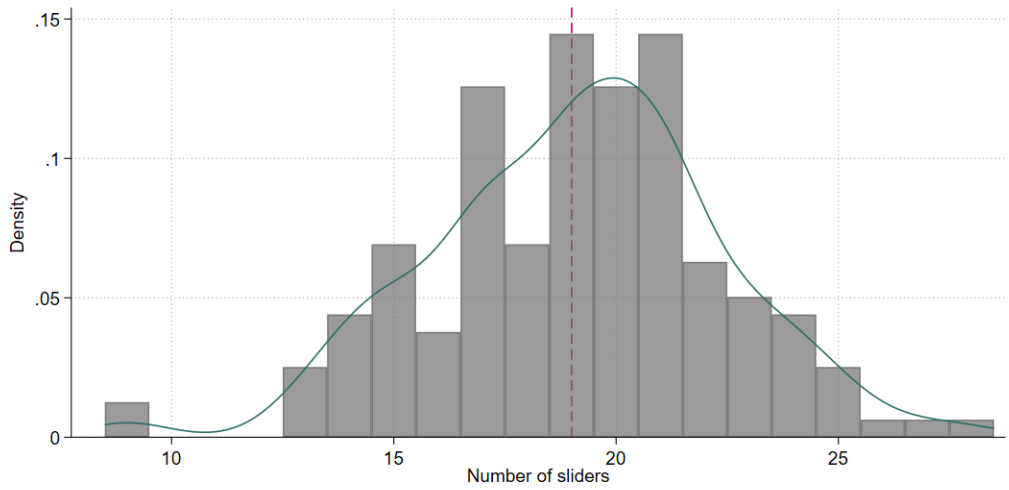

Figure 1: The distribution of effort in the Slider Task

Figure 2 illustrates the distribution of subjects' decisions in the two DGs. On average, subjects give 32.3 and 29.7 tokens to a charity of their choice and to another participant, respectively. There is no significant difference between subjects' average donations in the CDG and subjects' offers in the PDG (p-value=0.83, Wilcoxon signed-rank test with two observations per subject, $N = 160$).

5.1. Prosociality and effort

Since workers do not know whether employers observed the information about their decision in the two DGs before assigning them a job, there is no difference in the experimental setting across the two treatments for the workers. Thus, we pool together observations about workers' effort in the two treatments.

In Figures 3 and 4, we present the distribution of ability-adjusted effort of workers in the two job types, across workers' prosociality, over all periods. The ability-adjusted effort is the ratio of the number of correctly positioned sliders in Stage 3 to the number of correctly positioned sliders in Stage 1. We

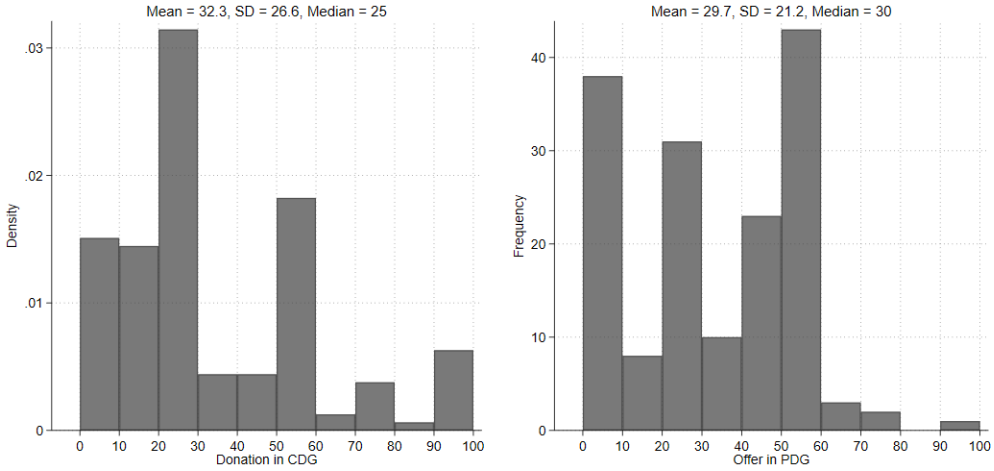

Figure 2: The distribution of donations and offers in the DGs

use the ability-adjusted effort to control for idiosyncratic innate abilities in the slider task.

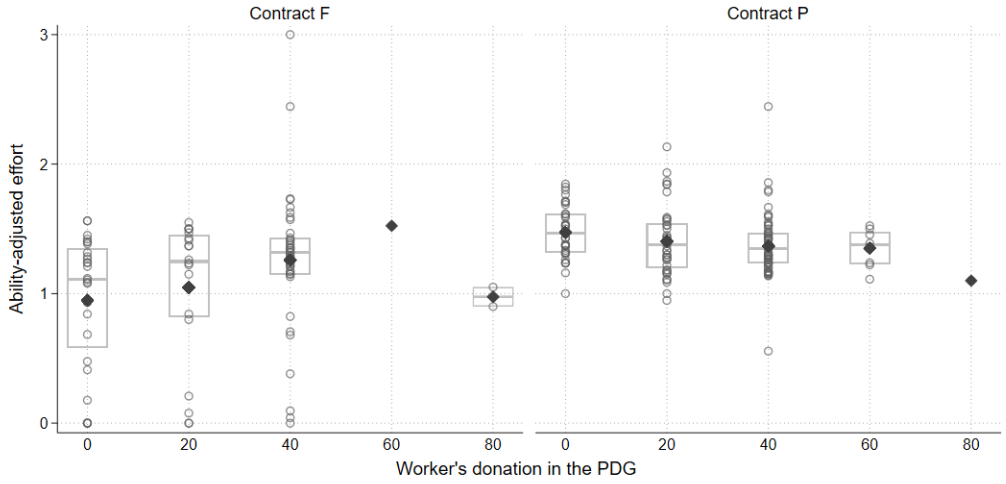

Figure 3: Ability-adjusted effort across workers' offers in the PDG over all periods

Figures 3 and Figure 4 show that in the standard job (*Contract P*), there is no substantial difference in the average ability-adjusted effort across workers'

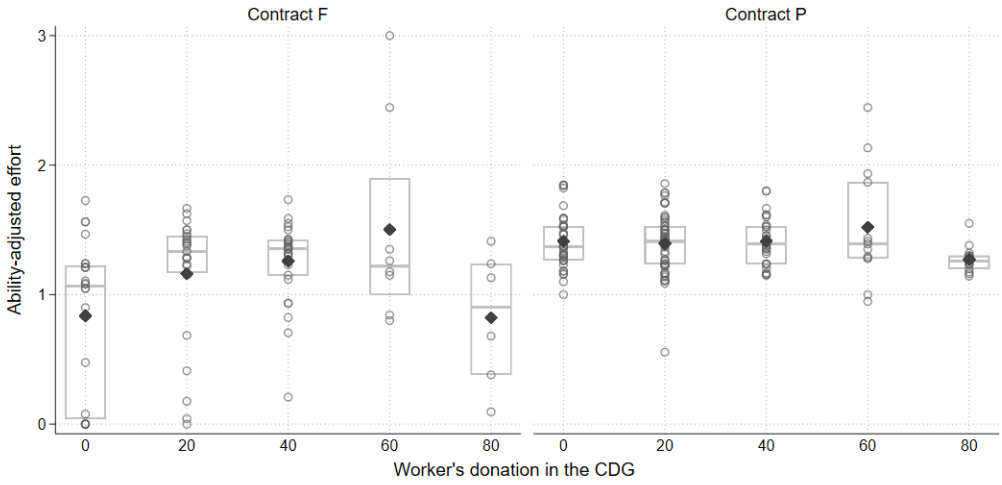

Figure 4: Ability-adjusted effort across workers' donation in the CDG over all periods

prosociality, while when workers are exposed to Contract F, their ability-adjusted effort increases in their prosocial motivation, with the exception of the few subjects who offered or donated at least 80% of their endowment in the DGs.

Table 1 reports Tobit regressions of the impact of employers' job-assignment choice and prosociality of workers on workers' ability-adjusted effort, using data from all three periods (M1). We adopt a panel specification, with random effects at the subject level. In Model M2, we also include the interaction terms between contract offer and workers' prosociality measures as regressors. We employ Tobit regressions because the minimum value of the adjusted-ability effort is 0.[8] The prosociality measures include workers' charity donation in the CDG denoted as CDG and workers' giving to another participant in the PDG denoted as PDG.[9] These variables are divided by 100 for presentational

[8] As a robustness check, we also run OLS regressions and use the number of correctly-positioned sliders as dependent variables instead of the ability-adjusted effort. The main results persist. See Appendix A2 for the results from the robustness check.

[9] Since the charity donation in the CDG and the giving to another person in the PDG are not perfectly correlated (r=0.28, p-value < 0.01), we include both of them in the same regression. A scatter plot of PDG and CDG is given in Appendix A1.

convenience.

Table 1: Tobit regression of the ability-adjusted effort on workers' prosociality

Dependent variable:	M1		M2	
ability-adjusted effort	Coefficient	SE	Coefficient	SE
Contract F	-0.30***	0.04	-0.64***	0.08
PDG	0.02	0.16	-0.25	0.18
CDG	0.02	0.14	-0.12	0.15
Contract F x PDG			0.63***	0.19
Contract F x CDG			0.42***	0.15
Second period	0.02	0.05	0.02	0.04
Last period	0.10**	0.05	0.12***	0.04
Individual characteristics	Yes		Yes	
Constant	1.06***	0.39	1.19***	0.39
σ_u	0.25***	0.03	0.25***	0.03
σ_e	0.29***	0.02	0.27***	0.02
Observations	240		240	

$***p < 0.01, **p < 0.05, *p < 0.1$. *Contract F* is a dummy for Contract F. *PDG* and *CDG* are workers' transfers in the PDG and CDG respectively. *Contract F x PDG* and *Contract F x CDG* are the interaction between Contract F and prosociality measures. *Second period* and *Last period* are dummies for the second and the last period of the principal-agent game. Individual characteristics include the worker's gender, age and field of study.

In both models, the negative coefficient of Contract F confirms the better performance of the piece-rate pay contract in incentivizing workers relative to the fixed payment. We also find that workers exert more effort in the last period than in the first period of the principal-agent game.

In Model M2, as we predicted, there is a positive relationship between workers' prosociality and effort exertion, when Contract F is offered. Both dimensions of workers' prosociality –towards a charity and towards another participant – are positively correlated with their ability-adjusted effort. To check whether the two interaction terms are significantly different, we conduct a linear test on the difference between the coefficients of the interaction terms. The result suggests no significant difference between those two coefficients,

meaning that the two dimensions of workers' prosociality have the same effect on their effort provision when they are offered Contract F (p-value=0.44).

The above findings suggest that prosocial motivation can substitute the monetary incentive as workers' effort is positively correlated with their prosociality. Screening workers on their level of prosociality is very important for employers who want to optimally assign jobs to workers: for a given compensation, prosocial workers may exert higher effort when assigned to a prosocial job.

We have our first result which concerns the contingency between workers' prosociality and their effort exertion:

RESULT 1: When assigned to the prosocial job, workers' effort increases in their level of prosociality.

5.2. Prosociality and job assignment decision

Next, we examine whether employers condition their contractual offer on their matched workers' prosociality, when they have access to this information.[10]

In Table 2, we tabulate employers' job assignments across treatments in each period and over all three periods. Over all three periods, in both treatments, employers choose Contract P, offering the standard job more often (61.5% in the *Information* treatment and 62.3% in the *No Information* treatment). The distribution of jobs is the same across treatments (p-value=0.79, two-sided Fisher's exact test). While in the *Information* treatment, the number of prosocial jobs offered to workers is smaller in the last period than in other periods, the number of prosocial jobs offered to workers increases over time in the *No Information* treatment. Nevertheless, the between-treatment difference in the distribution of jobs assignment is not significant in all periods (p-value>0.1, two-sided Fisher's exact test).

First, to examine whether employers' prosociality plays a decisive role in their job assignment, we run a set of logit regressions on the likelihood of offering the prosocial job with the data from the *No Information* treatment over all three periods.[11] We adopt a panel specification, with random effects at

[10] Among the 40 subjects assigned as employers in the *With Information* treatment, there is one subject who did not open the information box in all three periods. We exclude this subject in our analysis.

[11] Logit regressions with data from each period are provided in Appendix A3.

Table 2: The proportion of prosocial job offers (Contract F) across treatments

	Information (N=39)	No Information (N=40)
First period	43.6%	32.5%
Second period	43.6%	35.0%
Last period	28.2%	42.5%
Over all periods	38.5%	36.6%

the subject level. Since in this treatment, employers do not have information about workers' prosociality, only employers' prosociality measures are included as regressors. We also include employers' performance (i.e., the number of correctly-positioned sliders) in Stage 1 as a regressor. The results are reported in Table 3.

Table 3: Employers' prosociality and job assignment decision in the *No Information* treatment

Dependent variable:	M3	
Job assignment (1 = *Contract F*)	Coef	SE
PDG_employer	2.05	2.12
CDG_employer	-1.42	2.71
Employers' prior performance	0.30**	0.12
Second period	0.17	0.59
Last period	0.67	0.59
Individual characteristics	Yes	
Constant	-2.85	4.86
Observations	120	
Number of id	40	

Logit specification for panel data. $***p < 0.01, **p < 0.05, *p < 0.1$. *PDG_employer* and *CDG_employer* are respectively employers' offer in the PDG and employers' donation in the CDG. *Employers' prior performance* is the number of correctly positioned sliders by employers in Stage 1. *Second period* and *Last period* are dummies for the second and the last period of the principal-agent game. Individual characteristics include the employer's gender, age and field of study.

As can be seen, the coefficients of employers' PDG and CDG are not

statistically significant. It means that in the case where employers have no information about workers' prosociality, the choice of the prosocial job is not primarily driven by employers' prosociality. An important determinant of employers' prosocial job choice is his prior performance: the better an employer performs in Stage 1, the more likely it is that he offers Contract F. A plausible explanation is that since Contract F is more profitable to employers only if workers complete more than 20 sliders, higher prior performance, which results in higher expectation on workers' effort provision, increases the likelihood of choosing the prosocial job.

Next, we investigate the effect of workers' prosociality on employers' contract offers. Table 4 reports the results from logit regressions where the dependent variable is the employers' job assignment decision and the regressors include measures of employers' and workers' prosociality (M4 and M5, respectively), and their interactions (M6), using data from the *Information* treatment over all three periods. We adopt a panel specification, with random effects at the subject level.[12]

Regarding the effect of workers' and employers' prosociality on the job assignment, the estimated coefficients for workers' and employers' prosociality towards a charity are not statistically significant in all models. In particular, in line with Model M3, Model M4 reveals no significant association between the employer's prosociality and job assignment. Our preferred interpretation is that the impact of the employer's prosociality on job assignment is confounded by the impact of the employer's beliefs/information on the worker's prosociality. If only selfish employers condition job assignment to the workers' prosociality, without controlling for the employer's information on the worker's prosociality one cannot disentangle selfish employers who offer the prosocial contract because they think (in the *No-information* treatment) or know (in the *Information* treatment) that the worker is prosocial, from prosocial employers who would offer that contract regardless of the worker's prosociality. In line with this interpretation, Model M6 shows that, when we control for the worker's prosociality, employers' prosociality is positively correlated with the likelihood of choosing the prosocial job. Moreover, the interaction between employers' and workers' prosociality towards another person is significantly

[12]Following a referee's suggestion, we also ran the logit regressions with the pooled data from both treatments. The results are tabulated in Table A7 in Appendix A. Results from these regressions are consistent with the ones from Table 3 and Table 4.

negative, meaning that there is a diminishing effect of workers' prosociality on employers' choice of prosocial job as employers' prosocial motivation increases. In other words, our results suggest that only selfish employers attempt to exploit the information on their workers' prosociality in order to assign workers to the most profitable job; the evidence in support of this result, however, is weak. By contrast, our findings indicate that prosocial employers have an intrinsic preference for the prosocial contract, which emerges more clearly when the worker is not prosocial. This finding is consistent with the predictions of Besley and Ghatak (2005) and the experimental findings of Cassar (2018).

Since the coefficient of employers' prior performance and period dummies are not simultaneously significantly different from 0 (p-value = 0.17, F-test), we run another regression in which we exclude these variables as regressors. The result is presented in Model M7. Beside the positive relationship between employers' prosociality towards another person and the choice of prosocial job, we also find that workers' prosocial motivation towards another person turns out to have a significant effect on employers' choice: the higher the offer of a worker in the PDG is, the more likely it is that the employer assigns the worker to the prosocial job.

Table 4: Prosociality and job assignment decision in the *Information* treatment

Dependent variable:	M4		M5		M6		M7	
Job assignment (1 = *Contract F*)	Coef	SE	Coef	SE	Coef	SE	Coef	SE
PDG_employer	2.22	1.40			6.23**	2.63	6.49**	2.61
CDG_employer	0.33	1.02			-0.97	1.60	-0.90	1.58
PDG_worker			0.05	1.20	3.57	2.26	3.69*	2.23
CDG_worker			-0.69	0.92	-1.75	1.45	-1.70	1.41
PDG_employer x PDG_worker					-12.79*	6.56	-11.88*	6.42
CDG_employer x CDG_worker					3.58	3.36	3.01	3.26
Employers' prior performance	0.15	0.11	0.21	0.12	0.18	0.13		
total_time	0.05	0.04	0.06	0.04	0.06	0.04	0.06	0.04
Second period	0.05	0.52	-0.02	0.53	0.16	0.56		
Last period	-0.83	0.56	-0.85	0.57	-0.87	0.58		
Individual characteristics	Yes		Yes		Yes		Yes	
Constant	0.70	4.36	-1.69	4.47	0.44	4.87	3.57	4.15
Observations	117		117		117		117	
Number of id	39		39		39		39	

Logit specification for panel data. $***p < 0.01, **p < 0.05, *p < 0.1$. *PDG_employer* and *CDG_employer* are respectively employers' offer in the PDG and employers' donation in the CDG. *PDG_worker* and *CDG_worker* are respectively workers' offer in the PDG and workers' donation in the CDG. *Employers' prior performance* is the number of sliders correctly positioned by employers in Stage 1. The variable *total_time* measures the total number of seconds that employers spent observing workers' prosociality. Other variables are interactions between employers' and workers' decisions in the PDG and CDG. *Second period* and *Last period* are dummies for the second and the last period of the principal-agent game. Individual characteristics include the employer's gender, age and field of study.

In summary, our results suggest that there are two main motives behind the employers' choice of offering the prosocial Contract F given the information about workers' prosociality. The first motive drives the choice of prosocial employers, who choose Contract F because of their own intrinsic motivation. The second motive drives the choices of the selfish employers, who do not care for the charity directly but choose contract F when they know that the worker is prosocial, and thus expect higher effort under Contract F than under Contract P. These two drivers emerge more clearly from Figure 5, which plots the implied marginal effects obtained from model M7 (Table 4). Specifically, the left panel displays the marginal effect of the employer's PDG on the choice of contract F, for different values of the worker's PDG; the right panel instead displays the marginal effect of the worker's PDG on the probability that contract F is selected, for different values of the employer's PDG.

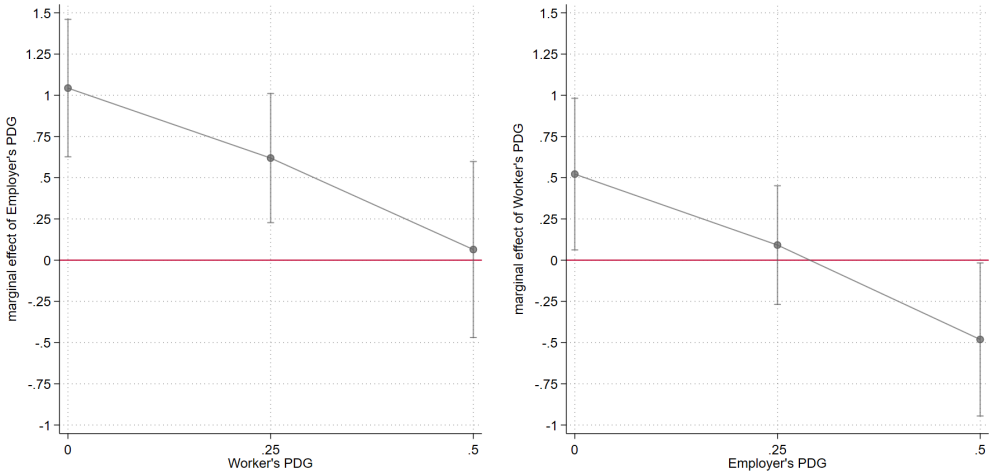

Figure 5: Marginal effects of the employers' and workers' PDF on the contract choices.

In the *Information* treatment, employers who offer more to another person in the PDG are more likely to offer Contract F, but only when the worker not very prosocial. On the other hand, employers who donate very little in the PDG are more likely to offer Contract F to prosocial workers, with the aim of maximizing their own profits. The evidence we have in support of this result, however, is weak. This may depend in part on the relatively small sample size, and in part on the fact that employers need experience in order

to understand the impact of workers' prosociality on their performance, and thus to learn how to exploit the information they have on this aspect. A further experimental exploration of the questions investigated here should allow more scope for learning.

The fact that among two dimensions of prosociality of the worker, only the one towards another person matters could be due to our experimental parameters. In our experiment, one extra correctly-positioned slider generates only 2 tokens to the charity and 8 tokens – 4 times more– to the employer. In other words, a worker who is prosocial towards another person may have an even stronger motivation than one who is prosocial towards a charity, under Contract F.

We have the following result:

RESULT 2: In the Information *treatment, the main driver of employers' job-assignment decision is their own prosociality towards another person. Only non-prosocial employers condition their contract offer on their workers' prosociality.*

5.3. Information and profit

In this section, we investigate whether information about workers' prosociality has a positive impact on employers' profits.

Table 5 tabulates employers' profit across treatments over all periods and in each period. Over all periods, employers' profits are similar across treatments and employers always earn less by assigning the worker to the prosocial job. Only in the last period, we find that in the *Information* treatment, employers avoid negative earnings when they choose the prosocial job, and on average they earn marginally more than those who choose the standard job (p-value=0.09, Wilcoxon signed-rank test with two matched observations per session, N=8). In addition, we also observe that in the last period employers who choose the prosocial job earn significantly more in the *Information* treatment than in the *No Information* treatment (p-value=0.05, Wilcoxon signed-rank test with two matched observations per session, N=6). This difference is due to the fact in the *Information* treatment, employers who offer Contract F do not obtain negative profit as in the *No Information*

treatment.[13]

As a byproduct, we also check whether charity giving, an externality of the prosocial job, is affected by the information about workers' prosociality. We find that in the last period, workers under Contract F send charities an average of 49.5 tokens in the *Information* treatment and 39.5 tokens in the *No Information* treatment. This difference is statistically significant (p-value=0.04, Wilcoxon signed-rank test with two matched observations per session, N=6). However, over all periods, the difference in the charity giving across treatments is not significant (p-value=0.64, Wilcoxon signed-rank test with two matched observations per session, N=19).

Results in the last period seem to suggest that information about workers' prosociality may be profitable for employers, when they are allowed to learn how to exploit it. However, the lack of overall differences in profits across treatments leads us to reject Hypothesis 3.

[13] In two of the sessions, no employer chose the prosocial job in the last period, in at least one of the two treatments.

Table 5: Contract and profit across treatments

	Information					No Information					Between-treatment
	N	Avg	SE	Min	Max	N	Avg	SE	Min	Max	comparison (p-value)
First period											
Contract F	17	96.2	18.6	-60	164	13	110.5	15.5	-26	188	0.35
Contract P	22	120.2	3.9	95	160	27	129.1	4.6	50	175	0.16
Both contracts	39	109.8	3.0	-60	164	40	123.0	5.9	-26	188	0.09
Second period											
Contract F	17	68.9	21.8	-60	188	14	103.4	13.9	4	196	0.50
Contract P	22	134.5	4.2	100	175	26	133.3	3.4	100	165	0.53
Both contracts	39	105.9	11.0	-60	188	40	122.8	5.7	4	196	0.67
Last period											
Contract F	11	137.8	6.7	100	172	17	98.1	22.4	-60	244	0.05
Contract P	28	135.0	3.3	105	160	23	135.9	5.7	50	175	0.89
Both contracts	39	135.8	3.0	100	160	40	119.8	10.4	-60	244	0.09
Over all periods											
Contract F	45	96.1	11.4	-60	188	44	103.5	10.6	-60	244	0.89
Contract P	72	130.3	2.3	95	175	76	132.6	2.6	50	175	0.64
Both contracts	117	117.2	4.8	-60	188	120	121.9	4.2	-60	244	0.73

p-values are taken from the Wilcoxon signed-rank test

RESULT 3: Over all periods, employers in the Information treatment do not earn significantly more than their counterparts in the No Information treatment.

In summary, we show that first, workers' prosociality is positively correlated with their effort provision, when they are assigned to the prosocial job. Second, when they have access to information about workers' prosociality, non-prosocial employers use this information to condition their job assignment decision on the degree of workers' prosociality towards another person: the more prosocial a worker is, the more likely it is that employer chooses the prosocial contract. Yet, this is not true for prosocial employers who do not condition the choice of prosocial contract on workers' prosocial motivation but on his own motivation.

Overall, we observe that the possibility of screening workers does not lead to higher profits for employers. This last result, however, may depend crucially on the chosen parametrization, while the overall direction of the effect suggests that there are circumstances where it can be optimal for an employer to offer a prosocial contract to the right workers as this would be beneficial for them, as well as for the charity.

6. Conclusion

Although numerous studies have shown that prosocial workers are motivated to work beyond monetary incentives, there is no evidence on whether employers strategically condition their job assignment decision on workers' prosociality. Our paper reports the results from a laboratory experiment designed to compare employers' job assignments with and without the information about the workers' prosocial motivation. As a measure of prosociality, we use employers' and workers' decisions in two DGs, where the recipient is either a charity or another participant. We observe that when workers are assigned to a prosocial job, where effort is non-contractible and the compensation is fixed, their effort provision is increasing in their prosociality. As a consequence, profit maximizing employers should offer such a contract to prosocial workers. Our results provide only weak support to the hypothesis that employers with access to information on their workers' prosociality condition their job-assignment decision on this piece of information. The main driver of behavior for employers seems to be their own prosociality, while workers' prosociality matters only for selfish employers.

These results have implications for the contract design in organizations and for the management of heterogeneity in workers' prosociality. The fact that workers are motivated to work by more than just monetary rewards brings about ample opportunities for organizations to leverage the information about their workers' prosocial motivation, by offering the right contract to the right worker. In light of the documented heterogeneity of workers' motivations, the performance of firms may heavily depend on how they screen job applicants, especially when jobs have prosocial implications and effort is non-contractible. Thus, our findings may be particularly relevant for the governance of charities and other nonprofit organizations.

Further studies and extensions of this study are needed to provide more robust results and deeper insights into the motives of the fix-compensation contract choice. As already mentioned, our findings are based on a relatively small sample, and our estimates may be affected by a lack of power. In addition, our experimental results may depend on the specific parameters we adopted. In our setup, the fix-compensation contract offers much more monetary benefits to employers than to a charity if workers exert more effort. It would be interesting to check if the contract choice depends on the extent of the externality generated from each contract. Moreover, other research with different target populations in real field environments, would be necessary to corroborate the external validity of the results reported here.

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Appendix A: Additional tables and figures

A.1 Prosociality and effort

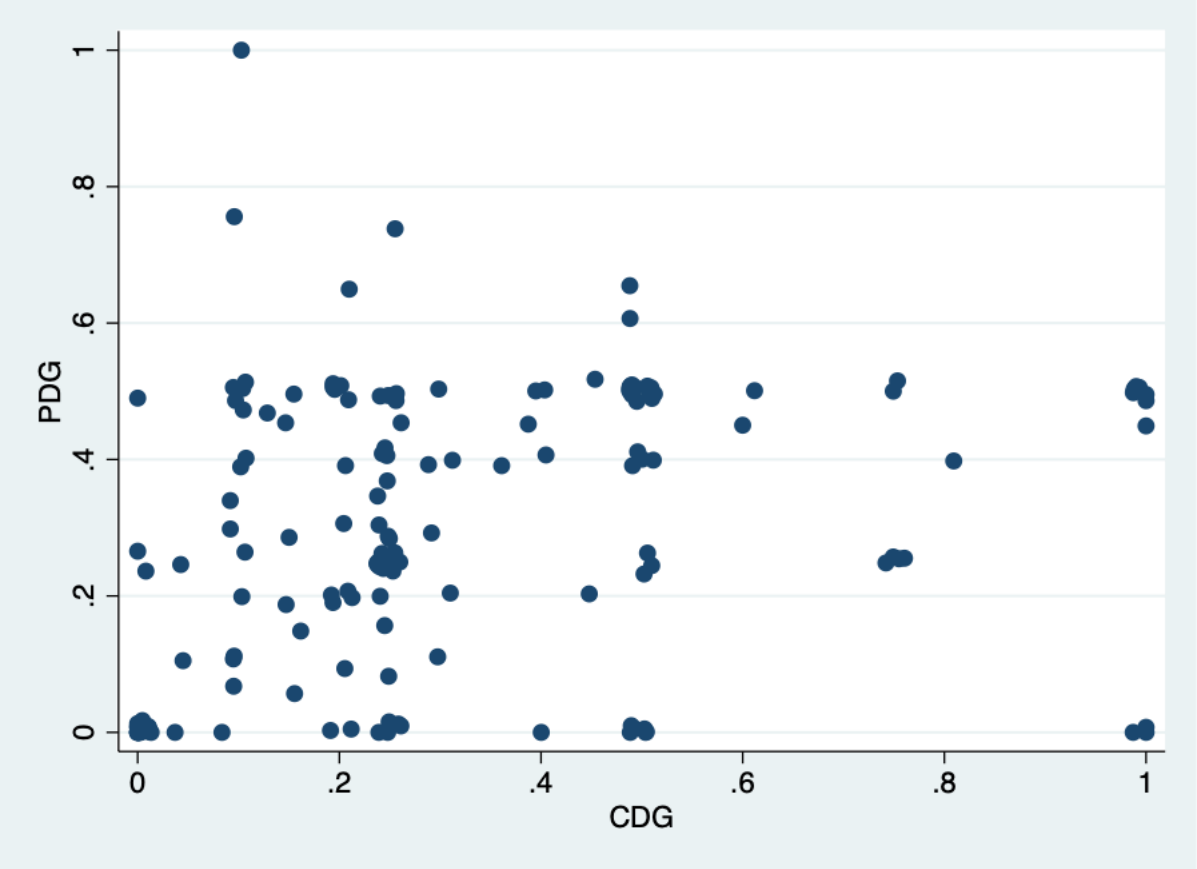


Figure A1: Scatter plot of PDG and CDG with jitter

Table A1: Tobit regressions of workers' effort on their prosociality and type of jobs

Dependent variable: **Effort**	First period	Second period	Last period	All periods	All periods
Contract F	-6.38**	-13.27***	-10.06***	-10.40***	-10.67***
	(2.82)	(3.02)	(2.75)	(1.52)	(1.49)
PDG	-1.02	-0.88	0.34	-1.12	-1.30
	(4.63)	(4.51)	(4.21)	(3.01)	(3.00)
Contract F x PDG	9.34	4.21	2.54	7.23**	7.68**
	(6.62)	(7.31)	(7.06)	(3.68)	(3.60)
CDG	1.24	1.05	0.55	0.50	0.28
	(3.42)	(3.91)	(3.36)	(2.51)	(2.51)
Contract F x CDG	-4.36	7.68	12.29**	5.54*	6.21**
	(5.32)	(5.43)	(5.55)	(2.84)	(2.80)
Second period					0.05
					(0.82)
Last period					1.96**
					(0.82)
Individual characteristics	Yes	Yes	Yes	Yes	Yes
Constant	26.60***	25.39***	10.91	22.15***	21.54***
	(8.55)	(8.47)	(8.20)	(6.26)	(6.28)
σ	6.10***	6.37***	6.10***		
	(0.49)	(0.52)	(0.49)		
σ_u				3.65***	3.73***
				(0.52)	(0.51)
σ_u				5.30***	5.17***
				(0.30)	(0.30)
Observations	80	80	80	240	240
Number of id				80	80

$***p < 0.01, **p < 0.05, *p < 0.1$. *Second period* and *Last period* are respectively dummy for the second and last period of the principal-agent game; *First period* is the control group. Individual characteristics include the worker's gender, age and field of study.

A.2 Prosociality and job assignment decision

Table A2: OLS regressions of ability-adjusted effort on workers' prosociality and type of jobs

Dependent variable: **ability-adjusted effort**	First period	Second period	Last period	All periods	All periods
Contract F	-0.31*	-0.84***	-0.66***	-0.60***	-0.62***
	(0.16)	(0.18)	(0.17)	(0.08)	(0.08)
PDG	-0.11	-0.32	-0.31	-0.23	-0.24
	(0.26)	(0.27)	(0.27)	(0.19)	(0.18)
Contract F x PDG	0.43	0.80*	0.71	0.59***	0.61***
	(0.37)	(0.44)	(0.45)	(0.19)	(0.19)
CDG	-0.06	-0.12	-0.10	-0.11	-0.12
	(0.19)	(0.24)	(0.21)	(0.16)	(0.16)
Contract F x CDG	-0.21	0.54	0.80**	0.36**	0.40***
	(0.30)	(0.33)	(0.35)	(0.15)	(0.15)
Second period					0.02
					(0.04)
Last period					0.12***
					(0.04)
Individual characteristics	Yes	Yes	Yes	Yes	Yes
Constant	1.34***	1.51***	0.72	1.24***	1.20***
	(0.48)	(0.51)	(0.52)	(0.40)	(0.40)
Observations	80	80	80	240	240
R-squared	0.16	0.30	0.23		
Number of id				80	80

$***p < 0.01, **p < 0.05, *p < 0.1$. *Second period* and *Last period* are respectively dummy for the second and last period of the principal-agent game; *First period* is the control group. Individual characteristics include the worker's gender, age and field of study.

Table A3: OLS regressions of workers' effort on their prosociality and type of jobs

Dependent variable: **Effort**	First period	Second period	Last period	All periods	All periods
Contract F	-6.01**	-12.65***	-9.74***	-10.01***	-10.28***
	(2.91)	(3.07)	(2.84)	(1.48)	(1.46)
PDG	-1.00	-0.90	0.35	-1.11	-1.29
	(4.80)	(4.63)	(4.36)	(3.04)	(3.04)
Contract F x PDG	8.80	4.23	2.36	6.97*	7.40**
	(6.85)	(7.47)	(7.31)	(3.59)	(3.54)
CDG	1.32	1.15	0.59	0.53	0.31
	(3.55)	(4.00)	(3.48)	(2.55)	(2.55)
Contract F x CDG	-4.61	6.63	11.79**	5.13*	5.77**
	(5.51)	(5.53)	(5.74)	(2.78)	(2.75)
Second period					0.07
					(0.81)
Last period					1.95**
					(0.81)
Individual characteristics	Yes	Yes	Yes	Yes	Yes
Constant	26.64***	25.20***	11.23	22.21***	21.59***
	(8.86)	(8.67)	(8.49)	(6.39)	(6.40)
Observations	80	80	80	240	240
R-squared	0.17	0.37	0.27		
Number of id				80	80

$***p < 0.01, **p < 0.05, *p < 0.1$. *Second period* and *Last period* are respectively dummy for the second and last period of the principal-agent game; *First period* is the control group. Individual characteristics include the worker's gender, age and field of study.

Table A4: Average prosociality of employers and workers across treatments and across contracts (Standard deviation in parentheses)

	Information					**No Information**				
		Employers		*Workers*			*Employers*		*Workers*	
	N	PDG	CDG	PDG	CDG	**N**	PDG	CDG	PDG	CDG
First period										
Contract F	17	0.28	0.29	0.31	0.38	13	0.33	0.19	0.30	0.32
		(0.21)	(0.25)	(0.21)	(0.30)		(0.23)	(0.14)	(0.30)	(0.24)
Contract P	22	0.26	0.32	0.27	0.40	27	0.29	0.29	0.32	0.31
		(0.23)	(0.31)	(0.20)	(0.30)		(0.19)	(0.17)	(0.18)	(0.29)
Second period										
Contract F	17	0.29	0.34	0.31	0.33	14	0.32	0.29	0.31	0.46
		(0.22)	(0.30)	(0.19)	(0.28)		(0.25)	(0.17)	(0.24)	(0.29)
Contract P	22	0.26	0.28	0.33	0.29	26	0.29	0.24	0.29	0.36
		(0.22)	(0.28)	(0.25)	(0.28)		(0.18)	(0.16)	(0.20)	(0.30)
Last period										
Contract F	11	0.41	0.34	0.28	0.32	17	0.35	0.27	0.26	0.30
		(0.17)	(0.25)	(0.20)	(0.28)		(0.21)	(0.16)	(0.25)	(0.27)
Contract P	28	0.22	0.30	0.31	0.43	23	0.26	0.24	0.35	0.33
		(0.21)	(0.30)	(0.22)	(0.30)		(0.20)	(0.17)	(0.20)	(0.28)
Over all periods										
Contract F	45	0.32	0.32	0.30	0.35	44	0.34	0.25	0.29	0.36
		(0.19)	(0.26)	(0.19)	(0.28)		(0.26)	(0.16)	(0.26)	(0.27)
Contract P	72	0.30	0.30	0.30	0.38	76	0.32	0.26	0.32	0.33
		(0.22)	(0.29)	(0.22)	(0.30)		(0.19)	(0.17)	(0.19)	(0.27)
Both contracts	117	0.27	0.31	0.30	0.37	120	0.30	0.25	0.31	0.34
		(0.22)	(0.28)	(0.21)	(0.29)		(0.20)	(0.16)	(0.21)	(0.28)

Table A5: Logit regression of the likelihood of choosing the prosocial job in the *No Information* treatment in each period

Dependent variable: **Job assignment (1 = Contract F)**	First period	Second period	Last period
PDG_employer	3.99	-1.02	2.57
	(2.61)	(2.46)	(2.21)
CDG_employer	-9.91**	4.67	-0.03
	(4.36)	(3.45)	(2.86)
Employers' prior performance	0.24*	0.40**	0.17
	(0.15)	(0.16)	(0.13)
Individual characteristics	Yes	Yes	Yes
Constant	-3.54	-6.44	2.34
	(5.43)	(6.94)	(5.57)
Observations	40	40	40

$***p < 0.01, **p < 0.05, *p < 0.1$. Individual characteristics include the employer's gender, age and field of study.

Table A6: Logit regression of the likelihood of choosing the prosocial job in the *Information* treatment in each period

Dependent variable: **Job assignment (1 = Contract F)**	First period	Second period	Last period
PDG_employer	3.91	11.29	11.20**
	(3.60)	(7.16)	(5.40)
PDG_worker	2.74	4.80	3.18
	(3.03)	(4.87)	(5.26)
PDG_employer x PDG_worker	-9.18	-34.72*	-9.70
	(10.35)	(19.97)	(13.41)
CDG_employer	-6.37*	-0.12	-0.72
	(3.57)	(2.34)	(3.94)
CDG_worker	-4.30*	-2.36	-2.37
	(3.05)	(2.89)	(3.96)
CDG_employer x CDG_worker	17.12*	8.45	0.19
	(9.31)	(8.46)	(11.09)
Employers' prior performance	-0.13	1.00**	-0.00
	(0.15)	(0.40)	(0.19)
total_time	0.09	0.06	0.06
	(0.08)	(0.13)	(0.12)
Individual characteristics	Yes	Yes	Yes
Constant	6.02	-25.23**	12.57
	(6.46)	(11.65)	(10.01)
Observations	39	39	39

$***p < 0.01, **p < 0.05, *p < 0.1$. Individual characteristics include the employer's gender, age and field of study.

Table A7: Logit regression of the likelihood of choosing the prosocial job in both treatments

Dependent variable: **Job assignment (1 = Contract F)**	First period	Second period	Last period	All periods
PDG_employer	3.81	-0.49	2.19	1.92
	(2.43)	(2.48)	(2.13)	(1.85)
Info	0.36	-0.15	-2.16	-1.09
	(1.55)	(1.79)	(2.07)	(1.19)
Info x PDG_employer	-0.30	9.52	6.79	4.20
	(4.15)	(5.82)	(4.99)	(3.16)
CDG_employer	-7.73**	3.89	0.07	-1.68
	(3.39)	(3.20)	(2.67)	(2.31)
Info x CDG_employer	1.29	-4.40	-0.15	0.94
	(4.60)	(3.77)	(4.31)	(2.77)
Info x PDG_worker	3.52	4.01	2.20	3.70*
	(2.97)	(3.73)	(5.10)	(2.23)
Info x PDG_employer x PDG_worker	-11.21	-27.69*	-7.30	-13.02**
	(9.89)	(14.23)	(12.92)	(6.47)
Info x CDG_worker	-5.28*	-1.68	-2.20	-1.83
	(2.82)	(2.35)	(3.59)	(1.45)
Info x CDG_employer x CDG_worker	15.75*	9.07	0.12	2.99
	(8.44)	(7.55)	(10.24)	(3.32)
Employers' prior performance	0.10	0.50***	0.12	0.24***
	(0.10)	(0.15)	(0.10)	(0.08)
Individual characteristics	Yes	Yes	Yes	Yes
Info x total_time	0.08	0.05	0.08	0.07
	(0.08)	(0.08)	(0.13)	(0.04)
Second period				0.14
				(0.40)
Last period				-0.10
				(0.40)
Constant	-0.80	-10.93**	5.57	-0.98
	(3.93)	(5.00)	(4.65)	(3.34)
Observations	79	79	79	237
Number of id				79

$***p < 0.01, **p < 0.05, *p < 0.1$. *Info* is a dummy for Information treatment. Individual characteristics include the employer's gender, age and field of study.

Appendix B: Experiment instructions (translated from Italian)

Welcome! This is a study of economic decision making. The study includes three tasks and a questionnaire. After completing a task, you will participate the next task and earn more money. All tasks will be computerized. We will now provide you with the instructions for Task 1. At the end of Task 1, you will receive instructions for Task 2 and Task 3. In each task, all participants will receive the same instruction. In all instructions, we will always provide you true information that never deceives you in any way.

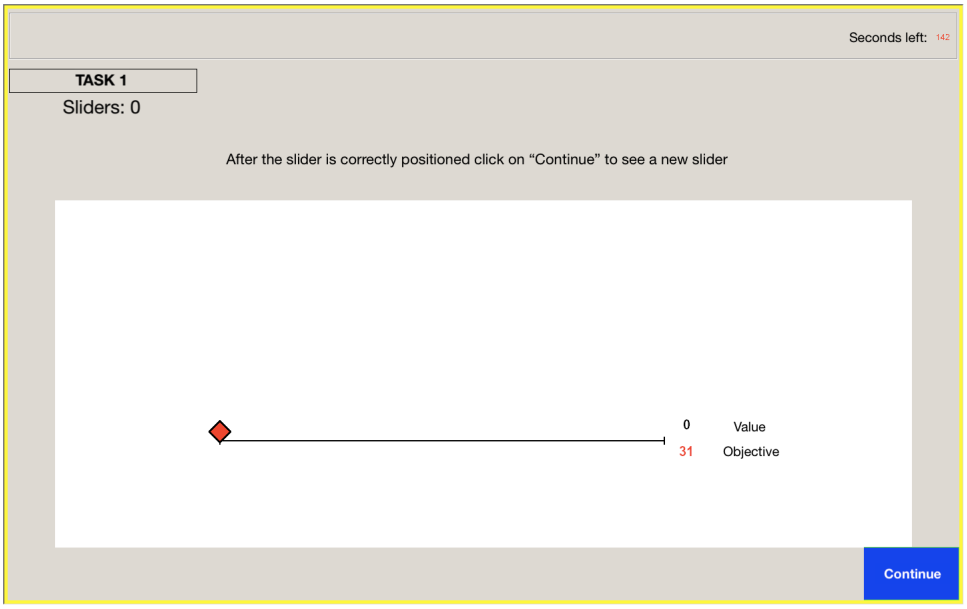
The choices made by each participant will be confidential unless explicitly specified. Anonymity will be maintained both during and after the study: your identity will not be made known to any participant at any time.

You will have the opportunity to earn tokens in each of the three tasks. The tokens you earn in each task cumulate and will be converted into Euro at the end, at the rate of 1 Euro every 25 tokens. You will also receive 3 euros for showing up in this study. The money you earn will be paid to you in private, and in cash, at the end of the study.

We ask you to turn off your phone now and not to communicate in any way with the people present in the room until the end of the study. If you have any question, please raise your hand and we will assist you in private. You are free to leave the study if you want to, however, you will not receive any sum of money.

1. Task 1

You will be provided a number of sliders. An example of a slider is as below:



Your task is to adjust each slider from the initial position at 0 to the desired position by pressing the cursor with your mouse and dragging it. When you drag the cursor, the black number (Value) will tell you the current position of the cursor whereas the red number (Objective) will tell you the desired position of the cursor. The cursor is positioned correctly when the “Value” equals the “Objective”. In that case, the number of “Objective” will turn green. After that, by clicking “Continue”, you will see a new slider to complete.

There will be a counter of time which would tell you how many seconds you have left and another counter which would tell you how many sliders you have correctly positioned. Before doing this task, you will be given an example of a slider to get familiar with the task.

You will have 150 seconds to do Task 1. You earn 5 tokens for each slider that is correctly positioned. You will know the result of the task as soon as the task finishes.

2. Task 2

There are two parts in this task: Part 1 and Part 2. At the end of the study, one of these subtasks will be randomly selected for the final payment.

Part 1

In this task, you will be randomly matched with another participant who is definitely different from those who you may be matched in later tasks. You and your matched participant will be randomly assigned as Subject A and Subject B. Subject A will be given 100 tokens . Subject B will not be given any token.

Subject A will decide how many tokens from 0 to 100 to transfer to Subject B.

You and other participants will now make decision as if you are Subject A.

At the end of the study, if Part 1 is selected for payment and you are randomly assigned as Subject A, the transfer you make in this task will become effective and determine your payoff and the payoff of your matched Subject B.

Part 2

In this task, you are given 100 tokens. You can send some tokens from 0 to 100 to a charity of your choice.

If Part 2 is selected for payment, the transfer you make in this task will become effective and determine your payoff and the amount of money the charity will be sent.

At the end of the study, if this task is chosen for payment, we would total the transfer of all participants in this room across charities and the university will make donation to those charities on your behalf.

3. Task 3

In Task 3, you will be randomly matched with another participant, who is definitely different from those with whom you may be paired with in Task 2. In each pair in Task 3, one participant will be randomly assigned as "Worker" and the other will be randomly assigned as "Employer".

For those who are randomly assigned as a Worker. The Worker will receive a pay offer to complete a task similar to Task 1. There are two pay options: Option A and Option B.

- If the Worker is offered Option A, he/she will earn 60 tokens for Task 3, independent of how many sliders he/she can adjust. Additionally, for every slider he/she correctly adjusts, 2 tokens will be donated to a charity chosen by him/her in Task 2.

- If the Worker is offered Option B, he/she will earn 5 tokens for every correctly adjusted slider.

For those who are randomly assigned as an Employer. The earnings of those who are randomly assigned as Employer will depend on the number of sliders his/her matched Worker can complete and on the chosen pay option.

- If Option A is chosen, the earnings of Employer are:

10 x N - 60 - 2 x N

where N is the number of sliders correctly adjusted by the Worker, 60 is the number of tokens sent to the Worker and 2 x N is the number of tokens sent to a charity chosen by the Worker.

- If Option B is chosen, the earnings of Employer are:

10 x N - 5 x N

where 5 xN will be paid to his/her matched Worker.

How the pay offer is selected. The payment scheme is chosen in the following way: - With a probability of 1/2, the Employer will see their matched Worker's decision in Task 2 before choosing the pay offer;

- With a probability of 1/2, the Employer will not see their matched Worker's decision in Task 2 before choosing the pay offer.

The Worker will not know whether their matched Employer can observe their decision in the Task 2.

You will do Task 3 for 3 rounds and your matched Employer/Worker will be different each round. Your role in Task 3 and how your pay offer is chosen will be kept the same while your pay offer may be different across 3 rounds. At the end of the study, the result of one round among three rounds will be randomly selected for payment and determine the Employer's, the Worker's payoff and the donation to a charity organization chosen by the Worker.

Final payment

The final payment is the sum of your payoffs in Task 1, Task 2 and Task 3. As stated before, one of the two parts in Task 2 and one of three rounds in Task 3 will be randomly chosen for the final payment. The total of your payoffs in Task 2 and 3 will be summed with your payoff in Task 1.

Your payoffs will be concerted in euro and paid in cash at the rate of 1 euro for every 25 tokens.

The donation for charity organizations will be made with bank transfer.