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Experimental evidence**

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The effect of charitable giving on workers' performance: Experimental evidence

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Abstract

We investigate how donating worker earnings for voluntary extra work, a form of corporate social responsibility, affects worker behavior. In our experiment, participants performed a real-effort task. Subjects were asked to enter real data (from an unrelated experiment) for 60 minutes and were paid on a piece-rate basis. After the 60 minutes, they were then asked if they wished to stay for up to another 30 minutes; we varied the piece-rate pay and whether it was paid to the worker or to a charity. Our results show that when the piece rate paid is relatively high, workers do more extra work when they are directly paid this piece rate as compared to when their earnings are instead paid to a charity. However, with low piece rates, this relationship reverses and workers are much more motivated when the money is donated to a charity instead of when it is paid directly to them. This approach is potentially a win-win outcome for at least firms and charities. We also find that when we only pay a small amount to workers, their behavior differs only modestly from the situation in which we do not pay at all.

JEL numbers: C91, D29, H40, J30

Keywords: Charity, productivity, CSR policy, effective incentive

1. Introduction

Economists have traditionally focused on the role of financial incentives to increase worker productivity. This implies tying performance to pay in the most effective manner. However, it has been shown that financial incentives are not always an ideal motivator (see Deci, 1971; Gneezy and Rustichini, 2000 or Ariely, Gneezy, Loewenstein, and Mazar, 2009). Besides, even in the case in which financial incentives might increase production, they may not be cost-effective. Thus, firms may not always be willing to pay the amount of money that would be necessary in order to motivate the worker. So it is useful to try to find other mechanisms to harness motivations in order to achieve higher profitability and potentially even better social outcomes.

Economists, sociologists and human-resource management scholars have emphasized the role of non-financial incentives on worker motivation. Laboratory experiments, such as those of Masclet, Noussair, Tucker and Villeval (2003), Peeters and Vorsatz (2013), and Charness, Masclet, and Villeval (2014), have been conducted to analyze the positive effect of non-monetary rewards and sanctions on subjects' behavior. Numerous studies in organizational psychology and management support the idea that when managers show that they care for their employees, it improves worker behavior and increases positive attitudes and organizational commitment (Rhoades and Eisenberger 2002; Cropanzano and Mitchell 2005). Many employees are affected not only by their pay, but also by their perceptions of how the company treats them. So, features like workplace flexibility, worker involvement in running the company, and procedural justice in promotions could become very important for aligning the interests of firms and workers, thereby increasing workers' motivation (Amabile, 1993; Rousseau, 2004).

Within this set of non-pecuniary motivations, the management literature has shown that corporate social responsibility (CSR) increases the attractiveness of the company to current and potential workers (see, Greening and Turban, 2000; Kim and Park, 2011 or Porter and Kramer, 2006). For example, firms such as IBM or Microsoft introduce in their recruitment brochures information highlighting their responsiveness to the community in order to attract a larger number of prospective job applicants (Shelton, 1999). A high perceived CSR could also improve worker satisfaction, increase workers motivation, attract more qualified workers, and reduce turnover. For example, positive feelings toward the firm could also encourage *organizational citizenship behavior*, which is defined as "...behavior of a discretionary nature that are not part of employees' formal role requirements, but nevertheless promote the effective functioning of the organization" (Organ, 1988).

Companies are aware of these potential benefits and so have sometimes tried to improve social consequences of their activities. However, these policies are not always as effective as perhaps they could be. One of the main reasons may be that companies think of CSR in a generic manner, instead of pinpointing a particularly effective approach given the company's strategy. A suitable CSR, instead of being a cost or a constraint, would become a source of opportunities and competitive advantage (see Porter and Kramer, 2006).

Along this line, perhaps giving employees the opportunity of working for a social goal would increase workers' motivation and engage them more within the firm. Some recent experimental literature finds that spending money on others can lead to greater happiness than spending money on one's self (Dunn, Aknin and Norton, 2008) and that pro-social bonuses may increase workers' satisfaction and improve their performance (Anik, Aknin, Norton, Dunn and Quoidbach, 2013). Indeed, in a recent paper, Imas (2014) shows that subjects put forth more

effort with pro-social incentives than with standard incentives schemes. He finds that when stakes are low, individuals exert a larger effort for a charity than for themselves. So, within the set of social goals, charitable giving seems likely to be a strong motivator. Our study differs from previous ones on CSR in that previous studies focused solely on improving the image of the company, while we propose a form of CSR that not only has positive externalities on the reputation of the company but also has a direct effect on workers motivation.

The aim of this paper is to investigate experimentally how a particular corporate social responsibility policy (based on charitable giving) affects workers' motivation and whether this leads to productivity gains in a setting in which the worker has the possibility of leaving and not exerting any extra effort, thus refusing to help the employer. In particular, we analyze the effect of charitable giving on two margins of labor supply. On the extensive margin, we examine whether this pro-social incentive works better than financial incentives in encouraging agents to select into a task. On the intensive margin, we also study whether pro-social incentives are better than financial ones in improving the performance of workers who have selected into a task.

We take this as a starting point for our experimental design. Participants were asked to enter real data (from an unrelated experiment) for 60 minutes and were paid on a piece-rate basis, 12 cents per data entered for each individual in the unrelated experiment. Upon finishing this task, they were offered the possibility of voluntarily entering extra experimental data during an additional period of time.

We vary two factors in a 3x2 design. One factor is the piece rate paid in the second part of the experiment. We paid subjects for each individual's data entered in the second stage of the experiment, with a piece rate of zero, two, or eight cents, depending on the treatment. The second factor concerns the recipient of the payment for the second stage of the experiment. In

one treatment the money generated was paid to the participant. So, here a subject's total payoff was the amount earned in the first stage of the experiment plus the amount earned in the second stage. In the other treatment, the money generated in the second stage of the experiment was paid to a charity. So, in this case, participants receive the money they earned in the first stage of the experiment and whatever earnings generated in the second stage were sent to a charity.

Our results are intriguing. We find that, perhaps unsurprisingly, when the piece rate paid was relatively high, workers were more willing to work and produced more when they were directly paid this piece rate. However, when the piece rate was low, this *reverses*: workers produced more when the money was donated to a charity instead of being paid directly to them. We find that a larger percentage of workers are willing to stay for the second stage when the money is sent to a charity. In addition, the participants who decide to stay for the voluntary second stage also perform better, leading to a better outcome for the firm.

Finally, we also find that when we only pay a relatively small amount to workers, performance does not differ greatly from the situation in which we do not pay at all. In fact, there is no difference in the rate of staying for the second stage or not. We also observe that there is only a modest difference in workers' performance whether they were directly paid a piece rate of two cents or were not paid at all.

The remainder of the paper is organized as follows. In Section 2 we review the related literature. We explain the experimental design in Section 3. Section 4 shows the main results and provides some discussion. We conclude in Section 5.

2. Literature review

As was discussed briefly in the previous section, non-monetary incentives play a very important role on subjects' motivation. Neckermann and Kosfeld (2011) conduct a field

experiment in which subjects were asked to search and provide information for a certain NGO. They were asked to enter as much data as possible from different communities for a fixed wage. In another treatment, subjects could receive a non-material award. The results show that subjects with a non-material award performed better, with 12 percent higher productivity. Charness, Masclet, and Villeval (2014) find that ranking people within a group of three induces higher performance for a fixed wage in a real-effort task (decoding sets of one-digit numbers into letters from a grid of letters displayed on the computer screen); the performance was 25 percent higher.

Ashraf, Bandiera and Jack (2014) studied workers' performance depending on awards received for public service delivery. Workers were asked to provide HIV-prevention information to customers as well as selling condoms. They were divided into four groups. In the control group, subjects receive no incentive; in another non-financial award group, people received a star per packed condom sold. Participants in a large-financial-margin group earned 90 percent above the retail price, while participants in a small-financial-margin group received only 10 percent above the retail price. Results show that the group with the non-financial award sold almost double the number of condoms compared to any other group.

Kube, Marechal and Puppe (2012) use the simple task of copying data to measure worker's productivity in a field experiment. Among other treatments, authors propose one in which workers would make an additional amount of \$7 on top of the initial \$12 they were paid. In a different treatment, instead of \$7, workers received a thermos bottle with a value of \$7. Giving 7€ extra in the Money treatment increased worker productivity by 5 percent whereas giving the bottle increased it by 25 percent. In the same vein, Heyman and Ariely (2004) had subjects drag a virtual ball to a specified location on the screen, varying whether fixed payments (not contingent on effort) were made in cash or in the equivalent amount of candy. When the

payment was low, the effort provided with cash payments was lower than the effort provided with payments in candy.

Our paper also contributes to the literature that analyzes how right missions increase worker's motivation. Fehrler and Kosfeld (2014) proposed an experiment to see whether right-mission jobs have some influence on worker's costly effort; they found that neither donating to a NGO nor giving the money to a random student led to higher worker performance. However, when workers were given the option of *choosing* the mission, one third of them were willing to significantly increase their effort in order to donate to a NGO.¹ Gerhards (2012) conducted a one-shot principal-agent experiment. Two treatments were implemented, differing in the degree of the agent's mission match: The Low Mission treatment, where agents were not that familiar with the project on which they were working, and the Mission Match treatment, where agents were essentially matched with the project that they chose within their own organization. Earnings were determined by the piece rate and effort decisions. The agent's mission was implemented via an additional donation, which was generated by the effort choice. Findings show that agents choose higher effort levels in the Mission Match treatment than in the Low Mission treatment.

In the same vein, Tonin and Vlassopoulos (2010) implemented a field experiment in which they recruited students for a data-entry job that took place on two separate occasions. On the first occasion, students were paid a fix amount plus a bonus based on their performance. On the second occasion, students were divided into three groups. The conditions remained the same for the first group. For the second, in addition to their personal compensation, their effort could contribute to a charity of their choice and would crowd out the employer contribution so that the total amount donated was fixed. Finally, for the third group, their effort could also contribute to a

¹ The act of choosing may *per se* affect performance. Babcock, Bedard, Charness, Hartman, and Royer (forthcoming) avoid the usual selection-effect problem and show cleanly that performance was increased by 27 percent when subjects chose an activity than when they were assigned to the activity.

charity of their choice without crowding out. Subjects increase their productivity by a bit more (15 percent) in the treatments in which money will be donated to a charity than in the baseline (12 percent). Koppel and Regner (2014) analyze how workers react to firms' investments in CSR. They propose a gift-exchange game in which the CSR is implemented by donating part of firms' profits to a charity. In their experiment, firms choose the share of profits they want to give to a charity and workers have to decide, for each possible share, the effort level they want to provide. They find that the level of share (of CSR) and the effort level are positively correlated.²

The study closest to ours is Imas (2014). He conducts an experiment in which participants have to squeeze a hand dynamometer that records force output, with payments tied to the force recorded by the dynamometer. The study has a 2x2 design in which both the amount earned per unit of force and the recipient of the money (either the participant or a charity) are varied. When stakes are low, individuals exert more effort for a charity than for themselves. However, with high incentives, subjects exert more effort when the money is paid to them. Our paper analyzes similar incentives, but in an environment in which the worker is exerting effort for the benefit of the firm as well as for either her own benefit or that of the charity. In our environment workers might have the incentive to reduce their effort in order to, in effect, punish the company for a low wage (even if this wage was donated to a charity). So in our setting we are able to study whether the positive effect of the donation compensates for the negative effect of the low salary, complementing the Imas (2014) results. In addition, our task is cognitive rather than physically forceful, and so may be more relevant for the white-collar environments to which the student participants are likely to go after graduation. Finally, while Imas (2014) focuses

² However, we take this result with at least a grain of salt, since this type of within-subject design may lead to spurious effects (see Charness, Gneezy, and Kuhn, 2012).

primarily on the effect of pro-social incentives on the intensive margin of labor supply, our design enables us to analyze this effect on both the extensive and intensive margins.

This paper also contributes to the large literature on giving and altruism. Eckel and Grossman (1996) propose an experiment employing the double-blind dictator game of Hoffman et al. (1994). Each dictator was asked to divide \$10 between one's self and a recipient. The two treatments differed in terms of the identity of the recipient. In Treatment 1, the recipient was an anonymous student in a different room, whereas in Treatment 2, the recipient was a charity. Subject's decisions were unknown to the experimenter in order to avoid an experimenter effect. Results showed that 62.5 percent of the subjects in the first treatment kept the whole amount of \$10, whereas only 27.1 percent did so in the second treatment. In addition, the total amount donated in the first treatment was a total of \$51 (10.6 percent), in contrast with the total of \$149 (31.0 percent) in the second treatment. Brañas-Garza (2006) ran a Dictator Game with different information conditions. In one treatment, Dictators would receive no information about the recipient, in the second treatment, dictators were told that recipients were poor, and in the third treatment, dictators were told that the donations would be received as medicines instead of as money. While no one donated the full endowment in the no-information treatment, 40.8 percent did so in the "poverty" treatment, and 74.6 donated everything in the "medicines" treatment.

Gneezy and Rustichini (2000) provide the results of an experiment in which participants went door-to-door to collect donations. In the experiment there were three different treatments; subjects received a motivation speech in all. Nothing else was done in the first treatment. In the second treatment, participants were promised a percentage (1 percent) of the money they collected, and in the third treatment, the promised percentage was 10 percent. They find that the average amount collected in without any economic incentives was larger than when participants

could make a percentage of the amount collected. This shows that non-monetary incentives clearly played a role in workers' performance.

3. Experimental design and procedures

The experimental design consists of five treatments: the *Baseline*, the *Charity2* treatment, the *Worker2* treatment, the *Charity8* treatment, and the *Worker8* treatment. All five treatments involve a real-effort task. The task consists on entering data from a pen-and-paper experiment into an Excel file.

Baseline treatment: This treatment was composed of two different sections; people were told in the first stage that there was a second stage, but they were not told what it was. In the first part, workers had to enter experimental data into an Excel file. They were paid 12 cents per individual entered.³ Subjects had 60 minutes to type as much of data as they wished.

In the second stage, workers were offered the possibility of entering more data. For this second stage, workers could stay up to a maximum of 30 minutes but could leave the room at any time desired. Subjects were told that they would not be paid for the data entered during the second stage. So, their earnings stemmed only from the first stage of the experiment.

Worker2 treatment: This is the same as the *Baseline* treatment, except that workers were also paid two cents per data entered for each individual in the second stage.

Charity2 treatment: This treatment is exactly the same as the *Worker2* treatment with the only difference that the two cents per additional data entered during the second part of the experiment would be paid to a charity instead of being paid to the workers. Workers could pick a preferred

³ There were eight separate items that were to be entered for each individual.

charity.⁴ To ensure credibility that money would actually go to the charity, we told the subjects (truthfully, of course) that we would give them stamped and addressed envelopes and would enclose a check made out to the charity for the amount to be sent to the charity. Workers could put the envelopes into the mailbox themselves.

Worker8 treatment: This is the same as the *Worker2* treatment, except that workers were paid eight cents per individual data entered in the second stage of the experiment.

Charity8 treatment: This is the same as the *Charity2* treatment, except that the charity would be paid eight cents per individual data entered by the subjects in the second stage of the experiment.

The experiment was conducted at the University of California Santa Barbara with 149 participants, who were recruited using the online recruitment system ORSEE (Greiner, 2004). No subject participated in more than one treatment. We conducted 50 sessions of 3 subjects each.⁵ To avoid peer effects, we had each individual do the task alone in a separate room. Participants were free to leave at any point, subject to the payment rules. On average, each person received \$17.20 for (up to) a 90-minute session.

4. Results

This section is structured as follows. We first compare workers' behavior when we pay the piece rate in the second stage directly to the worker to the situation in which we donate this money to a charity. We make this comparison for both high and low piece-rate compensations. We then consider whether it is more cost-effective to pay a high piece rate to the worker or a low piece rate to a charity, and follow by analyzing the *Baseline* data.

⁴ Subjects could pick one of these charities: i) American Red Cross, ii) Doctors without Borders, iii) Save the Children or iv) Santa Barbara Braille Institute.

⁵ There were only two participants in one session.

Table 1 presents a summary of the average individual’s data entered during the first and second stages, the percentage of workers who decided to stay for the second stage, and the relative performance in the second stage. This relative performance is defined to be the amount of data entered in the second stage divided by the amount of data entered in the first stage. In the last column we compute the same ratio, but only taking into account subjects who actually stayed for the second stage of the experiment. We provide detailed discussion below.

As we mentioned in the presentation of the experimental design, the decision to stay for the second stage of the experiment was completely voluntary. Subjects were told that they could leave at any time they wished once the first part was completed and the instructions for the second stage had been explained. It is clear that the rate at which people stay is highly sensitive to the payment arrangement, since these rates ranged from 93.33 percent to 24.13 percent ($Z = 5.409, p = 0.000$, test of the difference of proportions).⁶

Table 1. Summary statistics.

	N	% Stay	Data 1 st	Data 2 nd	Ratio (all)	Ratio (stay)
Worker2	30	40.00%	122.13	15.47	12.99%	32.49%
Charity2	30	73.33%	134.97	48.23	35.75%	48.75%
Worker8	30	93.33%	134.77	66.40	49.05%	52.55%
Charity8	30	80.00%	129.13	49.57	38.17%	47.12%
Baseline	29	24.13%	130.35	6.65	5.06%	20.97%

Notes: %Stay refers to the proportion of subjects who stayed for the second stage. Data 1st and Data 2nd refer to the data entered in the first and second stages, respectively. Ratio (all) is the overall ratio of data entered in the second stage divided by the data entered in the first stage, and Ratio (stay) is the same, but applies only to people who chose to stay for the second stage.

⁶ We round all p -values in this paper to the nearest three decimals. All p -values reflect two-tailed tests unless otherwise indicated.

4.1 Effect of paying a high piece rate

We begin by analyzing the effect on workers' effort of paying the worker a piece rate of eight cents per individual's data entered (*Worker8*, hereafter) compared to the effect of paying the same piece rate to a charity (*Charity8*, hereafter). As can be seen, the percentage of workers who decided to stay was 93.33 percent in *Worker8* and 80 percent in *Charity8*. Turning to performance, we see that subjects enter more data in the second stage (66.40) in *Worker8* when they were paid a piece rate of eight cents than when the payment was made to a charity (49.57). A Mann-Whitney test shows this difference to be statistically significant ($Z = -2.206, p = 0.027$).

This result could reflect subjects in *Worker8* having higher ability (entering more data in stage one); in fact, subjects in *Worker8* are slightly (four percent) more productive than subjects in *Charity8*, but this modest difference is not statistically significant.⁷ Workers could also be more likely to stay for the second stage in *Worker8*. We have seen that this is true, but the 13 percent difference is not statistically significant.⁸ The Ratio (all) column of Table 1 is a more careful control than the raw figures in the Data 2nd column, as it corrects for *ex-ante* differences in ability. Here we see a substantial and highly-significant difference ($Z = -2.531, p = 0.011$) in favor of *Worker8*. In fact, subjects in *Worker8* enter more data than those in *Charity8*, even conditioning on entry ($Z = -2.038, p = 0.042$), as seen in the rightmost column on Table 1. So, it is not only that a higher (although non significant) percentage of workers stayed in *Worker8* than in *Charity8* but also that these workers performed relatively better in *Worker8*. So, paying eight cents to the worker compared to donating eight cents to a charity has a relatively stronger effect on the intensive margin of labor supply than on the extensive margin.

⁷ A Mann-Whitney test gives $Z = -1.383, p = 0.167$.

⁸ $Z = -1.506, p = 0.132$, Mann-Whitney test.

Result 1: *With a high piece rate, better production was achieved by paying the workers directly rather than by sending the earnings to a charity. This was driven primarily by a difference on the intensive margin.*

Effect of paying a low piece rate

In this section we compare behavior across treatments when we pay a low piece rate to either the worker or to a charity. We see that results clearly go in the opposite direction than with high piece rates; in fact, the difference-in-differences in productivity across piece rates is highly significant ($Z = 3.964, p = 0.000$).⁹

Table 1 shows that a higher percentage of workers are willing to stay for the second stage when earnings are paid to a charity than to a worker. In particular, 73.33 percent of workers stayed when the money generated was sent to a charity (*Charity2*), while only 40.00 percent of subjects decided to stay when they were going to receive the money (*Worker2*); this difference is highly significant. ($Z = 2.583, p = 0.009$). Additionally, the amount of data entered during the second part of the experiment was 48.23 in *Charity2* versus 15.47 in *Worker2*, and this difference is also highly significant ($Z = 3.579, p = 0.000$).

As in the case in which the piece rate was eight cents, the increased amount of data entered in the second stage in *Charity2* could reflect the presence of more able workers in this treatment. However, the difference is not statistically significant ($Z = 1.449, p = 0.147$) in the amount of data entered in the first stage of the two low-piece-rate treatments. Ratio (all) shows that this is nearly three times as much data was entered in the *Charity2* treatment ($Z = 3.578, p = 0.000$), and Ratio (stay) shows a strong treatment effect ($Z = 2.955, p = 0.003$). For low piece rates, pro-social incentives have a stronger effect than financial ones on both the extensive and intensive margins of labor supply.

⁹ This is not surprising, since production is already significantly different across *Worker2* and *Charity2* and the difference in production across *Worker8* and *Charity8* goes in the opposite direction.

Result 2: *With a low piece rate, production was much higher from workers if the earnings were to be donated to a charity than if they were paid directly to the workers. There are significant differences on both the extensive and intensive margins of labor supply.*

4.3. Pay to the charity or to the worker?

In the two previous sections we have shown that the best strategy for inducing performance depends on the piece-rate pay. In this section, we examine which approach leads to higher production *per se*, as well as which approach is more cost-effective. If a firm is relatively cash-constrained and can only pay a low piece rate, it is better to send it to a charity (and of course to inform the workers of this); if a firm can pay a large amount, production is higher if this is paid directly to the worker.

From Table 1 we see that the amount of data entered is 66.40 and 48.23 in *Worker8* and *Charity2*, respectively ($Z = -1.927, p = 0.054$). Production is 37 percent higher on a ratio basis in *Worker8*, including all participants. This is influenced by the higher percentage of workers who decided to stay for the second part of the experiment in *Worker8* (93.33 percent compared to 73.33 percent, $Z = -2.061, p = 0.039$). When we control for this difference in stay rates in Ratio (stay), there is considerably less difference (although it is still weakly significant) between *Worker8* and *Charity2* (52.55 versus 48.75, $Z = -1.739, p = 0.082$). Thus, the greater production in *Worker8* is substantially due to the difference in the willingness to stay for the second stage.

Whether it is worthwhile for a firm to pay a large difference in piece rates for the additional production depends on the cost-benefit ratio for the firm. It does not seem cost-effective for a firm to pay four times as much for a 37 percent increase in productivity, but it may nevertheless be worthwhile to pay the higher amount to the worker if this cost is a small enough portion of the overall cost of production. So the optimal strategy will depend on the weights of the factors in the overall production function for the firm.

In addition, it turns out that there is a larger gap for males than for females with respect to *Worker8* versus *Charity2*.¹⁰ In fact, results show that the percentage of males staying for the second stage is 60.00 percent and 94.11 percent in *Charity2* and *Worker8*, respectively. However, for females these percentages are much closer and differences are not statistically significant (respectively 80.00 percent and 92.30 percent for *Charity2* and *Worker8*, $Z=-0.949$, $p = 0.343$). Similarly, differences in Ratio (all) are only significant for the male population ($Z = -2.468$, $p = 0.014$ and $Z = -1.292$, $p = 0.196$ for males and females, respectively). So the best strategy may also depend on the gender composition of the workforce.

Result 3: *Paying workers a high piece rate leads to higher production than paying a low price to a charity. However, paying the low piece rate to a charity is more cost-effective, so that it may be optimal for a firm to pay this lower rate to a charity, particularly when the proportion of female workers is high.*

4.4 Baseline

We next study behavior when entering more data generates no further pay for either the worker or a charity. Readers might agree that there is little intrinsic pleasure in entering data into an Excel file, so one might expect that few (if any) would stay to enter more data. In fact, we see that 24.13 percent of the subjects decided to stay for at least part of the second stage. Why did such a high percentage of the subjects stay for no direct financial reward? Presumably this indicates that workers were motivated in some other dimension by the task.

We do have anecdotal evidence (from discussions with the subjects after the fact) that people felt that their work had value for us; this was likely induced by the clear authenticity of the data (which, unbeknownst to the subjects, had already been entered; we made no statements

¹⁰ We find no other gender differences in our data. For example, there is no significant difference across gender in the data entered in the first stage (133.01 and 128.02 for males and females respectively), so fundamental ability is quite similar. Also, the overall amount of data entered in the second stage is nearly identical (37.79 and 37.21 for males and females respectively).

concerning this point). More concrete evidence is provided by the fact that a number of people came to ask questions about issues in the data, trying to ensure that their entries were correct. We also observed a tendency for people to voluntarily stay just long enough to complete their then-current task. This was stated to us by some of the workers and we also see that many of the subjects (four out of the seven people who stayed) did only a very small amount in the second stage, which is consistent with them simply finishing the data-entry for a particular individual.

Production is lower in *Baseline* than in *Worker2*, but not greatly so. The modest difference reflects the fact that the percentage of subjects staying for the second part is lower in *Baseline* than in *Worker2*, where it is forty percent. However, this difference is not significant ($Z = 1.292, p = 0.196$). So, it seems that paying two cents to the worker is not a strong enough incentive to induce a much higher stay rate; in any case, paying a small piece rate does not reduce the amount of data entry. Turning to the data entered, we observe that the average amount of data entered in the second stage is 6.65 in *Baseline*, compared to 15.47 in *Worker2* ($Z = 1.508, p = 0.132$). Controlling for the difference in second-stage entry, we do see a marginally-significant difference in Ratio (stay) for the *Worker2* treatment compared to the *Baseline* treatment (32.49 percent versus 20.97 percent, $Z = 1.775, p = 0.076$).

Comparing *Baseline* to *Charity2*, we see stronger differences. The difference in production (48.23 versus 6.65) is highly significant ($Z = 4.653, p = 0.000$, one-tailed test), as is the difference in stay rates (73.33 percent versus 24.13 percent, $Z = 3.747, p = 0.000$, one-tailed test), and as is the difference in the ratio for those who stay (48.75 percent versus 20.97 percent, $Z = 3.415, p = 0.000$, one-tailed test).

These observations lead to the following result:

Result 4: *Workers produce only slightly less when they do not have any incentive than when they directly receive low additional pay, although there is more production when low-rate earnings are instead paid to a charity. There does seem to be some intrinsic motivation vis-à-vis the task.*

5. Conclusion

This paper analyzes how a firm's corporate social responsibility policy (donating worker earnings from voluntary extra work) may affect workers' behavior. Our results show that when the piece rate paid is relatively high, workers perform better when they are paid directly as compared to when their earnings are instead paid to a charity. However, with relatively low piece rates, this relationship reverses. Now they are more motivated when the money is donated to a charity instead of being paid directly to them. Not only do more workers decide to stay for the charity but they also perform better, leading to a better outcome for the firm. So, it seems that the fact that the money is donated to a charity compensates for the low piece-rate paid by the employer, affecting both the extensive and intensive margins of labor supply.

We also find that when we only pay a small amount to workers, their behavior differs only modestly from the situation in which we do not pay at all. The difference in the voluntary (second-stage) stay rates is insignificant, and there is only a small (but still insignificant) difference in workers' performance, which is slightly better when they are paid a piece rate of two cents than when they are not paid at all.

We employed a careful and clean experimental design to ensure anonymity across subjects in order to avoid a sense of peer pressure. Thus, in some sense our results may represent a lower bound for the effects we find, since peer pressure is present in most work environments and these environments are also most likely dynamic.

Potentially, our findings have interesting implications for remuneration policies and the labor market. The perception of corporate social responsibility, as induced through the charitable

contributions, may well be an important source of motivation for workers, particularly when they are already receiving their basic pay. When the firm's production function is such that worker wages comprise a relatively small proportion of the overall cost, it seems worthwhile to pay the workers directly. However, when the labor cost is a high proportion of the production cost, it may be worthwhile to pay a much smaller piece rate to workers and to donate this money to charity on their behalf. In this way the firm will receive relatively good performance despite spending less money.

Workers do not change their behavior according to how much is generated for charity from their effort, a finding that is reminiscent of the notion that people derive "warm glow" from giving (Andreoni, 1993). It seems that subjects in this experiment value the effort exerted for the charity rather than the benefit charities receive from that effort. This insensitivity to the benefits of the donation for others has been found in several different experiments (see, for example, Imas, 2014; Hsee and Rottenstreich, 2004 or Linardi and McConnell, 2011).

Given that in this particular setting workers are not donating directly money but are instead donating time in the second stage, it is plausible that they perceive that they are working not only for their company but also for a charity. Should this be the case, it could readily change workers' perception about their jobs; now they wouldn't be working only to increase firms' profits but also, to at least some extent, to help society. Perhaps this feeling of being useful to the society would increase their motivation to work more and both the firm and the charity would thereby benefit.

This approach is potentially a win-win outcome for firms and charities (or conceivably even a win-win-win outcome for firms, charities, and workers). If firms could incentivize workers through contributions to charities, firms might have lower labor costs and thus

potentially increase their profits. In addition, firms would improve their reputation and external image since the perception of their CSR would improve from these charitable contributions. Charities could potentially approach firms with the appropriate labor costs and even gender composition. Perhaps one possibility would be to invite a firm to participate in a charitable project that would engage its workers. In principle, this could also benefit workers because they might feel pleased that they are working for a firm that values this charitable project and that the extra hours worked both help raise money for the charitable project and benefit the socially-conscious firm.

References

- Amabile, T.M. (1993). "Motivational synergy: Toward new conceptualizations of intrinsic and extrinsic motivation in the workplace," *Human Resource Management Review*, 3(3): 185-201.
- Anik L., Aknin L., Norton M., Dunn E., Quoidbach J. (2013). "Prosocial Bonuses Increase Employee Satisfaction and Team Performance," *PLoS ONE*, 8(9): e75509. doi:10.1371/journal.pone.0075509
- Ariely, D., Gneezy, U., Lowenstein, G. and Mazar, N. (2009). "Large stakes and big mistakes." *Review of Economic Studies*, 76(2): 451-469.
- Ashraf, N., Bandiera O., and Jack K. "No Margin, No Mission? A Field Experiment on Incentives for Public Services Delivery," *Journal of Public Economics* (forthcoming).
- Babcock, P., K. Bedard, G. Charness, J. Hartman, and H. Royer (forthcoming). "Letting Down the Team? Evidence of Social Effects of Team Incentives," *Journal of the European Economic Association*.
- Branas-Garza, P. (2006) "Poverty in Dictator Games: Awakening Solidarity," *Journal of Economic Behavior and Organization*, 60(3): 306-320.
- Charness, G., Gneezy, U., and Kuhn, M. (2012). "Experimental Methods: Between-subject and Within-subject Design," *Journal of Economic Behavior and Organization*, 81: 1-8.
- Charness, G. Masclet, D. and Villeval, M (2014). "The dark side of status," *Management Science*, 60: 38-55.
- Cropanzano, R. and Mitchell, M. (2005). "Social exchange theory: An interdisciplinary review," *Journal of Management*, 31(6): 874-900.
- Deci, E. L. (1971). "Effects of externally mediated rewards on intrinsic motivation," *Journal of Personality and Social Psychology*, 18: 105-115.
- Dunn, E., Aknin, L., Norton, M. (2008). "Spending money on others promotes happiness," *Science*, 319 (5870), 1687-1688.
- Eckel, C. and Grossman, P. (1996). "Altruism in anonymous dictator games," *Games and Economic Behavior*, 16(2): 181-191.
- Fehrler, S. and Kosfeld, M. (2014). "Pro-social mission and worker motivation: An experimental study," *Journal of Economic Behavior & Organization*, 100: 99-110.
- Gerhards, L. (2014). "The Incentive Effects of Missions - Evidence from Experiments with NGO Employees and Students," mimeo.
- Gneezy, U. and A. Rustichini. 2000. "Pay enough or don't pay at all," *Quarterly Journal of Economics*, 115(3): 791-810.
- Greening D. and D. Turban. 2000. "Corporate Social performance as a competitive advantage in attracting a quality workforce," *Business and Society*, 39: 254-280.
- Heyman, J. and Ariely, D. (2004). "Effort for Payment: A Tale of Two Markets," *Psychological Science*, 15(11): 787-793.
- Hoffman, E., McCabe, K., Shachat, K., and Smith, V. (1994). "Preference, Property Rights and Anonymity in Bargaining Games," *Games and Economic Behavior*, 7: 346-380.
- Imas, A. (2014). "Working for 'Warm Glow': On the Benefits and Limits of Prosocial Incentives," *Journal of Public Economics*, 114: 14-18.
- Kim, S. and Park, H. (2011). "Corporate Social Responsibility as an organizational attractiveness for prospective public relations practitioners," *Journal of Business Ethics*, 103: 639-653.

- Koppel, H. and Regner, T. (2014). "Corporate Social Responsibility in the work place: Experimental Evidence from a gift-exchange game," *Experimental Economics*, 17: 347-370.
- Kosfeld, M. and Neckermann, S. (2011). "Getting More Work for Nothing? Symbolic Awards and Worker Performance," *American Economic Journal: Microeconomics*, 3, 86-99.
- Kube, S., Marechal, M. and Puppe, C. (2012). "The Currency of reciprocity- gift exchange in the workplace," *American Economic Review*, 102(4): 1644-1662.
- Masclet, D., Noussair, C., Tucker, S., and M.C. Villeval. (2003). "Monetary and Non-Monetary Punishment in the Voluntary Contributions Mechanism," *American Economic Review*, 93 (1), 366-380
- Organ, D. (1988). *Organizational citizenship Behavior: The good Soldier syndrome*, Lexington, MA: Lexington books.
- Peeters R. and Vorsatz, M. 2013. "Immaterial rewards and sanctions in a voluntary contribution experiment," *Economic Inquiry*, 51(2): 1442-1456.
- Porter, M. and Kramer, M. (2006). "Strategy and Society: The Link Between Competitive Advantage and Corporate Social Responsibility," *Harvard Business Review*, 84(12): 78-92.
- Rhoades, L. and Eisenberger, R. (2002). "Perceived organizational support: a review of the literature," *Journal of Applied Psychology*, 87(4), 698-714.
- Rousseau, D. (2004). "Psychological contracts in the workplace: Understanding the ties that motivate," *Academy of Management Executive*, 18(1): 120-127.
- Shelton, K. (1999). *Information from brochures in the Career Service Office*, The College of Business and Public Administration, University of Missouri, Columbia, MO.
- Tonin, M. and Vlassopoulos, M. (2010). "Disentangling the Sources of Pro-socially Motivated Effort: A Field Experiment," *Journal of Public Economics*, 94(11-12): 1086-1092.

Appendix A

Instructions for the first stage of the experiment

1. Thanks for participating in this experiment. You are guaranteed at least \$5 for showing up on time and will most likely earn substantially more.
2. In order to preserve anonymity, you have been randomly assigned a code. At the end of the experiment we will pay you using this code.
3. This experiment consists of two parts. Now, you will receive the instructions for the first part. When this part is finished, you will receive the instructions for the second part.
4. Your task will be the following. We have collected some experimental data from different individuals. You will have to record data from sheets of paper in an Excel file. There are two sheets for each of these individuals. Now, we list what information you must enter and how to do it. In the Excel file you will find the following columns:
 - a. ID: this information is in the top left corner of the first sheet.
 - b. Decision: you must enter the decision (either A or B) that has been circled in the first sheet.
 - c. Age: this information in the second sheet for each subject.
 - d. Major: this information is in the second sheet for each subject. Enter the complete major in the same way you find it in the paper.
 - e. Gender: this information is in the second sheet for each subject. Enter the whole word for the gender (either male or female), not just F or M.
 - f. Height: this information is in the second sheet for each subject.
 - g. SAT: this information is in the second sheet for each subject. If this information is missing, just leave a blank space for the particular subject.

- h. Guess: this information is in the last question of the second sheet for each subject.
Enter the information writing including % at the end of the number.
- 5. You will enter data for 60 minutes.
- 6. You will be paid 12 cents per each completed subject you enter. Partial information for a subject will not count for the computation of the final payoffs.
- 7. When the time is over, please stay in this room for the second part of the experiment.

Instructions for the second stage of the experiment: Charity2 treatment

- 1. The 60 minutes you had to enter data are over.
- 2. Now, you have the opportunity to enter more data. The rules are the following.
 - a. You have a maximum of 30 minutes, but you can stop typing and leave at any time you want. You can even leave right now.
 - b. The money you generate in these 30 minutes will be donated to a **charity**.
 - c. You can choose the charity you want to donate the money. You can pick one of the following charities:
 - 1. American Red Cross
 - 2. Doctors Without Borders
 - 3. Save the Children
 - 4. Braille Institute
 - d. We will compute how much data you have entered in this second part. You will generate 2 cents per each completed subject's information that you enter. Partial information will not count for the final payment.

- e. We will write a check payable to this charity, will show it to you, and will put it in a closed stamped envelope with the address ready for you to mail.

When you decide to leave, go to room 2056. Take your id number with you and we will pay you privately the money you made in the first part. In the same way, we will write the check for the charity.

Instructions for the second stage of the experiment: Worker2 treatment

1. The 60 minutes you had to enter data are over.
2. Now, you have the opportunity to enter more data. The rules are the following.
 - a. You have a maximum of 30 minutes, but you can stop typing and leave at any time you want. You can even leave right now.
 - b. You will be paid 2 cents for each subject's information that you enter. Partial information will not count for the final payment.
 - c. When you decide to leave, go to room 2056. Take your ID number with you and we will privately pay you the money you earned during both first and second parts.