Corporate Social Responsibility as a Signal in the Labor Market*

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Abstract

Working for a firm engaged in Corporate Social Responsibility (CSR) appeals to potential workers by boosting their self-image and sense of purpose. We propose an additional mechanism: CSR signals a firm's future treatment of workers. Our model links CSR engagement with a firm's propensity to support workers during unforeseen times of need. Under this assumption, a potential future need of the worker leads to more firms engaging in CSR and to a higher workers' willingness to accept lower wages. Our experiment manipulates potential future needs across treatments. While the aggregate analysis does not fully support our theory, exploratory analysis reveals that male workers respond as predicted, whereas female workers do not. Consistently, in a risky environment, male employers increase their CSR engagement, which raises the acceptance rate among male workers. These results do not hold for female employers and workers.

Keywords: CSR, signaling, labor market, experiment.
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1 Introduction

Corporate Social Responsibility (CSR) encompasses an extensive range of voluntary social activities carried out by firms to increase social welfare.[1] CSR activities include ethically oriented business and investment strategies, environmental goals, and societal activities such as charitable donations or participation in community development and pro-bono programs. Engaging in CSR affects consumers (e.g., Becker-Olsen, Cudmore, and Hill, 2006; Eichholtz, Kok, and Quigley, 2013; Sen and Bhattacharya, 2001), investors (e.g., Gibson Brandon, Krueger, and Mitali, 2021; Martin and Moser, 2016), lenders (e.g., Barigozzi and Tedeschi, 2015; Cheng, Ioannou, and Serafeim, 2014), and workers (e.g., Burbano, 2016; Cassar, 2019; Hedblom, Hickman, and List, 2019; Kajackaite and Sliwka, 2017).[2] This study focuses on one mechanism contributing to the effect of CSR on the labor market.

Several studies have shown that engaging in CSR increases a firm's attractiveness in the labor market. Turban and Greening (1997) were the first to document correlations between CSR and management students' evaluations of employer attractiveness. Several studies have since expanded on this finding (e.g., Backhaus, Stone, and Heiner, 2002; Greening and Turban, 2000; Klimkiewicz and Oltra, 2017; Story, Castanheira, and Hartig, 2016; Waples and Brachle, 2020).[3] In a large-scale natural field experiment, Hedblom, Hickman, and List (2019) also found that socially oriented tasks attract more—and more productive—job applicants. This raises a central question: What makes CSR so attractive to job seekers?

Two main mechanisms are typically invoked (Greening and Turban, 2000): first, CSR can convey values that enhance applicants' image; second, it may signal favorable working conditions. Our study focuses on this signaling dimension, which has received comparatively less attention. Existing evidence suggesting that CSR signals future employee treatment relies mostly on subjective, non-incentivized evaluations, and remain ambiguous about the precise form of organizational support

[1] There is no unified definition of CSR. UNIDO defines it as "a management concept whereby companies integrate social and environmental concerns in their business operations and interactions with their stakeholders" (https://www.unido.org/our-focus-advancing-economic-competitiveness-competitive-trade-capacities-and-corporate-responsibility-corporate-social-responsibility-market-integration/what-csr) (consulted on August 8, 2025). The European Commission defines CSR as "the responsibility of enterprises for their impact on society" (`https://single-market-economy.ec.europa.eu/industry/sustainability/corporate-sustainability-and-responsibility_en`, consulted on August 8, 2025). For Kitzmueller and Shimshack (2012), CSR is "corporate social or environmental behavior that goes beyond the legal or regulatory requirements of the relevant market(s) and/or economy(s)." (p.53). Christensen, Hail, and Leuz (2021) define it as "corporate activities and policies that assess, manage, and govern a firm's responsibilities for and its impact on society and the environment" (p.1181).

[2] See Kitzmueller and Shimshack (2012) for a survey of the economic analysis of CSR.

[3] For reviews of CSR in the human resource management literature, see Boehncke (2023) and Voegtlin and Greenwood (2016).

being inferred (whether it concerns well-being, fairness, or financial protection. No prior work has causally identified the role of CSR as a signal of support under adverse circumstances.

Using an incentivized controlled experiment, we provide such causal evidence. We hypothesize that CSR may signal how a company will treat its employees in times of adversity. The type of internal assistance to employees we study is not intended to capture all aspects of how employees feel treated, but it provides a controlled setting for investigating the signaling mechanism. This mechanism is orthogonal to job seekers' social preferences, sense of purpose, or image concerns, and to preference-based matching processes; rather, its logic follows standard signaling theory (Spence, 1978).

Our investigation of CSR as a signal for support to employees in need relies on the observation that companies known for their philanthropic engagement in CSR initiatives are also often offering support to employees during difficult times through health support or financial assistance. For example, *Microsoft* not only increased its charitable donations during the COVID-19 pandemic but also provided additional mental health support for its employees.[4] Similarly, *Patagonia* is recognized for its substantial donations to environmental causes and for providing financial and mental assistance to employees affected by natural disasters.[5] *Salesforce* has both an extensive CSR policy through its foundation and a holistic employee support program for health and financial support through its Employee Assistance Fund.[6]

In this study, we assume that firms vary in their willingness to support workers, and this willingness corresponds to their engagement in CSR activities. CSR enables pro-social firms to signal their supportive type, distinguishing themselves from profit-oriented firms. This creates a link between the treatment of employees and pro-social activities that do not directly benefit employees.[7] We identify the proposed signaling mechanism by exogenously manipulating in the experiment the likelihood that the employee will later require help from the employer. Our key assumptions are that i) there is a positive correlation between the cost of CSR to the firm and the cost it incurs when helping its employees under unexpected circum-

[4] https://www.microsoft.com/en-us/industry/blog/healthcare/2020/06/18/community-support-through-greater-access-to-mental-health-services/ (accessed December 1, 2025).

[5] https://www.patagonia.com/stories/its-time-we-prepare-our-workers/story-74427.html. See also https://www.patagonia.com/our-footprint/corporate-social-responsibility-history.html (accessed on December 1, 2025).

[6] https://careers.salesforce.com/en/salesforce-stories/wellbeingbenefits/wellbeing-at-work-4-salesforce-employee-benefits-explained/ (accessed on December 1, 2025). More examples can be found on *Great Place To Work*, an organization that certifies companies based on employees' perceptions of workplace culture. https://www.greatplacetowork.com/

[7] As an analogy, a company offering extended maternity leave to female workers may emphasize this to prospective male workers who are not eligible for this benefit to signal that they are also likely to receive favorable treatment if they encounter an unforeseeable personal crisis.

stances, and ii) workers are more attracted to firms engaging in CSR because they interpret this as a signal of potential support in times of adversity. This mechanism implies that workers are more likely to accept such offers, regardless of their pro-social orientation or sense of mission.

We tested our signaling mechanism in a pre-registered laboratory experiment with several aims. First, the experiment examines the relationship between engaging in CSR and assisting individuals. Second, it tests the theoretical implications of this assumption regarding offered and accepted wages. Specifically, we measured whether uncertainty, via the introduction of probabilistic exogenous shocks to workers' earnings, led employers to be more likely to engage in CSR (*i.e.*, donate to charities) and whether workers became more sensitive to such engagement when considering job offers and wages.

We employed a gift-exchange setup (Fehr, Kirchsteiger, and Riedl, 1993) and modeled CSR as a donation to charities (e.g., Cassar, 2019; Cassar and Meier, 2021; Koppel and Regner, 2014; List and Momeni, 2021). In our incomplete contract environment, participants in the roles of an employer and a worker interacted using a stranger-matching protocol. During each of the 18 periods of the game, the employer chose whether to donate to charities and offered a piece-rate wage to the worker. After observing the wage offer and whether the employer donated, the worker decided whether to accept or reject the offer. Workers who accepted the offer performed a task for the employer, while those who rejected it worked as independent agents and were not eligible for the employer's help if a negative shock destroyed all their earnings for the period.

We manipulated the (commonly known) shock probability between treatments: there was no risk of shock in the Baseline condition, whereas the probability of a shock was 25% in the Shock treatment. The actual occurrence of a shock was idiosyncratic and independent between periods and workers. At the end of each period, employers who had hired a worker could then decide whether to fully compensate their worker's loss of earnings if a shock occurred by paying a small amount of money.

This design allowed us to test several hypotheses. The first one relates to the key assumption of the model, that donations and worker protection are complements from the employers' point of view. Only if employers who donate are indeed more likely to protect the workers, donations can serve as credible signals of future treatment of employees. In this case, the hypotheses based on the model conclusions—regarding the treatment effects on donations, reservation wages, and wage offers—become valid.

Our main findings support our main assumption that employers who donated in the Shock treatment were more likely to help their workers in the event of a shock.

However, they did not support other hypotheses based on the theoretical *conclusions*. Specifically, workers in the Shock treatment were not more likely to accept a wage offer when a donation was made. Wages offered were lower in the Shock treatment than in the Baseline, but there was no substitution effect between wages and donations. This illustrates that lab experiments can also be useful in showing that mechanisms that work in theory may fail in practice, even when the conditions for their implementation are ideal, as claimed by Charness and Kuhn (2011).

However, an exploratory heterogeneity analysis revealed that our initial null results concealed stark gender differences among both employers and workers. Male employers who donated were more inclined to help their workers in the event of a shock, and male employers were more likely to donate in the Shock treatment than in the Baseline. On the workers' side, male workers were more likely to accept the offer from an employer who donated to charities in the Shock treatment than in the Baseline. These results suggest that male employers used donations to signal their willingness to help prospective workers, and male workers interpreted these donations as a signal of future assistance in case of need. In contrast, female employers who donated were *less* likely to provide help to their workers, possibly due to moral licensing. Since the data did not confirm the core assumption underlying our suggested mechanism for female employers, we should not expect the ensuing predictions to hold for females as they do for males. Indeed, female employers were not more likely to donate in the Shock treatment than in the Baseline. When deciding whether to accept a wage offer, female *workers*—unlike male workers—did not respond more to employers' donations in the Shock treatment than in the Baseline.

These unexpected gender differences on both sides of the market highlight a potential gender-based divergence in how employers and workers perceive and act on CSR actions. While our study was not designed to study what could drive such gender differences, we suggest that they could derive from females' higher conditionality in prosocial behavior, more than from gender differences in risk aversion or in strategic and contingent reasoning. Further research would be needed to investigate whether these findings replicate in the field and, if so, through which channels. If these findings were confirmed, it would suggest that companies could benefit from tailoring their CSR communication strategies based on gender-specific perceptions. CSR communication may require gender-sensitive approaches to have an impact on diverse populations.

The remainder of the paper is as follows. Section 2 briefly mentions the related literature. Section 3 develops a theoretical model underpinning our main hypotheses. Section 4 introduces the experimental design and procedures. Section 5 presents our hypotheses. Section 6 develops our results and finally, section 7 discusses these results and concludes.

2 Related literature

Greening and Turban (2000) suggested that the attractiveness of firms engaged in CSR was driven by two key mechanisms: drawing on social identity theory, such engagement conveys values that enhance job applicants' self-concept; drawing on signaling theory, it can signal favorable working conditions and care about the community. In line with the first mechanism, economic studies have suggested that workers are attracted to socially oriented jobs because they provide an intrinsic sense of purpose (Cassar and Meier, 2018). CSR may be particularly attractive to job seekers who have a higher self-image and pride when working in such companies (e.g., Bode, Singh, and Rogan, 2015). The signaling mechanism derives instead from the fact that job seekers usually have limited information about the future work environment. Jones, Willness, and Madey (2014) showed that CSR may signal, in particular, a fair and respectful treatment of employees. Glavas and Kelley (2014) found that the CSR perceptions of 827 employees across 18 organizations were associated with organizational commitment, which was partly mediated by perceived organizational support. Analyzing the effect of CSR recruitment messages on job seekers' pursuit intentions in the lodging industry, Guzzo et al. (2022) also identified a significant mediating role of anticipated organizational support. In the context of online labor markets, Burbano (2016) found that prospective employees were willing to accept lower wages from employers who donated to charities, and suggested that this was driven more by the perception that such employers would treat them fairly than as a signal about self-image.

Our study differs in that we provide causal evidence that some firms may be willing to engage in CSR as a way to signal to workers on the labor market that they will support in times of adversity, and that workers understand this signal and may be willing to accept lower wages in exchange for this prospective support.

Beyond our main contribution to understanding CSR as a signal in the labor market, our study also adds to the literature on the relationship between CSR and wages. If job seekers place greater value on corporate social responsibility than on traditional job benefits when evaluating a job offer, one would expect CSR to be associated with lower wages. There is some evidence supporting this idea in Nyborg and Zhang, 2013, for instance, using Norwegian register data. Burbano (2016) showed that information about an employer's engagement in a charitable giving program substantially reduced prospective applicants' reservation wages. Laboratory experiments have further indicated that when piece-rate compensation is low, workers are more likely to accept additional tasks when the payment goes to a charity rather than to themselves (Charness, Cobo-Reyes, and Sanchez, 2016), and may even prefer that the earnings from their work be donated to a charity (Imas, 2014). In our setting,

we expected that when CSR serves as a signal of future support for employees facing hardship, employers engaging in such activities will offer lower wages, and, holding all else equal, a larger share of workers will accept these offers. We therefore contribute to the literature on CSR and wages by experimentally examining both sides of the market.

Our study primarily focuses on the extensive margin of labor but also considers its intensive margin. Laboratory experiments showed that CSR can boost productivity by giving workers a sense of mission: effort increases when employers donate part of their profits to charity (Cassar, 2019; Kajackaite and Sliwka, 2017; Koppel and Regner, 2014, 2019). In these studies, donations were tied to performance, thereby adding purpose to the work, which is absent in our setup. Using a field experiment, Burbano (2021) also found that CSR raised effort, while Tonin and Vlassopoulos (2015) observed similar productivity gains regardless of whether donations were lump-sum or performance-contingent. Controlling for selection effects, Hedblom, Hickman, and List (2019) found that employees worked faster and took fewer breaks when informed about the employer's CSR engagement, without any loss in output quality. CSR, however, can also have unintended negative effects. In List and Momeni (2021), fixed donations led workers to neglect their duties, consistent with moral licensing. Cassar and Meier (2021) further showed that productivity decreased when workers perceived CSR engagement as a strategic device rather than an intrinsic preference. Similar patterns have been documented in consumer evaluation when CSR initiatives appear to contradict a firm's core activities (like tobacco companies donating to cancer organizations; cf. Yoon, Gürhan-Canli, and Schwarz, 2006). Our study contributes to this discussion by examining how CSR, when used as a signal of future support for employees, affects workers' output.

While it introduces a stylization that may raise questions about its external validity, using a laboratory experiment allows us to focus on the core theoretical mechanism – the relationship between signaling and subsequent employer behavior.[8] As remarkably explained in Charness and Kuhn (2011) and Charness, Cooper, and Reddinger (2020), more broadly, the control of the environment offered by laboratory experiments allows researchers to identify causal relationships, whereas field data are often endogenous.[9] Such experiments, which also offer the advantage of being replicable and extendable, have proven particularly valuable in understanding the

[8] We acknowledge that the design abstracts away from the fact that charity donations may not fully capture the subjective nature of workers' perceived future support by the employer, as perceptions may also depend on individuals' experience, trust or personal values. If future support in real labor relations can take various forms and may be perceived differently across individuals, the experimental abstraction is intentionally limited to protection against the experimentally induced shock to isolate and test the signaling mechanism in a controlled and stylized setting.

[9] As claimed by Charness and Kuhn (2011), "One way to think about a lab experiment is as a first link in a longer chain running from theory to actual interactions in real firms."

motivations that drive the use of incentives and their impact on effort. In our setting, the experiment avoids the issues that arise in natural settings where firms may engage in CSR to motivate employees or affect customer evaluations. By manipulating the risk of a shock exogenously, we are able to isolate the effect of CSR in terms of signaling future support and avoid the endogeneity of potential needs. Unlike in natural settings where exogenous events, such as the COVID-19 pandemic, may affect both firms and workers in uncontrolled ways, a laboratory experiment allows us to manipulate shocks independently of participants' characteristics and without impacting the employers.

3 Theoretical analysis

3.1 Baseline model

The game involves one risk-neutral employer and one risk-neutral worker. The timeline is as follows: The employer chooses a wage w to offer the worker. The worker observes the wage offer and chooses whether to accept or reject it. If the worker accepts, she receives the wage, and the employer receives the worker's output, normalized to be 1.[10] Otherwise, the worker receives a private outside option $\tau \sim U[\underline{\tau}, \bar{\tau}]$, where $0 < \underline{\tau} \leq \bar{\tau} < 1$. We can therefore restrict w to be in the range $[0, 1]$.

With probability s, there is an exogenous shock and the worker loses their earnings, be it from the wages or the outside option. The employer's utility is given by $u_m = 1 - w$ if the worker accepts and zero otherwise. The worker's utility is given by $u_w = w(1-s)$ if accepting the offer and $u_w = \tau(1-s)$ if rejecting. The worker will thus accept the offer if and only if $w \geq \tau$, regardless of s.[11]

Plugging in the worker's optimal strategy to obtain the employer's expected utility gives

$$\begin{aligned}\mathbb{E}(u_m) &= (1-w)Pr(w > \tau) \\ &= (1-w)\min\left[\max\left[\frac{w-\underline{\tau}}{\bar{\tau}-\underline{\tau}}, 0\right], 1\right],\end{aligned}$$

which is maximized at

$$w^* = \begin{cases} \dfrac{1+\underline{\tau}}{2} & \text{if } \bar{\tau} \geq \dfrac{1+\underline{\tau}}{2} \\ \bar{\tau} & \text{otherwise.} \end{cases} \tag{1}$$

[10] To focus on the main intuitions from the model, we assume here that the worker's output does not depend on the wage offer. This assumption should be seen as a simplification to isolate the mechanism of interest rather than a claim about actual behavior in the experiment. This abstraction does not imply that effort cannot respond in practice; it simply removes effort choice from the model to keep it focused on the signaling mechanism.

[11] We assume for simplicity that the worker accepts the offer if indifferent.

In the first case, the probability of acceptance is $\frac{w^* - \underline{\tau}}{\bar{\tau} - \underline{\tau}} = \frac{1 + 3\underline{\tau}}{2(\bar{\tau} - \underline{\tau})}$. In the second case, the upper bound on τ is binding, and the probability of acceptance is 1.

3.2 Donations and types

We add two ingredients to the basic setup. First, before choosing the wage offer, the employer can make a fixed charitable donation. Let $d \in \{D, N\}$ be the employer's decision. Second, the employer can protect the worker against the exogenous shock at a personal cost. The worker does not know whether the employer will protect them when deciding whether to accept the offer but observes whether the employer chose to donate. Therefore, the worker's strategy is a function $\alpha : \{D, N\} \times [\underline{\tau}, \bar{\tau}] \to [0, 1]$ that determines the probability of acceptance given the donation and wage offer.

We introduce *pro-social* employers who are intrinsically motivated to help the worker and to donate to the charity. Formally, their utility from helping and donating outweighs all other considerations, making helping and donating a dominant strategy. The other employers are *selfish* employers, who never help the worker, and incur a cost c from donating. Let $\pi \in (0, 1)$ denote the a priori probability that a given employer is pro-social. We assume that c is distributed according to a continuous distribution F with full support on $[0, \bar{c}]$, and strictly positive density throughout. Furthermore, the upper bound on c is sufficiently large, formally

$$\bar{c} > \frac{\bar{\tau} s \pi}{1 - s + s\pi}. \tag{2}$$

A selfish employer's full strategy in the game with donations and types is a function $g : [0, \bar{c}] \to [0, 1]^2$, designating a probability of donating and a wage conditional on the realization of c. Let σ denote the ex-ante probability that a selfish employer donates given g. Noting that the optimal wage is unique conditional on the donation decision,[12] denote by w_D and w_N the wage offered when donating and when not donating, respectively. Thus, given a function g, the employer donates and offers w_D with probability σ and, otherwise, does not donate and offers w_N.

3.3 Equilibrium

A Perfect Bayesian Equilibrium (PBE) of the game is a tuple $(\sigma, w_D, w_N, \alpha, \beta)$,[13] where $\beta(d, w) : \{0, 1\} \times [\underline{\tau}, \bar{\tau}] \to [0, 1]$ is the worker's belief about the employer's type after observing the donation decision and the wage offer. The equilibrium follows the

[12] As in the baseline model, this results from the worker's acceptance threshold being a linear function of the uniform distribution of τ. See Equation (5) below.

[13] To simplify notation, we do not distinguish between the wage offered by a selfish employer who donates and a pro-social employer, as the two types face the same incentives following a decision to donate and will offer the same wage in equilibrium.

standard conditions, i.e., the equilibrium strategies are optimal at all decision nodes given the player's beliefs and the other player's strategy, and the beliefs are updated according to Bayes' Rule whenever possible. Note that the finite moves and compact strategy sets guarantee the existence of a sequential equilibrium and, hence, a PBE (Kreps and Wilson, 1982). We furthermore impose the restriction that off-equilibrium-path beliefs must not assign a positive probability to strictly dominated strategies (a requirement implied by the D1 and Divinity refinements, Banks and Sobel, 1987). This restriction implies that the equilibrium belief of the worker after observing no donation assigns probability zero to the employer being pro-social, regardless of the players' strategies. Finally, we assume that a worker who observes an off-equilibrium wage offer interprets this as a tremble in wage only and not in the donation decision. Accordingly, the worker's beliefs depend only on the observed donation; $\beta(d,w) = \beta(d,w\prime)$ for all $(d,w,w\prime)$. In the following, we analyze the properties of the equilibrium strategies.

Not donating reveals that the employer is selfish and, therefore, will not protect the worker. In this case, the worker's earnings are as likely to be lost to the shock regardless of whether they were obtained through employment or through the outside offer. Consequently, the worker's acceptance threshold is τ and the employer's optimal wage offer w_N^* is equal to w^* given by (1), as in the baseline model. On the other hand, if the employer donates, the Bayesian posterior probability that an employer who donates is pro-social is

$$\beta(D,\cdot) = \pi\prime \equiv \frac{\pi}{\pi + (1-\pi)\sigma} \geq \pi. \tag{3}$$

The outside offer becomes less attractive by a factor F that depends on $\pi\prime$ and is given by

$$F = \frac{1-s}{1-s+s\pi\prime}, \tag{4}$$

which is strictly smaller than 1 if $s > 0$. That is, we can interpret the effect of the exogenous shock as if the support of the outside option shrinks from $[\underline{\tau}, \bar{\tau}]$ to $[\underline{\tau}F, \bar{\tau}F]$.

We develop the testable implications of this model in three propositions.

Proposition 1. *If there is a positive probability of a shock, workers accept lower wages in equilibrium from an employer who donates compared to an employer who does not donate.*

Proof. If the employer does not donate, the shrinking factor is 1. Consequently, the worker accepts any wage $w \geq \tau$, as in the baseline model. If the employer donates,

the shrinkage factor is given by (4), and the worker will accept an offer w iff

$$w \geq \tau F = \tau \frac{(1-s)}{(1-s+s\pi')} \tag{5}$$

Thus, the minimal wage offer that a worker accepts from an employer who donates is τF, which is strictly smaller than τ, the minimal accepted offer without a shock, for any probability of shock $s > 0$. □

Proposition 2. *Employers who donate offer lower wages in equilibrium than employers who do not donate.*

Proof. From Equation (5), the optimal wage assuming donation maximizes the employer's expected payoff:

$$\mathbb{E}(u_m(w,d)) = (1-w)\min\left[\max\left[\frac{w-\underline{\tau}F}{\bar{\tau}F-\underline{\tau}F}, 0\right], 1\right] - c.$$

Thus,

$$w_D^* = \begin{cases} \dfrac{1+\underline{\tau}F}{2} & \text{if } \bar{\tau}F \geq \dfrac{1+\underline{\tau}F}{2} \\ \bar{\tau}F & \text{otherwise.} \end{cases} \tag{6}$$

The comparison of the equilibrium wage without donation, given by (1), and the equilibrium wage with donation, given by (6), can be considered in three cases.

1. If $\bar{\tau}F \geq \dfrac{1+\underline{\tau}F}{2}$ (the condition in (6)) holds, then $\bar{\tau} \geq \dfrac{1+\underline{\tau}}{2}$ (the condition in (1)) also holds.[14] In this case, an employer who donates offers $\dfrac{1+\underline{\tau}F}{2}$, while an employer who does not donate offers $\dfrac{1+\underline{\tau}}{2}$.

2. If $\bar{\tau}F \leq \dfrac{1+\underline{\tau}F}{2}$ and $\bar{\tau} \geq \dfrac{1+\underline{\tau}}{2}$, then an employer who donates offers $\bar{\tau}F$, which is accepted with probability 1, while an employer who does not donate offers $\dfrac{1+\underline{\tau}}{2}$.

3. If $\bar{\tau} \leq \dfrac{1+\underline{\tau}}{2}$, then an employer who donates offers $\bar{\tau}F$, whereas an employer who does not donate offers $\bar{\tau}$. The worker accepts both offers with probability 1.

In all three cases, the wage offer of an employer who donates is strictly lower than the

[14] This is immediately apparent if we multiply the first condition by 2 and the second condition by $2F$, as $1+\underline{\tau}F > (1+\underline{\tau})F$.

wage offer made by an employer who does not donate.[15] Note that for the internal-solutions first case, the wage difference depends on $\underline{\tau}$ and goes to zero as $\underline{\tau} \to 0$. □

Proposition 3. *In equilibrium,* $0 < \sigma^* < 1$.

Proof. If it is optimal for an employer with donation costs c to donate, than it is optimal for an employer with costs $c\prime < c$ to donate as well. Therefore, there is a critical $\tilde{c}$, such that the employer donates if and only if $c < \tilde{c}$ so that the probability of donation σ is $F(\tilde{c})$. Thus, the proposition follows immediately from $0 < \tilde{c} < \bar{c}$.

That $\tilde{c} > 0$ follows immediately from the observation that an employer of type $c = 0$ is strictly better off donating. The proof for $\tilde{c} < \bar{c}$ is as follows. If $\tilde{c} \geq \bar{c}$, then $\sigma = 1$ and $\pi\prime = \pi$. Condition (2) becomes $\bar{c} > \bar{\tau}(1 - F)$. In Appendix A, we prove that, in equilibrium, the reduction in expected wage paid after donating is at most $\bar{\tau}(1 - F)$. Therefore, an employer of type $\bar{c}$ is better off deviating to not donating. □

Proposition 3 states that, in equilibrium, some—but not all—selfish employers choose to donate. Workers, therefore, expect that an employer who refrains from donating never helps, while those who donate help with positive probability. By pooling with the pro-social employers, selfish employers who donate benefit from being able to attract the worker at a lower wage. This benefit is offset by the employer's idiosyncratic cost of donating. As a result, there is a cutoff: low-cost employers donate, whereas high-cost employers do not. Thus, the equilibrium necessarily features partial pooling, with both donating and non-donating employers.

4 Experimental design and procedures

With this theoretical framework, we designed an experiment that included three parts. We start by describing part 1, which constitutes the core of the experiment. In this part, we implemented a between-subject design with a Baseline and a Shock treatment. Figure 1 displays the period timeline in part 1.

Part 1: Baseline condition. Part 1 included 18 periods. At the beginning of part 1, participants were randomly assigned to the roles of employer or worker. Roles remained fixed throughout the part. We randomly rematched the participants at the beginning of each period to employer-worker pairs within matching groups.[16]

[15] In the second case, this result emerges because employers who donate offer a wage of $\bar{\tau}F$ only if it is less or equal to $\frac{1+\underline{\tau}F}{2}$, which is strictly smaller than the wage offered by employers who do not donate $\frac{1+\underline{\tau}}{2}$.

[16] To increase the number of independent observations, in most sessions we formed two matching groups of 10 or 12 subjects each, depending on the show-up in the session. Because of no show-up, sessions 7 and 10 included a single matching group of 18 subjects.

Each period of part 1 consisted of two stages: a job matching stage and a work stage. In the first stage, at the beginning of each period, the employer chose the contract to offer to a worker. The contract had two elements: a piece-rate wage, ranging from 1 to 19 points,[17] and information on whether the employer had received a "social badge". Employers received a social badge if at the beginning of the period they chose to make a fixed donation of 10 points, shared equally among three charitable organizations.[18] The social badge featured the logos of the three charities. The employer was informed that if they donated, the amount of the donation would be deducted from their initial endowment of 60 points, regardless of whether their job offer was accepted or not by the worker.

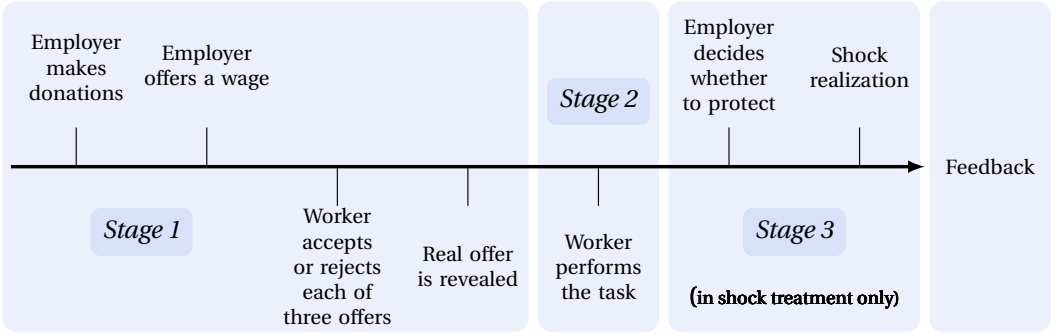

Figure 1: Timeline of a period in part 1

Next, the worker reviewed the employer's offer, which included the wage and the social badge (if the employer donated). The worker then chose to either accept the offer or opt for an outside option. If the worker accepted the offer, their compensation was the piece-rate wage multiplied by the number of units produced, in addition to a base payoff of 30 points, while the employer received a fixed 20 points per unit produced. If the worker rejected the offer, they received the outside option while the employer's payoff remained unaffected by the worker's output. The outside option was a piece-rate integer randomly drawn between 3 and 7 points, added to the base payoff of 30 points. The worker knew the exact realized piece-rate, but the employer only knew the range, preventing the employer from simply exceeding the outside option by one point.

To elicit responses from the workers for a broad set of contracts varying in both wages and donations in an incentive-compatible way and without resorting to de-

[17] Ten points equaled 0.4 Euro in the game.

[18] The three charity organizations were: AFM – Telethon, The Red Cross, and World Wild Fund of Nature (WWF). All three charities are highly familiar and popular in France. We used three charities instead of a single one to avoid the possibility of a donation not being made due to a subject's reluctance to support a specific organization.

ception, we employed the method suggested by Bardsley (2000). In each period, the worker observed three different contracts: in addition to the payoff-relevant job offer made by the actual human employer, the worker received two fictitious and hypothetical computer-generated offers.[19]

The workers received and responded to the three offers sequentially and in random order. For each of the three offers, the worker decided whether to accept it (or reject it in favor of the outside option for that period), independent of the decisions made for the other two offers. The workers knew that they could either accept none, some, or all three offers. The experimental instructions clarified that the offer from the human employer will be implemented with certainty, whereas the two computerized offers are purely hypothetical and will not affect the payoffs in any way. Therefore, participants had no reason to fear that accepting a computerized offer would result in independent work. After the worker made their choices for the three offers, the computer revealed which of the three offers was the actual job offer and informed both parties whether the worker accepted it or not.

Stage 2 consisted of the work stage. In this stage, workers engaged in a real effort task for 40 seconds, regardless of whether they had accepted the employer's offer or were working independently. We used the slider task from Gill and Prowse (2012).[20] The work screen displayed 48 sliders that the worker had to place in the exact center of a bar using only the mouse (see a screenshot in the instructions in Appendix B.1). The worker's output for the period was the number of sliders accurately centered at the end of the work period. This output determined the period payoffs as explained above. To avoid boredom during the work stage, the employers could click on a dot that moved randomly on the screen with each click (as described in Corgnet, Hernán-González, and Schniter, 2015; Dadon and Zultan, 2023; Zultan, Gerstenberg, and Lagnado, 2012). At the end of the work stage, the employer and the worker learned their earnings for the period, based on the worker's output.

From the second period onwards, the participants received a history table at the beginning of each period. This table showed, for each of the previous periods, the

[19] Each worker received computerized wage offers of 3 and 8, each once with and once without a donation. The rest of the computerized offers included a donation with probability 0.5 and a wage offer drawn from a uniform distribution over the integers [2,12]. We acknowledge that receiving a wage offer of 2 while the outside option was at least 3 could have been interpreted as coming more likely from an automated employer. Nevertheless, a wage offer of 2 was not unrealistic in the Shock treatment (see below) if the employer interpreted donation as a signal of future support in case of need, and expected the workers to interpret this as a signal of future support as well. Including or excluding these observations from the regression analysis of the acceptance decision does not affect the results.

[20] This task offers several advantages. It generates a continuous measure of effort, minimizes learning effects, and allows for direct comparisons across workers. Effort in this task responds little to incentives, as demonstrated by Araujo et al. (2016), which is consistent with an assumption of our theoretical model. While we did not expect large incentive-driven effects, this task allowed us to examine directional effects of donations that could develop through non-monetary channels such as attention and engagement.

contract offered by the human employer and whether the worker had accepted it. The instructions made it explicit that feedback was only about offers made by human employers. Two of the 18 periods were randomly selected at the end of the experiment, and the payoffs from these two periods were added together to constitute the participant's earnings for this part.

The Shock treatment. In the Shock treatment, the key and only difference from the Baseline condition is the introduction of a third stage after the work stage. In the third stage, there was a 25% commonly known probability that the worker could lose all earnings (except for the initial 30-point endowment) for the period at its conclusion. This random draw was determined independently for each period.

The employer whose job offer had been accepted by the worker had the option to sacrifice 10 points to fully compensate their worker for this loss of earnings in the event a shock occurred. Employers made this commitment after learning the worker's output but before knowing whether a shock occurred, allowing decisions to be elicited irrespective of the shock's realization. The occurrence of the shock was disclosed only at the end of the period. Of course, if no shock occurred, no points were deducted from the employer's payoff.

If a shock occurred, employed workers learned whether their employer opted to protect them and subsequently received their protected earnings if applicable. In contrast, independent workers (who rejected the employer's offer) facing a shock could not benefit from any compensation and they lost all their earnings from the work stage of that period, except for the 30-point initial endowment. If no shock occurred, employed workers remained unaware of whether their employer had chosen to safeguard them in the event of a shock. In this treatment, the history table also included whether a shock occurred in each preceding period and, if so, whether the employer protected the worker (only in case the worker accepted the employer's offer).

Parts 2 and 3: Elicitation of pro-sociality and risk attitude. In part 2, we assessed participants' pro-sociality by using the Social Value Orientation task (SVO; Murphy, Ackermann, and Handgraaf, 2011, see Appendix B.2). Participants made six allocation decisions between themselves and an anonymous participant, with one decision randomly chosen for payment. The participant's payoff in this task was the amount they allocated to themselves in this selected decision, plus the amount allocated to them by the other participant they were matched with.

We elicited risk attitudes in part 3, using the Gneezy and Potters (1997) method (see Appendix B.3). Participants decided how much of a 100-point endowment to

invest in a risky asset with a 50% chance of success.[21] A successful investment earned a 150% return on the invested amount, whereas an unsuccessful one resulted in the loss of the investment. Participants retained any points not invested.

Finally, in a post-experimental questionnaire, we elicited the participants' socio-demographic characteristics, including age, gender, education, average grade at the final high school exams, and field of study.[22] We also invited participants to answer a few questions about the motivation behind their own choices and the choice of participants in the other role in part 1 (see Appendix B.4 for details).

Procedures. We pre-registered the hypotheses, planned analysis, and the number of subjects on AsPredicted.org (pre-registration No 98594). All sessions were conducted at GATE-Lab, Lyon, France. The experiment was programmed using z-Tree (Fischbacher, 2007) and lasted for approximately 90 minutes. We ran a total of 14 sessions (seven per treatment) between May and October 2022. Overall, the experiment included 254 participants (118 in the Baseline and 138 in the Shock treatment), recruited from the local engineering, business, and medical schools, using Hroot (Bock, Baetge, and Nicklisch, 2014). Table C1 in Appendix C shows that most individual characteristics of the participants did not significantly differ between the Baseline condition and the Shock treatment. Only the gender composition of the samples is marginally significantly different; therefore, we added controls for socio-demographic characteristics in all regressions.

Upon arrival in the lab, participants drew a tag from an opaque bag assigning them to a computer terminal. We distributed a printed version of the experimental instructions for part 1 and read them aloud (see Appendix B.1). Participants could ask questions privately by pressing a designated button on their desk. The experiment started after all participants confirmed they had read and understood the instructions and answered the control questions correctly.

Final payoffs ranged from 10 Euro to 23 Euro, with an average of 16.3 Euro per participant, including a 5-Euro show-up fee. In addition, a donation of 43 Euro was split equally among the three charitable organizations. This amount represented the total of all the donations made across all 14 sessions. We specifically mentioned in the instructions that the ethical rules of GATE-Lab prohibit experimenters from deceiving participants, and, therefore, all promised donations would actually be sent to the three charities. We also offered participants the option to receive a copy of the receipt confirming that we had sent the money to the charities. None of the participants chose to do so.

[21] In parts 2 and 3, ten points equaled 0.1 Euro.

[22] The socio-demographic questionnaire was not included in the first five sessions by mistake. Therefore, these sessions are excluded from any regression that includes demographic variables.

5 Hypotheses

The primary purpose of our study is to test whether employers use CSR to signal to potential workers that they are socially oriented, thereby increasing the probability of hiring workers in a risky environment. Our first hypothesis tests the assumption lying at the basis of our theoretical analysis:

Hypothesis 1. *Employers who donate to charities are more likely to help workers who experience a shock.*

Our main hypotheses are based on Propositions 1–3:[23]

Hypothesis 2. *In the Shock treatment, the employer's decision to donate to charities increases the probability of workers accepting a job offer more than in the Baseline condition, controlling for the difference between the wage offered and the worker's outside option.*

Hypothesis 3. *Offered wages are lower in the Shock treatment than in the Baseline condition.*

Hypothesis 4. *Employers are more likely to donate to charities when there is a positive probability of a shock (i.e., in the Shock treatment) than when workers are not at risk (i.e., in the Baseline condition).*

Finally, we go beyond the theoretical model to conjecture that workers increase their productivity in response to their employer having donated to charities. This can be due to indirect reciprocity in both treatments. However, even selfish employees may increase their productivity in this situation in the Shock treatment if they expect that the employer is more likely to compensate a more productive worker for their loss in case of a shock.[24]

Hypothesis 5. *The employer's decision to donate to charities positively affects the worker's productivity.*

6 Results

We begin this section by analyzing the signaling role of donations to charities. On the employer side, we test the assumption that employers who donate are more likely to help the worker (Hypothesis 1) and the implication that they are more likely to

[23] We reordered and slightly rephrased the pre-registered hypotheses to fit the terminology used in the paper.

[24] Note that since workers are paid on a piece-rate basis, all workers, regardless of their social orientation, have an incentive to exert effort in the task.

donate in the Shock treatment (Hypothesis 4). On the worker side, we test whether workers are more likely to accept an offer from an employer who donated compared to one who did not (Hypothesis 2). We complement these analyses by examining the wages offered by employers in the different treatments and how donations affected workers' productivity, as stated in Hypotheses 3 and 5, respectively.

To conduct our analyses, we use both descriptive statistics and econometric analyses.[25] The upper part of Table 1 displays descriptive statistics on the wages offered by the (human) employers and the share of employers donating in each treatment. It also reports the share of employers (among those whose job offer was accepted) who sacrificed to help the workers who would lose their earnings in the Shock treatment. Focusing on the worker side, the lower part of the Table presents the mean accepted wage and the average output in the task for those who accepted a job offer. Statistics are reported for the full sample of participants and separately by gender.[26]

6.1 Donation decisions

Donations and helping behavior. We first test Hypothesis 1, reflecting our assumption that employers who donate to charities are more likely to help workers in case they lose their earnings in the Shock treatment. As Figure 2 illustrates, overall, employers chose to help the worker in 53% of the periods in which their job offer was accepted (63% for male employers and only 30% for female employers, see Table 1). The corresponding percentage is 65% in periods in which the employers donated (76% for male employers and 15% for female employers) and 43% when the employers did not donate (49% for male employers and 35% for female employers). The correlation between the share of periods in which an employer chose to donate and the share of periods in which an employer chose to help the worker (conditional on a shock occurring) is positive and statistically significant ($r(49) = .44$, $p = .001$), in line with Hypothesis 1.

Table 2 reports logistic regressions on the probability of helping the worker in the Shock treatment for the entire sample of employers whose job offers have been accepted, with robust standard errors clustered on matching groups. These regressions examine whether the decision to donate is associated with the decision to help, controlling for the offered wage, the period, and, when specified, socio-demographic characteristics (gender, employment status, education, school, and risk attitude as

[25] Our pre-registration included, in addition to the regressions reported in this section, non-parametric tests testing the same hypotheses.

[26] We did not pre-register any data analysis split by gender because we had no conjecture about the presence of gender effects in our settings. However, the exploratory data analysis revealed strong gender differences on both the employer and worker sides. Therefore, in this section, we also report an exploratory analysis of gender differences in the behavior of employers and workers.

Table 1: Descriptive statistics

Variable			Obs	Mean	SD	Min	Max
Offered wage	Baseline	All	1,062	8.80	2.51	1	19
		Males	450	8.39	1.72	1	15
		Females	396	9.85	3.12	1	19
	Shock	All	1,224	8.15	1.98	1	19
		Males	450	8.06	1.95	3	19
		Females	342	8.39	2.09	1	17
Donation	Baseline	All	1,062	0.34	0.47	0	1
		Males	450	0.28	0.45	0	1
		Females	396	0.28	0.45	0	1
	Shock	All	1,224	0.42	0.49	0	1
		Males	450	0.51	0.50	0	1
		Females	342	0.25	0.44	0	1
Help	Shock	All	1,039	0.53	0.50	0	1
		Males	392	0.63	0.48	0	1
		Females	281	0.30	0.46	0	1
Accepted wage	Baseline	All	907	9.04	2.47	4	19
		Males	375	8.61	1.68	5	19
		Females	341	10.09	3.07	5	19
	Shock	All	1,039	8.40	1.87	4	19
		Males	392	8.22	1.93	5	19
		Females	281	8.71	1.96	5	17
Output	Baseline	All	907	6.64	2.36	0	14
		Males	375	6.50	2.49	0	13
		Females	341	6.64	2.39	0	14
	Shock	All	1,039	6.97	2.36	0	14
		Males	392	6.74	2.19	0	15
		Females	281	6.95	2.21	0	14

Notes: These statistics only include the wage offers from the human employers, not those generated by the computer program. The total numbers are larger than the sum of data for males and females because gender was not recorded, by mistake, in the initial sessions.

measured by the amount invested in the risky option). In Models (3) and (4), we include an interaction term between the donation and the wage offered by the employer. We did not include the SVO measure, as its influence on the decision to donate has already been controlled for.[27]

Models (1) and (2) in Table 2 show that the probability of helping the worker is significantly higher when the employer donates to charities. The interaction term with the offered wage does not affect the helping decision (Models (3) and (4)). However, our exploratory analysis revealed that the correlation between the share of periods in which an employer chose to donate and the share of periods in which an employer chose to help the worker conditional on a shock occurring is gender specific. It is

[27]The justification for not including SVO in these regressions is that the SVO's effect operates primarily through influencing the donation decision, and since this variable appears directly in the regressions, adding SVO in the regressions of Table 2 would not provide additional explanatory power.

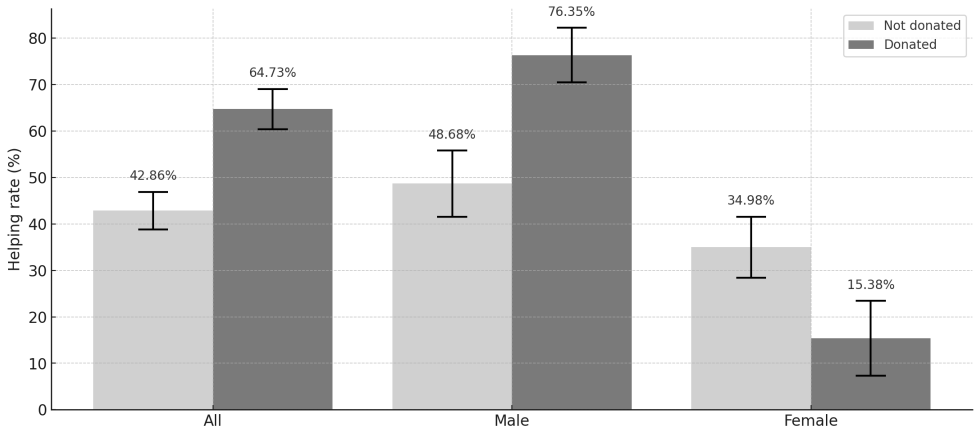

Figure 2: Helping rates, by donation status

Note: The figure illustrates the helping rate of employers for employees who accepted their offer in the Shock treatment, depending on whether they donated to the charity. Note that $N = 1039$ in *All*, which is higher than the sum of $N = 392$ for males and $N = 281$ for females. This is because gender was not recorded, by mistake, in the initial sessions.

positive and significant for male employers ($r(13) = .55$, $p = .008$), while negative and non-significant for female employers ($r(20) = -.16$, $p = .581$). This suggests that our assumption holds for males but not for females.

Table 2: Determinants of the employers' decision to help in the Shock treatment – Full sample

Dep. variable:	(1)	(2)	(3)	(4)
Decision to help	All	All	All	All
Donation	1.006^{**}	1.155^{**}	1.731^{*}	1.801
	(0.400)	(0.500)	(0.895)	(1.407)
Wage	0.034	0.036	0.069^{*}	0.066
	(0.032)	(0.066)	(0.038)	(0.096)
Donation × Wage	–	–	−0.087	−0.079
			(0.103)	(0.158)
Output	0.246^{***}	0.394^{***}	0.246^{***}	0.393^{***}
	(0.037)	(0.075)	(0.037)	(0.075)
Period	-0.027^{*}	−0.046	-0.027^{*}	−0.046
	(0.016)	(0.028)	(0.016)	(0.028)
Constant	-2.067^{***}	6.817^{**}	-2.369^{***}	6.483^{**}
	(0.594)	(2.244)	(0.575)	(2.654)
Socio-demographics	No	Yes	No	Yes
N	1039	657	1039	657

Notes: The table reports logistic regressions with robust standard errors clustered on matching groups. The dependent variable is the employer's decision to help the worker in case of a shock. In Model (2) and (4), the socio-demographics include gender, employment status, education, school, and risk attitude. Sessions 1–5 are excluded from the analysis when socio-demographic control variables are included. The data only includes employers with accepted offers. * ($p < .10$), ** ($p < .05$), *** ($p < .01$).

Table 3 reports a similar regression analysis as Table 2 for each gender separately. The exploratory analysis by gender reveals a strong association between donations and helping behavior for male employers (Models (5) to (8)). For males, donations are generally associated with a higher likelihood of helping, but the relationship is not strictly linear. As shown in Model (8), the interaction between donation and wage is negative at very high wage levels, implying that the positive association weakens when wages are very large.

In contrast, Models (1) to (4) show an opposite pattern for female employers. In Model (4), donations are negatively associated with helping, but the interaction term between donation and wage is positive and large, implying that the net effect of donation becomes positive once the wage offer exceeds roughly 10 points. The association between donation and helping is not uniformly negative but depends on the wage level. Moreover, when socio-demographic controls are included (Model (2)), the donation coefficient for female employers is not statistically significant.

Table 3: Determinants of the employers' decision to help in the Shock treatment – By gender

Dep. variable: Decision to help	(1) Females	(2) Females	(3) Females	(4) Females	(5) Males	(6) Males	(7) Males	(8) Males
Donation	-1.259^{**}	-0.611	-5.755^{*}	-11.682^{***}	1.712^{***}	2.615^{***}	5.599^{**}	4.481^{***}
	(0.570)	(0.767)	(3.268)	(1.486)	(0.384)	(0.424)	(2.377)	(0.735)
Wage	-0.094	0.248	-0.189^{***}	0.055	0.097	-0.033	0.325	0.061
	(0.104)	(0.162)	(0.065)	(0.170)	(0.068)	(0.104)	(0.250)	(0.118)
Donation × Wage	–	–	0.508	1.170^{***}	–	–	-0.471	-0.233^{**}
			(0.350)	(0.186)			(0.295)	(0.109)
Output	0.251^{***}	0.363^{***}	0.253^{***}	0.380^{***}	0.450^{***}	0.745^{***}	0.446^{***}	0.737^{***}
	(0.068)	(0.113)	(0.083)	(0.124)	(0.069)	(0.133)	(0.077)	(0.138)
Period	-0.124^{***}	-0.156^{***}	-0.121^{***}	-0.142^{***}	0.013	0.005	0.015	0.005
	(0.041)	(0.052)	(0.036)	(0.052)	(0.039)	(0.048)	(0.039)	(0.049)
Constant	-0.380	18.473^{***}	0.403	19.682^{***}	-4.151^{***}	-2.140^{***}	-6.111^{***}	-3.370^{***}
	(1.398)	(5.929)	(1.135)	(6.002)	(0.760)	(4.549)	(2.118)	(4.870)
Socio-demographics	No	Yes	No	Yes	No	Yes	No	Yes
N	281	265	281	265	392	374	392	374

Notes: The table reports logistic regressions with robust standard errors clustered on matching groups. The dependent variable is the employer's decision to help the worker in case of shock. When controlled for, the socio-demographics include employment status, education, school, and risk attitude. Sessions 1–5 are excluded from the analysis when socio-demographic control variables are included. The data only includes employers with accepted offers. * ($p < .10$), ** ($p < .05$), *** ($p < .01$).

Overall, this analysis provides evidence for Hypothesis 1 for the full sample and the male sample but does not support it for female employers. This leads to the first result:

Result 1. *Overall, employers who donate to charities are more likely to help a worker harmed by the occurrence of a shock. This result hides a positive correlation between helping behavior and donations for male employers, for most wage levels; for female employers, in contrast, donations are associated with less helping at lower wages, but*

this reverses at higher wages.

Donations and shocks. The main implication of our signaling model, stated in Hypothesis 4 is that employers should be more likely to donate to the charities in the Shock treatment than in the Baseline treatment. Given that we found that the theoretical assumption holds for males but not for females, it may be reasonable to restrict the theoretical prediction to male employers. As in the previous section, we report here the analyses for the full sample as well as separate analyses by gender.

Table 1 shows that the average fraction of the time employers donated is higher by approximately 8.5 percentage points in the Shock treatment (42%) compared to the Baseline (34%). Figure D1 in Appendix D shows that the share of employers donating is higher in the Shock treatment than the Baseline in all periods except for the first one, and it is relatively stable over time after the first six periods.

Table 4 reports mixed-effects logistic regressions on the probability of donating, with individual random effects and robust standard errors clustered on matching groups. The regressions control for the current acceptance rate of previous offers (and therefore exclude period 1), the period, the employer's SVO score, and, where indicated, the usual socio-demographic characteristics. In Model (1), all the observations are included, while all other models only include the sessions in which the socio-demographics were recorded.

Table 4: Determinants of the employers' donation decision

Dep. variable:	(1)	(2)	(3)	(4)	(5)	(6)
Decision to donate	All	All	Females	Females	Males	Males
Shock treatment	0.850	1.176	0.104	−0.712	3.729***	3.566**
	(0.782)	(0.982)	(1.015)	(0.908)	(1.414)	(1.753)
Acceptance Rate	1.136	1.060	2.020**	1.744	−0.655	−0.816
	(1.008)	(1.056)	(0.957)	(1.135)	(2.163)	(2.158)
SVO angle	0.170***	0.153***	0.108**	0.100**	0.218***	0.200***
		(0.033)	(0.051)	(0.050)	(0.066)	(0.049)
Period	−0.032	−0.038	−0.040	−0.040	−0.050	−0.050
	(0.030)	(0.033)	(0.038)	(0.038)	(0.046)	(0.047)
Wage	−0.110	−0.127*	0.018	0.015	−0.320**	−0.321**
	(0.072)	(0.070)	(0.055)	(0.047)	(0.156)	(0.155)
Constant	−4.869***	−11.505*	−5.860***	−12.524**	−4.033**	−9.703
	(1.587)	(5.417)	(1.797)	(5.037)	(2.030)	(9.918)
Socio-demographics	No	Yes	No	Yes	No	Yes
N	2159	1547	697	697	850	850

Notes: The table reports mixed-effects logistic regressions with random effects for individuals and robust standard errors clustered on matching groups. The dependent variable is the employer's decision to donate. In Model (2) the socio-demographics include gender, employment status, education, school, and risk attitude. Sessions 1–5 are excluded from the analysis when socio-demographic control variables are included and thus also from models by gender. * ($p < .10$), ** ($p < .05$), *** ($p < .01$).

Overall, the estimates in Models (1) and (2) show that the Shock treatment had no significant effect on the probability of donating to the charities even when we exclude the first period. Only pro-sociality, as captured by the SVO angle, is significantly associated with the decision to donate. However, the exploratory analysis presented in Models (3) to (6) reveals different treatment effects for males and females. The probability of a male employer donating in the Shock treatment is significantly higher than in the Baseline, whereas the treatment effect is insignificant for female employers. We can reject that this is driven by females donating more in general. Indeed, the average female employer donates in 43.0% of the periods in the Baseline treatment compared to 43.3% for males ($t(45) = 0.086$, $p = .932$).

This analysis leads to the following result that rejects Hypothesis 4 for the whole population but supports it for male employers.

Result 2. *Overall, employers do not donate more to charities in the Shock treatment compared to the Baseline. However, when analyzed separately, male employers are more likely to donate in the Shock treatment than in the Baseline, whereas no such effect is observed for female employers.*

6.2 Acceptance decisions

Overall, workers accept 68% of the offers in the Baseline as well as in the Shock treatment. We investigate in this section whether the workers' acceptance decision depends on the interpretation of the donations as a signal of future help.[28] Figure 3 illustrates the acceptance rate of employers' offers by workers in each treatment, depending on workers' gender and whether the employer donated.

Table 5 reports mixed-effects logistic regressions on the probability of workers accepting an offer, with individual random effects and robust standard errors clustered on matching groups. The dependent variable is the decision to accept or reject an offer. The regressions examine whether the employer's donation, being in the Shock treatment, and their interaction affect the likelihood of accepting an offer. We add controls for the difference between the offered wage and the worker's outside option,the order of arrival of the offer in the period (1 to 3), whether the offer emanates from the actual employer (vs. a computer-generated offer),[29] period, and, depending on the model, the usual socio-demographic characteristics of the

[28] Workers could progressively learn about the behavior of employers in the market from the history table presented to them at the beginning of each period. This history table is informative as the correlation between donating to charities and observed help is positive and statistically significant ($r(265) = .19, p = .002$). The correlation is at the single observation level, as workers are unable to cluster periods by employer.

[29] All regressions show that workers were more likely to accept real offers than computer-generated ones. This result holds even when restricting to wage offers that are within the range included in the fictitious offers, but not below the lower bound of the outside option.

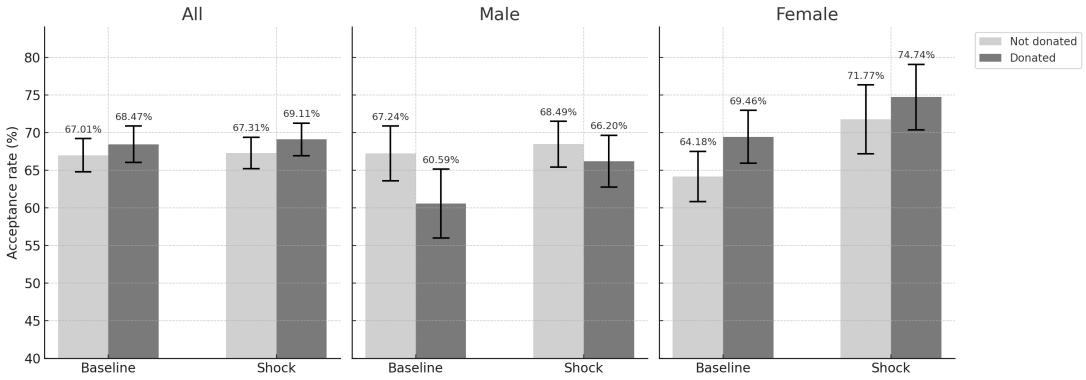

Figure 3: Acceptance rates, by treatment, worker's gender, and employer's donation status

Note: The figure illustrates workers' acceptance rates of employers' offers, depending on whether the employer donated to the charity, categorized by workers' gender and treatment. Note that N=6858 in *All, which is higher than the sum of N=2700 for males and N=2214 for females. This is because gender was not recorded in the initial sessions, by mistake.*

worker. In Models (1) and (2), all observations are included. For our exploratory analysis, Models (3) and (4) only include female workers, while Models (5) and (6) only include male workers.

Model (1) and (2) show a positive and significant marginal effect of the donation on the workers' probability of accepting an offer ($p = .001$ and $p = .004$, respectively). The marginal effect of the treatment is not significant ($p = .162$), but becomes significant when adding the socio-demographic controls in Model (2) ($p = .018$). The interaction between the donation and the treatment is not significant in either of the models ($p = .839$ and $p = .862$, respectively).

Since we found unexpected gender differences in the employers' behavior, we report in Models (3) and (4) separate regressions by gender. The results show that female workers are more likely to accept an offer in the Shock treatment ($p = .005$ and $p = .034$, respectively) or when the employer donates to charities ($p = .011$ and $p = .010$, respectively), as also visible in Figure 3. However, the interaction term is not significant ($p = .405$ and $p = 382$, respectively). This implies that female workers respond to the social behavior of the employer and prefer having the option of receiving help in case of a negative shock rather than rejecting an offer and working independently without protection. They do not interpret a donation as a signal for future assistance since there is no additional effect of donations in the Shock treatment compared to the Baseline. This finding holds regardless of whether we include or not a control for risk attitude.[30]

Models (5) and (6) reveal a contrasting pattern for male workers: there is no significant effect of the treatment or the donation alone on the probability of accepting

[30]Moreover, risk attitudes do not explain the acceptance decisions. In Table 5, the p-values for risk attitude are .486, .950, and .370 in Models (2), (4), and (6), respectively.

an offer, but the interaction term is positive and statistically significant ($p = .028$ and $p = .025$ for Models (5) and (6), respectively). Taken separately, we find that donations to charities increase the likelihood that male workers will accept an offer in the Shock treatment ($z = 3.57$, $p < .001$) but not in the Baseline ($z = -0.72$, $p = .470$). This result, consistent with a signaling interpretation, supports Hypothesis 2 for male workers but not for the full sample. This analysis is summarized in Result 3:

Result 3. *Overall, workers are not more likely to accept an offer from an employer who donated to charities in the Shock treatment compared to the Baseline. However, when analyzed separately, male workers are more sensitive to donations in the Shock treatment compared to the Baseline, whereas no such effect is observed for female workers.*

Table 5: Determinants of the workers' decision to accept an offer

Dep. variable:	(1)	(2)	(3)	(4)	(5)	(6)
Accepting an offer	All	All	Females	Females	Males	Males
Shock treatment	0.174	0.556	1.017**	1.151*	0.119	0.151
	(0.293)	(0.377)	(0.451)	(0.623)	(0.375)	(0.432)
Donation	0.487**	0.454*	0.827***	0.825***	−0.200	−0.204
	(0.223)	(0.263)	(0.307)	(0.306)	(0.273)	(0.270)
Donation ×	0.059	0.053	−0.297	−0.310	0.706**	0.709**
Shock treatment	(0.288)	(0.305)	(0.356)	(0.355)	(0.320)	(0.317)
Wage difference	0.786***	0.727***	0.627***	0.629***	0.944***	0.943***
with outside option	(0.103)	(0.098)	(0.139)	(0.138)	(0.123)	(0.123)
Wage difference ×	0.148	0.179	0.149	0.147	0.051	0.053
Shock treatment	(0.112)	(0.111)	(0.190)	(0.188)	(0.177)	(0.176)
Real offer	0.759***	0.674***	0.821***	0.815***	0.527***	0.526***
	(0.111)	(0.119)	(0.168)	(0.169)	(0.151)	(0.150)
Second offer	−0.021	−0.024	−0.125	−0.130	0.097	0.099
	(0.093)	(0.116)	(0.223)	(0.225)	(0.113)	(0.112)
Third offer	−0.066	−0.044	−0.185	−0.189	0.104	0.107
	(0.104)	(0.118)	(0.147)	(0.149)	(0.201)	(0.202)
Period	0.015	0.016	−0.007	−0.006	0.043*	0.043*
	(0.014)	(0.017)	(0.017)	(0.017)	(0.023)	(0.023)
Constant	−0.993***	−3.970***	−0.840***	−4.849***	−1.446***	−2.305*
	(0.210)	(0.841)	(0.318)	(1.568)	(0.295)	(1.222)
Socio-demographics	No	Yes	No	Yes	No	Yes
N	6858	4914	2214	2214	2700	2700

Notes: The table reports mixed-effects logistic regressions with random effects for individuals and robust standard errors clustered on matching groups. The dependent variable is the worker's decision to accept a job offer. In Model (2) the socio-demographics include gender, employment status, education, school, and risk attitude. Sessions 1–5 are excluded from the analysis when socio-demographic control variables are included and from models by gender. * $p < .10$, ** $p < .05$, *** $p < .01$.

Anticipating the final discussion about the use of CSR as a signal, our exploratory analysis reveals an asymmetric effect depending on the participants' gender. Results 1 and 2 indicate that male employers use donations to signal their social values and willingness to assist their workers if needed, and Result 3 shows that male workers interpret them as such. In contrast, female employers do not use donations as a signal, nor do the female workers interpret them as such. For females, donations and help appear as substitutes, whereas they are complements for males. This behavior, consistent within genders but opposite between genders, may explain why CSR is not interpreted as a signal at the entire sample level.

6.3 Effects of donations on wages and productivity

In this section, we test Hypotheses 3 and 5, which predict a negative effect of the treatment on wage offers, driven by the anticipation of future compensation for the possible worker's loss, and a positive relationship between donations and workers' productivity.

Wage offers. The mean piece-rate wage offered by the employers was 8.80 in the Baseline condition and 8.15 in the Shock treatment (see Table 1). Table 6 reports mixed-effects regressions with individual random effects and robust standard errors clustered on matching groups. The dependent variable is the wage offered by the employer in a given period. The explanatory variables include a dummy for the Shock treatment compared to the Baseline condition, a dummy for whether the employer donated to charities, and an interaction term between the Shock treatment and the donation. These regressions control for period, and, depending on the model, the usual socio-demographic characteristics of the employer. Models (1) and (2) include all observations. For our exploratory analysis, Models (3) and (4) include only female employers, while Models (5) and (6) include only male employers.

Models (1) and (2) in Table 6 indicate that, on average, employers offered wages approximately 0.8 points lower in the Shock treatment compared to the Baseline condition ($p < .05$ in both Model (1) and Model (2)). This finding aligns with Hypothesis 3, suggesting that employers anticipated workers' preference for being employed over independent work when their earnings were at risk, potentially due to the possibility of receiving assistance and, therefore, offered lower wages. This finding is, however, not robust when we consider genders separately.

Furthermore, while the theoretical model does not predict a treatment difference in wages for employers who do not donate, the regression results indicate that the wage difference—to the extent that it exists—comes from the employers who did not donate. This suggests that there was no substitution between wages and donations. This analysis is summarized in the following result:

Result 4. *Wages offered by employers are lower in the Shock treatment compared to the Baseline, but there is no significant substitution effect between wages and donations.*

Table 6: Determinants of the wages offered by employers

Dep. variable:	(1)	(2)	(3)	(4)	(5)	(6)
Wage offer	All	All	Females	Females	Males	Males
Shock	-0.862^{**}	-0.820^{**}	-1.626^{**}	-0.901	-0.429	-0.821
treatment	(0.361)	(0.405)	(0.664)	(0.611)	(0.470)	(0.524)
Donation	-0.479	-0.448	0.020	0.016	-1.094^{*}	-1.091^{*}
	(0.351)	(0.418)	(0.439)	(0.421)	(0.610)	(0.628)
Donation ×	0.591	0.527	0.679	0.710	0.686	0.694
Shock treatment	(0.434)	(0.566)	(0.891)	(0.893)	(0.623)	(0.628)
Period	-0.027^{*}	-0.034^{*}	-0.049	-0.049	-0.020	-0.020
	(0.014)	(0.018)	(0.031)	(0.032)	(0.020)	(0.020)
Constant	9.219^{***}	8.239^{***}	10.312^{***}	6.374	8.883^{***}	8.686^{***}
	(0.318)	((1.879)	(0.651)	(3.893)	(0.415)	(1.766)
Socio-demographics	No	Yes	No	Yes	No	Yes
N	2286	1638	738	738	900	900

Notes: The table reports mixed-effects regressions with random effects for individuals and robust standard errors clustered on matching groups. The dependent variable is the wage offered by the employer in a given period. When controlled for, the socio-demographics include gender, employment status, education, school, and risk attitude. Sessions 1–5 are excluded from the analysis when socio-demographic control variables are included and, thus, also from models by gender. * $p < .10$, ** $p < .05$.

Thus, the relation between donations and wages deviates from the theoretical predictions. However, the analysis does not predict differential wages across treatments or employer types if the lower bound of the outside option $\underline{\tau}$ goes to zero. In the experiment, the lower bound is 3 ECU, a small number compared to 20 ECU, the production value for the employer, which may explain the lack of positive result.

Productivity. We finally turn to the workers' productivity to test Hypothesis 5. The average output of those who accepted a job offer was 6.64 in the Baseline and 6.97 in the Shock treatment. Table 7 reports mixed-effects regressions on workers' outputs with individual random effects and robust standard errors clustered on matching groups. The dependent variable is the output produced by a worker who has accepted a wage offer in a given period. The explanatory variables include a dummy for the Shock treatment vs. the Baseline condition, a dummy for whether the employer whose offer has been accepted donated to charities and the difference between the accepted wage and the outside option. We added three interaction terms: one between the Shock treatment and the donation, another between the Shock treatment and the difference between the wage and the outside option, and a third one crossing the treatment with the donation and the difference between the wage and the

Table 7: Determinants of workers' outputs

Dep. variable:	(1)	(2)	(3)	(4)	(5)	(6)
Output	All	All	Females	Females	Males	Males
Wage difference	0.024^{**}	0.019	0.045	0.047	-0.006	-0.008
with outside option	(0.011)	(0.012)	(0.030)	(0.031)	(0.021)	(0.023)
Donation	-0.049	-0.088	0.236	0.227	-0.611^{*}	-0.613^{*}
	(0.132)	(0.176)	(0.234)	(0.245)	(0.362)	(0.372)
Donation ×	-0.009	0.013	-0.078	-0.077	0.122^{**}	0.123^{**}
Wage difference	(0.035)	(0.037)	(0.061)	(0.064)	(0.047)	(0.050)
Shock treatment	0.577	0.028	-0.067	-0.190	0.209	0.177
	(0.371)	(0.427)	(0.685)	(0.751)	(0.425)	(0.486)
Wage difference ×	-0.070^{**}	-0.054	-0.006	-0.009	-0.053	-0.050
Shock treatment	(0.033)	(0.034)	(0.051)	(0.052)	(0.034)	(0.035)
Donation ×	-0.037	0.147	-0.399	-0.393	0.819^{**}	0.828^{**}
Shock treatment	(0.203)	(0.268)	(0.477)	(0.485)	(0.389)	(0.399)
Donation × Shock t. ×	0.020	-0.043	0.067	0.065	-0.173^{***}	-0.175^{***}
Wage difference	(0.050)	(0.051)	(0.085)	(0.088)	(0.065)	(0.067)
Period	0.113^{***}	0.116^{***}	0.110^{***}	0.110^{***}	0.119^{***}	0.120^{***}
	(0.007)	(0.008)	(0.010)	(0.011)	(0.011)	(0.011)
Constant	5.476^{***}	6.166^{***}	4.815^{***}	3.058	6.095^{***}	6.864^{***}
	(0.301)	(1.184)	(0.495)	(3.070)	(0.443)	(1.378)
Socio-demographics	No	Yes	No	Yes	No	Yes
N	1946	1389	634	634	755	755

Notes: The table reports mixed-effects regressions with random effects for individuals and robust standard errors clustered on matching groups. The dependent variable is the output produced by the worker who accepted the employer's offer in a given period. When controlled for, the socio-demographics include gender, employment status, education, school, and risk attitude. Sessions 1–5 are excluded from the analysis when socio-demographic variables are included and also from models by gender. * $p < .10$, ** $p < .05$, *** $p < .01$.

outside option. These regressions control for period, and, depending on the model, the usual socio-demographic characteristics of the worker. Models (1) and (2) include the full sample. For our exploratory analysis, Models (3) and (4) include only female workers, while Models (5) and (6) include only male workers.

Overall, Table 7 shows that wages have little to no effect on workers' productivity, either because the piece-rate scheme already provides sufficient incentive to maximize their efforts or because of the nature of the slider task itself. The marginal effect of the donation in Model (1) is not significant ($p = .367$ and $p = .723$ in the Baseline and Shock treatment, respectively). This result does not support Hypothesis 5.

The exploratory analysis reveals interesting patterns for male workers, however, whereas no variables significantly determine female workers' productivity. For male workers in the Baseline, a higher wage above the outside option increased output only when the employer donated to charities, suggesting that the employers' generosity motivated the workers' effort. However, in the Shock treatment, this positive effect under donation vanishes and even turns slightly negative. In the Shock treat-

ment, what matters primarily is whether the employer donated to charities, with donations associated with higher output, especially at lower wage differences. This pattern is consistent with two interpretations: first, workers may hope that increased effort will raise their chance of receiving help from the employer in case of a shock, which aligns with Hypothesis 5; and second, workers may reciprocate what they perceive as a kind action. Note that such a reciprocity-based response can be treatment-dependent if the perceived kindness of a donation is higher in the Shock treatment or if attention to donations is higher under risk. We state our last result as follows:

Result 5. *Employers' donations do not increase workers' productivity overall. However, for male workers, donations are associated with higher effort in the Shock treatment, particularly at lower wage differences with the outside option. This pattern suggests that male workers respond more strongly to employers' prosocial behavior when they are exposed to the risk of a loss. Such a response is consistent with workers' hope of increasing their chances of receiving help from the employer in case of a shock, and with a reciprocal reaction to the employer's generosity to the charity. No such effects are observed for female workers.*

7 Discussion and conclusion

The literature on Corporate Social Responsibility has established that CSR is important to workers, stemming from their sense of mission or social preferences (Cassar, 2019; Kajackaite and Sliwka, 2017; Koppel and Regner, 2014). Companies that actively invest in CSR policies signal their dedication to tackling major global issues such as climate change, inequality, and poverty. Employees often appreciate this engagement from a moral standpoint. However, they may also appreciate such engagement because it may signal that these companies will be supportive not only of great causes but also of their employees when personal challenges arise.

Our study experimentally investigated two pivotal questions in a labor market context: (i) Are employers who try to attract workers willing to sacrifice resources for CSR to signal their pro-social orientation and willingness to support employees in times of hardship (in our experiment, when the occurrence of a shock deprives them of all their earnings)? (ii) Do workers interpret this CSR engagement as a reliable signal of the company's future support, thus valuing it highly? In an unpredictable world where individuals frequently face unforeseen circumstances, workers are inclined to seek employment with firms that are likely to assist in crises. When such support is not explicitly guaranteed through contracts, a firm's engagement in CSR may serve as a signal of its social values, thereby being more attractive to job applicants.

In our experiment, we used donations to charities as a proxy for CSR. These voluntary donations by the employers were made visible to potential workers before they decided whether to accept wage offers from these employers. By making CSR efforts transparent, we could directly observe whether employers were more likely to donate when there was a positive probability of a shock affecting the workers and whether CSR engagement increased the likelihood of workers accepting a wage offer when they were at risk of losing their earnings.

When considering the dataset as a whole, our results challenge the reasoning presented above. Employers were not more likely to donate to charities in the Shock treatment compared to the Baseline, although those who donated were more inclined to help a worker affected by a shock. Additionally, workers did not show a greater willingness to accept wage offers from employers who donated to charities in the Shock treatment compared to the Baseline. These findings suggest that the anticipated signaling effect of CSR on both employer behavior and worker perceptions may not be as straightforward as we previously thought.

However, our exploratory analysis revealed a surprising gender effect, suggesting that one should not hastily reject our signaling hypothesis. Indeed, the results support our pre-registered hypotheses for male employers and workers but not for females. Male employers were more likely to donate to charities in the Shock treatment than in the Baseline, and these donations were predictive of the employers' willingness to help a worker harmed by a shock. Consistently, male workers were more likely to accept offers from employers who donated in the Shock treatment compared to the Baseline. Moreover, they increased their effort in response to donations in the Shock treatment, regardless of the wage accepted. In stark contrast, female employers were not more likely to donate in the Shock treatment than in the Baseline, and those who donated were less likely to support their workers. Similarly, female workers were not more prone to accept an offer from an employer who donated in the Shock treatment compared to the Baseline, and their productivity did not respond to employers' donations.

Thus, while our overall dataset does not support the initial hypotheses, the significant gender effects indicate that CSR signaling can still play a crucial role, particularly among male employers and workers. Male workers interpreted employers' donations as a signal for future assistance, demonstrating a clear link between donations to charities and expected personal support in times of need. In contrast, female workers appeared to consider the employer's generosity towards charities and the possibility of personal assistance as substitutes. Given that both activities are costly, female employers chose which of the activities to engage in, resulting in a negative correlation between donation and helping the workers. Female workers did not expect to receive more help from donors. Instead, they reciprocated the kind

behavior of donors by accepting their offers, irrespective of the probability of a shock occurring.

This striking gender-based heterogeneity suggests that the signaling mechanism of CSR is not universal. This pattern emerged unexpectedly during our exploratory analysis, and as such, our theoretical framework was not developed to account for gender-specific hypotheses. Likewise, the experimental design was not intended to identify the channels through which gender influences the use and interpretation of CSR as a signal. Nonetheless, we can speculate on potential reasons why males treated donations and help as complements whereas females viewed them as substitutes. One explanation could be social preferences and conditionality. Previous literature suggests that females are more conditional in their social behavior than them (*e.g.*, Croson and Gneezy, 2009). In our setting, female employers' helping decisions were conditioned on the workers' efforts. Males may be less conditional, seeing both donation and help as part of a signaling mechanism, and helping independently of the workers' effort.

Another interpretation is that females tend to be more risk-averse than males (*e.g.*, Charness and Gneezy, 2012), although this also depends on the context (*e.g.*, Filippin and Crosetto, 2016). For the employer, the signaling mechanism contains the risk that workers do not perceive the link between the donation and the likelihood of future help, and that help may not be needed. For the worker, the risk is that a donation and a lower wage are wrongly interpreted as a signal of future help. Avoiding such risk could lead to treating these decisions as substitutes. However, in disfavor of this interpretation, we found that our results hold even after controlling for risk attitude.

A third interpretation relates to gender differences in strategic and contingent reasoning. For employers, using CSR as a signal for hiring and, for workers, interpreting it as a signal of future help requires strategic reasoning. However, some studies found that females have deeper strategic thinking than males (on children and adolescents, see, *e.g.*, Brocas and Carrillo, 2021). Moreover, the environment matters. Using data from the beauty contest game, Cubel and Sanchez-Pages (2017) found that males exhibit deeper strategic thinking when there was no monetary stake, but the difference disappeared when monetary stakes were introduced. Future research could investigate the origin of our gender differences further. These gender-based results are a promising direction for future research.

We also found that wages were lower when there was a risk of a negative shock compared to the Baseline. This suggests that employers exploited the fact that workers might prioritize relative security and thus accept lower wages. However, there was no evidence of a substitution effect between wages and donations. This helps us reject an alternative interpretation of higher donations by male employers in the

Shock treatment, namely that these employers tried to sustain productivity through indirect reciprocity if they anticipated that the risk of a shock might reduce workers' productivity. We reject this interpretation because it would not justify that employers reduce their wage offers in this treatment. If employers thought about donations in terms of workers' reciprocity rather than in terms of signaling, making donations in the hope of inducing indirect reciprocity from the workers and reducing the wage offer without fearing negative direct reciprocity does not seem to be consistent. Furthermore, we found no overall effect of CSR on workers' productivity. This finding is not in line with the existing literature but can be attributed to several factors: workers were paid a piece rate, providing a consistent incentive to maintain high performance; the task duration was short, leaving little room for increasing performance; and effort in the slider task tends to show weak responsiveness to incentives (Araujo et al., 2016).

Our results are unlikely to be driven by experimenter demand effects, a potential issue in experiments. Indeed, our between-subjects design limited participants' ability to detect any treatment manipulation. Moreover, our measures focused on incentivized, objective decisions rather than socially loaded survey questions, reducing the likelihood that participants would infer the study's purposes or respond to please the experimenters. To avoid the risk of an experimenter demand effect, we also embedded CSR information in realistic employer profiles without framing it as a signal. Finally, our effects differ strongly by gender, in contrast with what one would expect if social desirability were at play. Some studies in psychology have found that females tend to be more prone to such bias than males, whereas we observed no evidence of an interpretation of CSR as a signal in the female subsample in our study.

We acknowledge several limitations of our study. First, the cause of the gender-based differences cannot be identified with the current design. Future research would usefully investigate what could explain the gender differences we identified. Second, for workers to learn whether an employer who donates to charities would also help them in times of need, they had to experience a shock after accepting an offer. This learning process was complicated by the random rematching after each period, preventing employers from building an individual reputation. Moreover, male and female employers utilized CSR differently, and since workers were unaware of the employer's gender, they did not encounter a consistent pattern of behavior over time. Future research may benefit from exploring how the speed and scope of learning in real-world settings affect the mechanism we identified. A third limitation is that we did not elicit the prior beliefs and how these beliefs were updated over time. Future research could extend our study by eliciting beliefs and measuring how manipulating the risk of a shock influences them. A fourth interesting extension would be to explore how other levels of risk would affect employers' investment in CSR and

workers' valuation of it.

In conclusion, this study expands our understanding of how CSR can be used as a recruitment tool by firms. Our findings add to the current literature by suggesting that CSR can attract potential candidates not only through a sense of mission but also by signaling how the firm will treat its employees under adverse conditions. The significant and unexpected gender differences we identified underscore the various ways in which different groups perceive and respond to CSR efforts. This highlights the importance of understanding these dynamics to effectively leverage CSR as a strategic tool for employee engagement and support.

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Appendix

A Proof of Proposition 3

Proposition 3. *In equilibrium,* $0 < \sigma^* < 1$.

Proof. In the main text, we show that the proposition holds if the difference in expected wage paid by an employer who donates and an employer who does not donate is at most $\bar{\tau}(1-F)$. To see this, consider the three cases outlined in Proposition 2 one by one.

1. If $\bar{\tau} < \dfrac{1+\underline{\tau}}{2}$, then the optimal wages are $\bar{\tau}F$ and $\bar{\tau}$ if donating and not donating, respectively. Since both offers are accepted with probability 1, the loss from deviating is the wage difference, which is exactly $\bar{\tau}(1-F)$.

2. If $\bar{\tau} > \dfrac{1+\underline{\tau}}{2}$ and $\bar{\tau}F < \dfrac{1+\underline{\tau}F}{2}$, an employer who donates offers $\bar{\tau}F$, which is accepted with certainty. By deviating to not donating and offering $\bar{\tau}$, the employer loses $\bar{\tau}(1-F)$. However, $\bar{\tau}$ is not the optimal wage conditional on not donating, therefore by deviating to the optimal offer $\dfrac{1-\underline{\tau}}{2}$, the employer necessarily loses less than $\bar{\tau}(1-F)$.

3. If $\bar{\tau}F > \dfrac{1+\underline{\tau}F}{2}$ the comparison is less straightforward. In this case, the optimal wage is an internal solution for both employers who donate (and offer $\dfrac{1+\underline{\tau}F}{2}$) and employers who do not donate (and offer $\dfrac{1+\underline{\tau}}{2}$). To show that the loss in expected profit (excluding the donation costs) from deviating is lower than the lower bound on the costs, we need to prove that

$$(1-\frac{1+\underline{\tau}F}{2})\left(\frac{\frac{1+\underline{\tau}F}{2}-\underline{\tau}F}{\bar{\tau}-\underline{\tau}}\right)-(1-\frac{1+\underline{\tau}}{2})\left(\frac{\frac{1+\underline{\tau}}{2}-\underline{\tau}}{\bar{\tau}-\underline{\tau}}\right)\leq\bar{\tau}(1-F).$$

Alternatively,

$$\bar{\tau}(1-F)-\left[(1-\frac{1+\underline{\tau}F}{2})\left(\frac{\frac{1+\underline{\tau}F}{2}-\underline{\tau}F}{\bar{\tau}-\underline{\tau}}\right)-(1-\frac{1+\underline{\tau}}{2})\left(\frac{\frac{1+\underline{\tau}}{2}-\underline{\tau}}{\bar{\tau}-\underline{\tau}}\right)\right]\geq 0.$$

When F equals 1, the LHS expression equals zero. To prove that it is positive for $F < 1$, it is, therefore, sufficient to prove that it is decreasing in the relevant range. First, rearrange to obtain

$$4\bar{\tau}(1-F)+\frac{(1-\underline{\tau})^2}{\bar{\tau}-\underline{\tau}}-\left[\frac{1}{(\bar{\tau}-\underline{\tau})F}-\frac{2\underline{\tau}}{\bar{\tau}-\underline{\tau}}+\frac{\underline{\tau}^2F}{\bar{\tau}-\underline{\tau}}\right].$$

Taking the derivative with respect to F, we obtain that this expression is decreasing if

$$\begin{aligned}
-4\bar{\tau} + \frac{1}{F^2(\bar{\tau} - \underline{\tau})} - \frac{\underline{\tau}^2}{\bar{\tau} - \underline{\tau}} &< 0 \\
\frac{1}{F^2} &< 4(\bar{\tau} - \underline{\tau})\bar{\tau} + \underline{\tau}^2 = 4\bar{\tau}^2 - 4\bar{\tau}\underline{\tau} + \underline{\tau}^2 = (2\bar{\tau} - \underline{\tau})^2 \\
F &> \frac{1}{2\bar{\tau} - \underline{\tau}} \\
2\bar{\tau}F - \underline{\tau}F &> 1 \\
\bar{\tau}F &> \frac{1 + \underline{\tau}F}{2},
\end{aligned}$$

which is exactly the condition for internal-solution wages.

□

B Experimental Instructions

B.1 Experimental instructions for part 1 of the Shock treatment (translated from French)

Note that the instructions for the Baseline condition did not include the third stage but were otherwise similar to the instructions for the Shock treatment (except that we mentioned only two stages at the beginning of the description of each period.

Welcome to this experiment in decision-making. Please turn off your phone and put it away. You are not allowed to communicate with other participants during the entire session, or you will be disqualified from the session and earnings. If you have any questions, please raise your hand or press the red button on the side of your desk. We will come and answer your questions in private.

You have already earned 5 Euros for showing up on time and during this session, you can earn additional money, depending on your decisions and the decisions of other participants in this session. Please read these instructions carefully.

This session consists of three parts and a final questionnaire. You have received instructions for the first part. You will receive instructions for each new part at the end of the previous part.

During the session, we will not count in Euros but in points. The points earned will be converted into Euros at the end of the session, at the following rates:

For the first part:

10 points = 0.4 Euros

For the second and third parts:

10 points = 0.1 Euros

You will be paid in cash in a separate room and in private at the end of the session. Nobody else other than you and the person proceeding to the payments will be informed of your earnings.

All the decisions you make during the session are anonymous: at no time will you enter your name into the computer and even after the experiment is over, identities will not be revealed.

Description of part 1

The first part consists of 18 periods. At the end of the session, the computer program will randomly draw two periods and the payment you will receive for this part will be the sum of your payoffs from these periods.

Some of the decisions participants make in the experiment will generate donations to charity organizations. The total amount of donations made from the experiment will be divided equally between the following three organizations:

- AFM-Telethon
- The Red Cross
- The World Wild Fund of Nature (WWF)

More information on each organization can be found at the end of the instructions. The experimenters commit on honor to transfer the total amount of the donations to the three charities at the end of the experiment. Note that the ethical rules of GATE-Lab do not allow the deception of participants by the experimenters. Therefore, all promised donations for the selected periods at the end of the session will actually be sent to the three charities. If you want more information about the transfers, please contact an experimenter after the session. You can also give your email address if you are willing to receive a copy of the receipt attesting that we have actually sent the money to the charities at the end of the experiment.

In this part, the participants will be randomly assigned into roles of workers and employers. These roles will be fixed during the whole part. Workers and employers will be paired randomly at the beginning of each period, and none of the participants will know whom he or she is paired with.

All the participants start each period with an initial endowment. The employers' initial endowment is higher than the workers' by 30 points. Employers can use these extra points for social activities, as described later.

Description of each period

Each period consists of three stages, as explained below.

Stage 1: Job offers

At the beginning of each period, the employer makes a job offer to the worker. The worker is informed of the two components of the offer:

- A wage rate for each unit of performance of the worker and paid to the worker at the end of the period. This rate can be any integer between 1 and 19, and it will be multiplied by the output of the worker (as explained below) to determine the total wage that the employer will pay to the worker.
- Whether the employer has been awarded a social badge. The badge is a combined symbol of the three charity organizations listed above and is given only to employers who chose to donate 10 points to these organizations. The donation will be made regardless of whether the worker accepts or rejects the offer.

The worker receives three independent job offers, displayed in random order. The worker has to make a decision for each of the three offers, that is, decide whether to accept it and work for the employer or reject it and work as an independent worker. It is possible to accept 0, 1, 2, or 3 offers.

Only one of the three offers is the offer made by the actual employer, and the other two offers are generated by the computer program. After the worker makes decisions for all three

offers, the computer program reveals to the worker which one is the actual offer of the employer. Only the actual offer is relevant for the next stages. The employer is not informed of any job offer that he or she did not make himself or herself.

There is **no need to guess which offer is the actual one**. Please respond to each offer as if it were the actual offer.

A worker who accepted the actual job offer works for the employer, and his or her output in the task determines both the employer's and the worker's payoffs, as explained later. A worker who rejected the actual offer works independently, and his or her output in the task determines only his or her payoff.

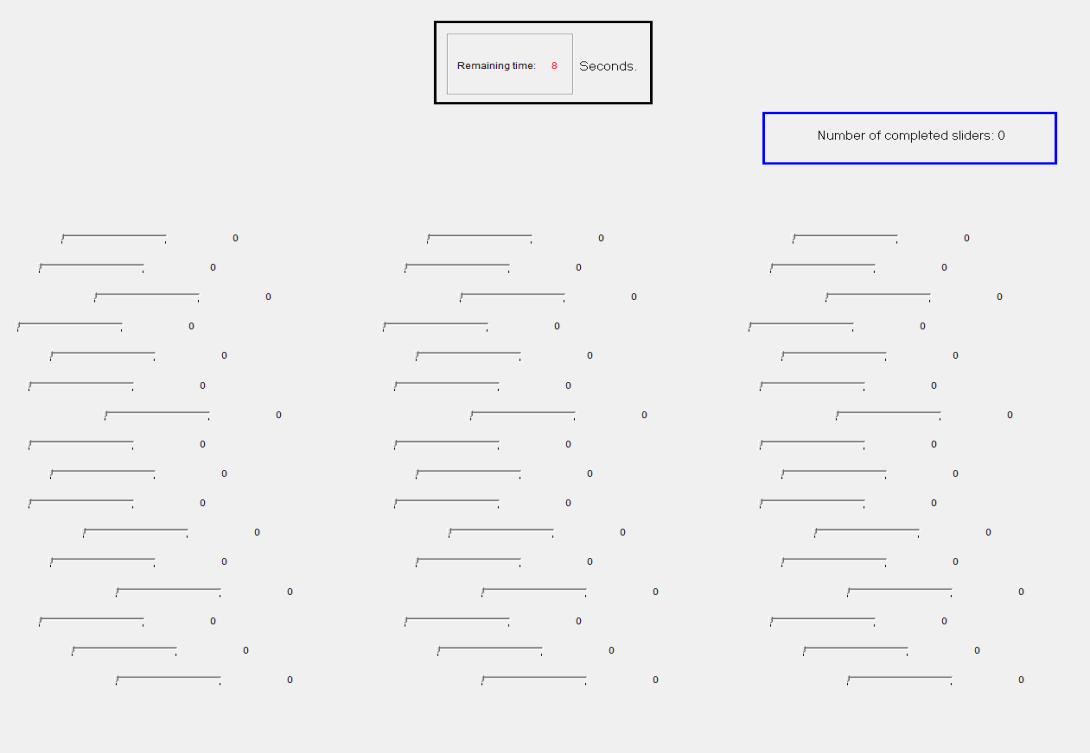
Stage 2: The task

Nature of the task

The worker is prompted to perform a task. This task is the same whether the worker has accepted the employer's offer or is working independently. The working time in each period is 40 seconds.

During this time, the worker's screen represents 48 sliders, as shown in the screenshot below. On each slider, a cursor is initially positioned at the number 0 and can be moved up to the number 100. Each slider has a number to its right indicating its cursor's current position. The worker can move the cursor by clicking on it and moving the mouse. The use of keyboard keys is not allowed.

Example of task screen



The worker's task is to position as many cursors as possible at the number 50 in 40 seconds. The screen continuously displays the number of completed sliders, that is, the current number of cursors positioned exactly at 50. The number of cursors positioned at 50 at the end of the 40 seconds determines the output of the worker in that period.

- For workers who **accepted the employer's job offer** in Stage 1, each cursor positioned at 50 is multiplied by the accepted **wage rate** to determine the workers' payoff. Each cursor positioned at 50 also generates a payoff of **20 points** for **the employer**.
- For workers who **rejected the employer's job offer** in Stage 1 and chose to work independently, each cursor positioned at 50 generates **an independent payment rate** for **the worker**, and does not generate any points for the employer.

Before deciding whether to accept or reject a job offer, the workers will learn their payment rate as independent workers for this period. The independent payment rate will be picked at random for each worker at each period and will be between 3 and 7. It will not be observed by the employer.

While the worker performs his or her task, the employer has to wait. While waiting, the employer can click on a blue ball that will appear at random locations on the screen. Clicking on the ball does not generate any points.

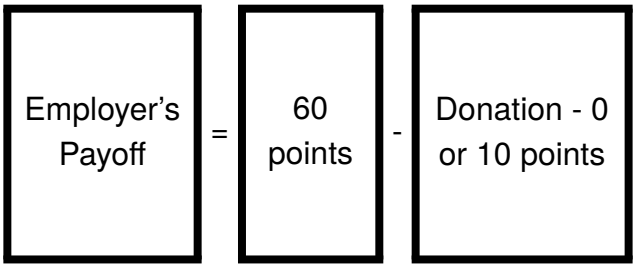
Once the 40 seconds have elapsed, both the employer and worker are informed of their total payoffs from the period. The employer whose job offer has been accepted is also informed of the number of cursors the worker correctly positioned at 50.

Payoffs in Stage 2

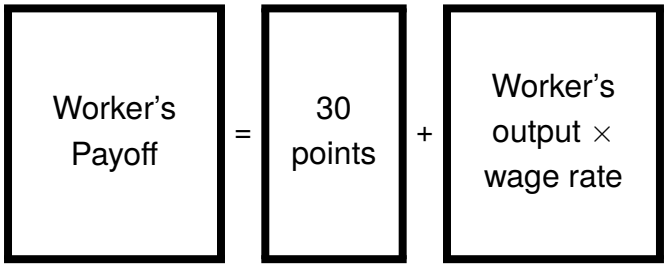
An employer whose job offer has been accepted by the worker receives his or her initial endowment of 60 points, plus the worker's output multiplied by 20 points, minus the wage paid to the worker (worker's output multiplied by the wage rate), minus the donation to the charities if any.

Employer's Payoff	=	60 points	+	Worker's output $\times$ 20 points	-	worker's output $\times$ wage rate	-	Donation - 0 or 10 points

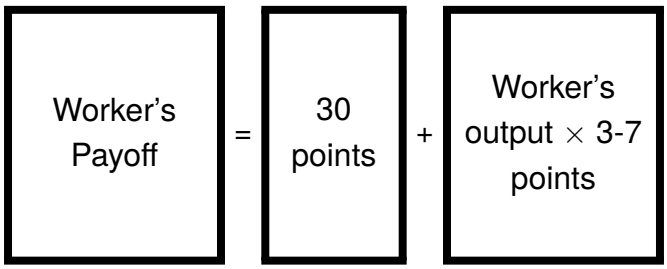
An employer whose job offer has not been accepted by the worker receives his or her initial endowment of 60 points, minus the donation to the charities if any.



An employed worker receives his or her initial endowment of 30 points, plus his or her output multiplied by the wage rate chosen by the employer.



An independent worker receives his or her initial endowment of 30 points, plus his or her output multiplied by a number of points between 3 and 7, depending on a random draw in the period.



Stage 3: Occurrence of a shock

Once stage 2 is completed and everyone observed their payoffs from the period, the worker may suffer a personal shock. This shock destroys the worker's payoff for the period, except for his or her initial endowment of 30 points. The shock affects neither the employer's payoff nor the donations. The worker and the employer are informed if a shock occurs. Two cases have to be distinguished:

- If a shock happens to a worker who accepted the employer's job offer: the employer can pay 10 points (deducted from his or her own payoff) to fully compensate the worker against the monetary consequences of the shock, thereby preventing any loss.
- If a shock happens to an independent worker, this worker cannot benefit from the compensation by an employer and this worker loses his or her payoff from the work stage except for his or her initial endowment of 30 points.

An employer whose offer has been accepted by the worker will have to decide whether to help the worker or not in case a shock occurs, before knowing if the shock occurred or not. An employer who chooses to help will pay the 10 points only if the shock occurs. If a shock does not occur, nothing will be deducted from the employer's payoff. The worker will be informed of the employer's decision only in the case a shock occurs.

At the beginning of the part, both employers and workers learn the probability that a shock will occur in each of the following 18 periods. The probability of a shock does not change across periods and each period is independent.

End of the period

At the end of the period, the participants learn their final payoffs from that period.

Start of a new period

Starting from the second period and at the beginning of each period, all the participants will observe a history table. The table displays the information from previous actual offers (wage rate and donation), whether the workers accepted the offers and information about the shock and employers' decision to help when a shock occurred.

Practice

At the beginning of the part, you will be required to answer some questions about the instructions to check your understanding of the instructions. Next, you will be able to practice the slider task for 40 seconds, regardless of your role. The purpose of this practice is to let you get familiar with the task. Your performance at this practice will not affect your payoffs.

Summary of the instructions for part 1

- You are randomly assigned to the role of worker or employer. This role is fixed for the whole part.
- At the beginning of each period you are matched with a participant with a different role than yours. **At the beginning of each period, you are randomly rematched with a different participant**.
- The employer makes a job offer to the worker that includes a wage rate and specifies if he or she has donated to the charities. If the employer donates, he or she will be awarded a social badge visible to the employee.
- The worker receives three job offers and has to accept or reject each of them. Then, the actual offer of the employer is revealed.
- The employer will have to make the proposed donation to the charities even if his or her job offer has been rejected by the worker.

- The worker works on the slider task for 40 seconds.
- In each period, a negative personal shock can destroy the payoffs from the period of the worker, except for his or her initial endowment of 30 points.
- The employer decides whether to spend 10 points to fully compensate the worker against the monetary consequences of a possible shock if it occurs. If the shock does not occur, no points will be deducted from the employer's payoff.
- A worker who has rejected the employer's job offer and is affected by a shock cannot benefit from any compensation.

Please read again these instructions. If you have any questions, please raise your hand or press the red button. We will come and answer your questions in private.

Information about the charities

AFM - Telethon :

AFM-Telethon is an association of patients and their families that collects funds for medical research on genetics and gene therapy and fights for the recognition of rare diseases as a public health issue. Here is an excerpt from their website outlining its activity: "AFM-Telethon, created in 1958 by a handful of parents taking up arms against the ignorance and powerlessness of medicine and science in the face of the neuromuscular diseases affecting their children, has a single goal: to find treatments to cure rare diseases. 65 years after it was founded, the organization remains an association led by a board of directors consisting of patients and their families. Thanks to donations made during the Telethon, it has become a major player in biomedical research into rare diseases in France and abroad. "

The Red Cross

The international committee of the red cross (ICRC) established in 1863, operates worldwide, helping people affected by conflict and armed violence and promoting the laws that protect victims of war. An independent and neutral organization, its mandate stems essentially from the Geneva Conventions of 1949. The ICRC is funded mainly by voluntary donations from governments and from National Red Cross and Red Crescent Societies. Here is an excerpt from Wikipedia outlining its activity: The International Red Cross and Red Crescent Movement is an international humanitarian movement with approximately 97 million volunteers, members and staff worldwide, which was founded to protect human life and health, to ensure respect for all human beings, and to prevent and alleviate human suffering.

World Wild Fund of Nature:

The World Wide Fund of Nature (WWF) works to help local communities conserve the natural resources they depend upon, transform markets and policies toward sustainability, and protect and restore species and their habitats. Here is an excerpt from Wikipedia outlining its activity: The WWF is an international non-governmental organization that works in the field of wilderness preservation and the reduction of human impact on the environment. WWF is the world's largest conservation organization, with over five million supporters worldwide, working in more than 100 countries and supporting around 3,000 conservation and environmental projects. WWF aims to "stop the degradation of the planet's natural environment and to build a future in which humans live in harmony with nature."

B.2 Instructions for the SVO questionnaire in part 2 (translated from French and displayed on screen)

In this task, you have been randomly matched with another person, whom we will refer to as "the other". This other person is someone you do not know and will remain mutually anonymous. All of your choices are completely confidential.

You will be making a series of decisions about allocating resources between you and this other person.

For each of the following questions, please indicate the distribution you prefer most by marking the respective position along the midline. You can only make one mark for each question. Your decisions will yield money for both yourself and the other person.

There are no right or wrong answers, this is all about personal preferences.

At the end of the experiment, the computer will randomly choose one distribution for each participant. Your payoff in this part will be the amount you allocated to yourself in your chosen distribution, plus the amount the other person allocated to you in his chosen distribution.

B.3 Instructions for the Risk attitude task in part 3 (translated from French and displayed on screen)

You receive 100 points and must choose how many of these points (between 0 and 100, inclusive) you wish to invest in a risky option. You keep the points you don't invest.
There is a 50% chance that the investment in the risky option will be a success.

- If the investment is a success, you earn 2.5 times the amount invested.
- If the investment is not a success, you lose the amount invested.

B.4 Post-experimental questionnaire (displayed on screen)

Questions for the employers:

Please indicate the reasons why you have chosen to donate to charities. For each possible reason, please respond by clicking one of the buttons from "strongly disagree" (1) to "strongly agree" (7).

- I cared about the charity organizations.
- I wanted to tell my friends later.
- The worker was more likely to accept my offer.
- I felt obligated because it was offered by the experimenter.

In your opinion, to what extent did the following parameters influence workers' decisions to accept or reject an offer?

- The wage rate
- The donation
- The probability of a shock

Questions for the workers:

What reasons do you think employers had for choosing the amount of their donations? For each possible reason, please respond by clicking one of the buttons from "strongly disagree" (1) to "strongly agree" (7).

- They cared about the charity organizations.
- They wanted to tell their friends later.
- They thought it was more likely that the worker would accept their offer.
- They felt obligated because it was offered by the experimenter.

To what extent did the following parameters influence your decision to accept or decline an offer?

- The wage rate
- The donation
- The probability of a shock

C Appendix Table

Table C1: Participants' background characteristics

	Baseline	Shock treatment	*p-value*
Mean age (years)	21.0	21.5	.651
Female (%)	52.1%	37.5%	.054
Education			.186
Bac+2	18	22	
Bac+3	36	36	
Bac+4	19	6	
Bac+5	17	18	
Bac+6 or above	3	5	
Other	1	1	
School			.681
EC Lyon (eng.)	38	42	
EM Lyon (bus.)	45	37	
ISOSTEO (med.)	0	1	
ITECH (eng.)	6	4	
Other	5	4	
SVO angle	18.6	18.1	.854
Risk attitude (% invested)	59.5	63.8	.294

Notes: The SVO angle is based on the test administered in part 2. Risk attitude is measured as the percentage of endowment invested in part 3. The reported *p-values* are from Mann-Whitney rank-sum tests (age, SVO angle and risk attitude), Fisher's exact test (female), and χ^2 tests (education and school.

D Appendix Figure

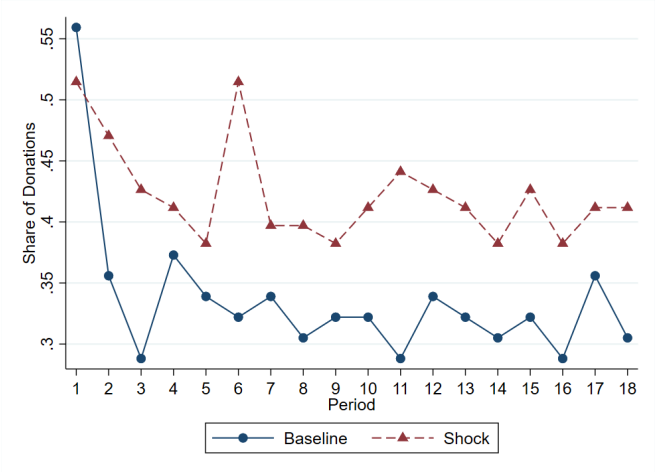


Figure D1: Evolution of the share of donations over time