

## Opting-in to Prosocial Incentives

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### Abstract

The design of effective incentive schemes that are both successful in motivating employees and keeping down costs is of critical importance. Research has demonstrated that prosocial incentives – where individuals’ effort benefits a charitable organization – can sometimes be more effective than standard monetary incentives. However, most research has focused on the intensive margin, assuming that participation in the activity (whether voluntary or mandatory) is certain. We examine the effect of prosocial incentives on people’s decision to opt-in to an incentivized activity offering an *optional* prosocial incentive. By not restricting a participant’s choice set, optional prosocial incentives act as a nudge that combines the effectiveness of both standard and prosocial incentives. Across four experiments that vary incentive size, we find that individuals are more likely to avoid activities that involve any prosocial incentive. Our results highlight the importance of considering the environment and conditions necessary for successful design and implementation of nudges.

*Keywords:* decision making; incentives; prosocial behavior; behavioral economics; field experiments

## Opting-in to Prosocial Incentives

### 1. Introduction

Designing effective incentives is of critical importance for organizations and managers. Each year, U.S. organizations spend over \$90 billion on incentive programs that reward employees for their performance (Intellective Group, 2016). Standard, self-benefiting monetary (hereafter standard) incentives have been used to motivate behavior in domains such as health (Volpp et al., 2008), education (Fryer, 2011; Fryer, Levitt, List, & Sadoff, 2012), and prosocial behavior (Exley, 2017). However, standard incentives can sometimes backfire, for example, by “crowding out” intrinsic motivation (e.g., Deci, 1971, 1972; Gneezy & Rustichini, 2000; Schwartz, Bruine de Bruin, Fischhoff, & Lave, 2015) or discouraging cooperative behavior (Ariely, Bracha, & Meier, 2009).

Recent work has proposed implementing prosocial incentives—where a worker’s effort benefits a charitable cause—to circumvent the downsides of standard incentives (Imas, 2014). Consistent with the model of “warm glow” (Andreoni, 1990, 1993), prosocial incentives have been shown to be substantially more effective than standard incentives when the stakes (i.e., incentive sizes) are relatively low. This finding has launched a now sizable literature exploring the motivational effects of prosocial incentives on improving outcomes of interest to organizations and managers (Cassar, 2014; Charness, Cobo-Reyes, & Sánchez, 2016; DellaVigna & Pope, 2017; Dijk & Holmén, 2017; Gosnell, List, & Metcalfe, 2016; Kajackaite & Sliwka, 2017; Koppel, Regner, & Weber, 2015; Tonin & Vlassopoulos, 2015; Yang, Hsee, & Urminsky, 2014). Consequently, there has been an increase in the adoption of prosocial incentive schemes by managers and organizations, often associating employee bonuses to charitable contributions: a recent study found that in 2017, instead of giving standard bonuses, 38% of firms adopted prosocial bonuses – up from just 7% in 2016 (Accounting Principals, 2017).

To the best of our knowledge, research examining prosocial incentives has focused on situations where individuals have already agreed to participate in a broader activity (e.g., a lab study), and then decide how much

effort to exert.<sup>1</sup> However, an equally important question is whether, and to what extent, prosocial incentives are effective in prompting individuals to opt-in to such activities in contexts where they could easily be avoided.<sup>2</sup> In addition, prior work has primarily examined the effectiveness of prosocial incentives when individuals are required to donate their earnings. Mandating prosocial incentives may not be feasible in real-world organizational settings, as workers could choose to donate all or part of their bonuses. In this paper, we explore the effectiveness of *optional* prosocial incentives – where the decision to participate in an incentivized activity that benefits a cause is left up to the individual. By allowing an individual the option to choose whether to work for herself or for a charity, optional prosocial incentive schemes have the potential to effectively “nudge” participation and effort provision (Thaler & Sunstein, 2008) while avoiding the risk of crowding out intrinsic motivation.

Previous work highlights the personal benefits of doing good deeds for others over getting benefits for the self (Anik, Aknin, Norton, Dunn, & Quoidbach, 2013; Dunn, Aknin, & Norton, 2014), suggesting prosocial incentives could be useful for enhancing employees’ effort. However, there is also research suggesting that individuals may be reluctant to select into situations involving prosocial opportunities. For example, research on “moral wiggle room” (Dana, Cain, & Dawes, 2006; Dana, Weber, & Kuang, 2007) suggests that individuals may systematically steer clear of prosocial opportunities, or information about prosocial opportunities, to avoid putting themselves in situations where self-image concerns (Grossman & van der Weele, 2017), guilt (Gneezy, Imas, & Madarász, 2014), negative feelings (Berman & Small, 2012), or social pressure (Dellavigna, List, & Malmendier, 2012) would prompt them to act more prosocially than they would otherwise prefer.<sup>3</sup> For example, studies have found that when asked to divide a pie of money between themselves and an anonymous partner, individuals share 30% of the amount, on average (see Camerer (2003) for a review). Importantly, Dana et al. (2007) show that a substantial proportion of those parting with 30% of the pie to benefit another, are willing to *pay* 10% of the total amount to avoid participating in the interaction—keeping 90% of the pie for themselves and leaving their partner

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<sup>1</sup> Including lab studies that are part of a session with multiple tasks; even if participants can make decisions regarding each task, they have already agreed to participate in the session (i.e., they are already present).

<sup>2</sup> These two types of decisions—whether to participate or not versus how hard to work (conditional on participation)—are typically referred to as choices on the *extensive* or *intensive* margin, respectively.

<sup>3</sup> Gneezy et al. (2014) show that such behavior represents a dynamic inconsistency in social preferences. In prospect, an individual prefers to contribute  $x$ . However, when confronted with the opportunity, guilt or social pressure may prompt her to give more than  $x$ . Anticipating this preference reversal, individuals choose to avoid the prosocial opportunity altogether.

with nothing. Similarly, Dana et al. (2006) show that people choose to not receive information about the consequences of their actions for others, even when this information is free and easy to obtain. However, when the information is forced upon them, the majority of individuals act prosocially. Likewise, Andreoni et al. (2017) show that customers avoid supermarket entrances that have a Salvation Army volunteer soliciting donations (see also Knutsson et al. 2013).

Considered in the context of the present research, these findings give rise to the proposition that if permitted, individuals may avoid selecting into jobs that include prosocial incentives. Because individuals sometimes evade opportunities to donate, it is plausible they would also avoid jobs that are incentivized with prosocial, versus standard incentives. The implications of such avoidance are of paramount importance for organizations looking to implement prosocial incentives and may well inform policy makers considering using nudge-based interventions to drive behavior change (e.g., resource conservation and peak-hour traffic). If prosocial incentives decrease participation likelihood, managers, organizations and policymakers attempting to use them might be unpleasantly surprised when they backfire.

We test the effectiveness of prosocial incentives for nudging participation (i.e., extensive margin) across four field experiments using distinct, naturalistic settings, in which we provide individuals with an opportunity to perform an effortful activity or job. The first experiment tests the effectiveness of a prosocial “nudge” (i.e., an *optional* prosocial incentive) relative to a standard incentive. Because previous research has shown a differential effect of incentive size on effort (i.e., intensive margin; Imas, 2014), it is essential to test whether incentive size similarly influences participation likelihood when people can choose whether to keep the money for themselves.<sup>4</sup> The three remaining experiments also examine the effect of mandatory prosocial incentives on the extensive margin.

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<sup>4</sup> Studies using optional prosocial incentives have examined decisions on the intensive margin, finding positive effects (Mellström & Johannesson, 2008; Yang et al., 2014). One quasi-experimental study with recycling machines for bottles allowed people to donate a returnable deposit, instead of keeping it (Knutsson et al., 2013). In a study closest to our research, Lin et al. (2016) asked participants to write about their Thanksgiving in exchange for \$0.50 they could donate to charity, though as the authors state, running the study on Thanksgiving may have confounded participants’ behavior.

Our findings make three contributions: first, they address a gap in the literature on prosocial incentives by testing the effectiveness of these incentives on the extensive margin – an individual’s decision whether to participate in an activity or job. Second, all experiments were run in naturalistic field settings with activities and jobs common to the respective environments (as opposed to, e.g., squeezing a hand dynamometer in the lab as a measure of effort). These factors contribute to the external validity of the findings and implications. Third, we provide a more complete picture of the effectiveness of prosocial incentives by comparing optional and mandatory prosocial incentives to standard incentives, while varying incentive sizes and whether people can choose to donate all or only one part of their earnings.

Our first experiment was run in the field as part of a campaign to encourage people to recycle. We delivered invitations to residents from numerous apartment buildings to participate in a recycling campaign. Residents were randomly assigned to one of seven different incentives to participate: either a standard incentive or a prosocial incentive, varying in size (low, medium, or high). A seventh control condition did not offer a financial incentive. The charitable component of the prosocial incentive was *optional*—we told residents they could choose to donate the financial incentive if they participated in the campaign.

From the perspective of neoclassical economics, the optional prosocial incentive should be at least as effective as the standard incentive. In particular, compared with either a mandatory prosocial incentive or a standard incentive, the *optional* prosocial incentive capitalizes on positive selection: it should attract both people who are driven by the charitable incentive and those who are motivated by the self-benefiting gain. Models of warm glow make similar predictions, as they do not predict a difference between extensive and intensive margins (Andreoni, 1990). However, if individuals prefer to avoid situations where they could be prompted to behave more prosocially than they would otherwise want to, they may choose to avoid an activity altogether. This, in turn, would result in lower participation rates under optional prosocial incentives, compared to standard ones. Indeed, contrary to prior studies demonstrating the effectiveness of prosocial incentives, we found that standard incentives are more effective in motivating participation, across all incentive levels.

Our second experiment tested the effectiveness of prosocial incentives on participation decisions for jobs posted on an online crowdsourcing platform. Crowdsourcing has become a major source of job recruitment for companies in today's economy; many platforms are partnering with large companies to generate a workforce for specific tasks, such as language translation and image tagging (Grewal-Carr & Bates, 2016). In this experiment, we posted a job to populate a database with specific images. Potential workers were randomly assigned to one of six incentive conditions associated with the posted job. Our materials provided no indication that workers' decision to participate in the incentivized job was being studied. As in Experiment 1, we included standard incentives and optional prosocial incentives. In addition, we included mandatory prosocial incentives conditions, where all earnings were donated to charity. Each incentive type varied in magnitude (low versus high). Similar to the results of Experiment 1, the standard incentive generated higher participation for both low and high stakes – i.e., nudging people to participate in an incentivized activity by providing an *option* to donate decreased participation rates. In contrast, and consistent with the proposition that optional prosocial incentives should outperform mandatory prosocial incentives due to the opportunity for positive selection, participants in the optional prosocial incentives conditions were more likely to opt into the job compared with those in the mandatory prosocial conditions. In fact, mandatory prosocial incentives were least effective in motivating participation than any of the other incentive schemes across both high and low stakes. Using a hurdle model, we do find that conditional on opting-in, effort is higher under prosocial incentives when the reward size is low. This result is consistent with prior work on the effectiveness of prosocial incentives along the intensive effort margin (e.g., Imas, 2014; Koppel et al., 2015; Tonin & Vlassopoulos, 2015; Yang et al., 2014).

In the remaining two studies, we examined whether the ineffectiveness of optional prosocial incentives was driven by individuals' concern that upon completing the task, they would donate "too much," compared with their ex-ante preference.<sup>5</sup> Using a similar setup to the one employed in Experiment 2, we included standard, optional, and mandatory incentives. However, in this case the optional and mandatory incentives were designed such that only a small portion of the incentive, rather than the entire amount, would go to charity. The findings were

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<sup>5</sup> Such dynamic inconsistency has been documented in Gneezy et al. (2014).

striking: even including a small prosocial component to the incentive significantly decreased participation rates relative to a standard incentive, regardless of whether the charitable contribution was optional or mandatory.

Our core findings replicate across distinct settings and jobs. Combined, these results show that individuals are less likely to opt into an activity under prosocial incentives than under standard ones. This effect holds when the prosocial incentives are *optional*, contradicting the prediction of individuals positively self-selecting into the most preferred incentive type. Our results may help explain why some research has not found prosocial incentives to be more effective than standard incentives (e.g., DellaVigna & Pope, 2017), arguably because participants could easily avoid the prosocial contract.

Our findings highlight the importance of assessing the effectiveness of prosocial incentive schemes with respect to each of two outcome measures: participation likelihood and effort provision, conditional on participation. From a practical standpoint, our results have implications for the successful design of contracts in managerial and organizational settings and could further be couched in the broader frame of testing the effectiveness of increasing workers' choice set.

## **2. Experiment 1: Recycling Campaign in the Field**

### 2.1 Design and Procedure

Our first experiment incentivized individuals to participate in a recycling campaign. We ran the experiment in a neighborhood with almost no recycling collection, meaning that households wishing to recycle needed to travel to a nearby recycling collection point. Prior to the start of the experiment, we surveyed concierges from 94 buildings to determine the number of apartments in each building (52, on average), whether we would need to obtain permission to drop-off envelopes in residents' mailboxes, and the extent to which there was recycling collection in the building (most apartments did not recycle at all).<sup>6</sup> Using the information obtained in the survey, we selected twenty-five buildings and assigned each to one of two recycling points (ranging from 0.1 to 0.7 miles

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<sup>6</sup> Thirty buildings reported having no recycling options, three buildings reported recycling all recyclable items; the remaining buildings reported recycling one or two items, mainly newspapers and glass.

away). Of the 1202 apartments identified in the 25 buildings, we randomly selected 1000 to participate in our experiment.

We delivered invitations to participate in a recycling campaign—“R-cicla”—to each apartment’s mailbox. Envelopes contained a letter inviting the household to bring recycling items to its assigned collection point on a specified recycling collection day (10-14 days after letters were delivered), and a website to contact with any questions. We further indicated that all information would remain confidential and that we would deliver a reminder a few days before the recycling collection day. In addition to the letter, the envelope contained a flyer with a map to the collection point, and a magnet with the campaign’s name that participants could use to place the flyer on their refrigerators (this was suggested in the letter). Importantly, the letter provided information about the incentive offered (see Appendix Figure A.1). Reminder letters, containing the same message as the original invitation, were delivered to the same mailboxes a couple of days before the recycling collection day.

Using a block randomization procedure by building, we randomly assigned households to one of six conditions varying the type of incentive (standard versus optional prosocial), and incentive level (\$2.5, \$12.5, or \$25).<sup>7</sup> The text of all invitations was identical, including the incentive text (“As a thank you, if you recycle you will receive [amount] in cash”), with the exception of a phrase we added to the prosocial incentive conditions stating, “if you prefer, you can also donate this money to an environmental cause.” A seventh Control condition did not offer cash or a donation option (“As a thank you, if you recycle you will receive an acknowledgment and will be able to know about easy ways you can help by recycling”).

On collection day, each collection point displayed a large banner with the campaign’s name. A research assistant recorded each participant’s ID (linked to their address) and the weight of the recyclables delivered.<sup>8</sup> We rewarded participants according to their assigned experimental condition. We further gave participants in the

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<sup>7</sup> Amounts were in local currency (Chilean Pesos). We show amounts in USD, adjusted by Purchasing Power Parity and using conversion rates at the time of the experiment.

<sup>8</sup> We were unable to weigh all items delivered by each household due to logistical challenges (e.g., individuals placed recyclables directly in the bins, or delivered items in multiple containers).

prosocial incentive condition flyers featuring different environmental organizations they could donate to (see Online Appendix).

Forty-nine households still had the initial invitation letter in their mailboxes when we delivered the reminder letter. Because we could not verify they were exposed to our manipulation, we excluded these households from our analyses. The analyses were conducted with the remaining 951 households.<sup>9</sup>

## 2.2 Results

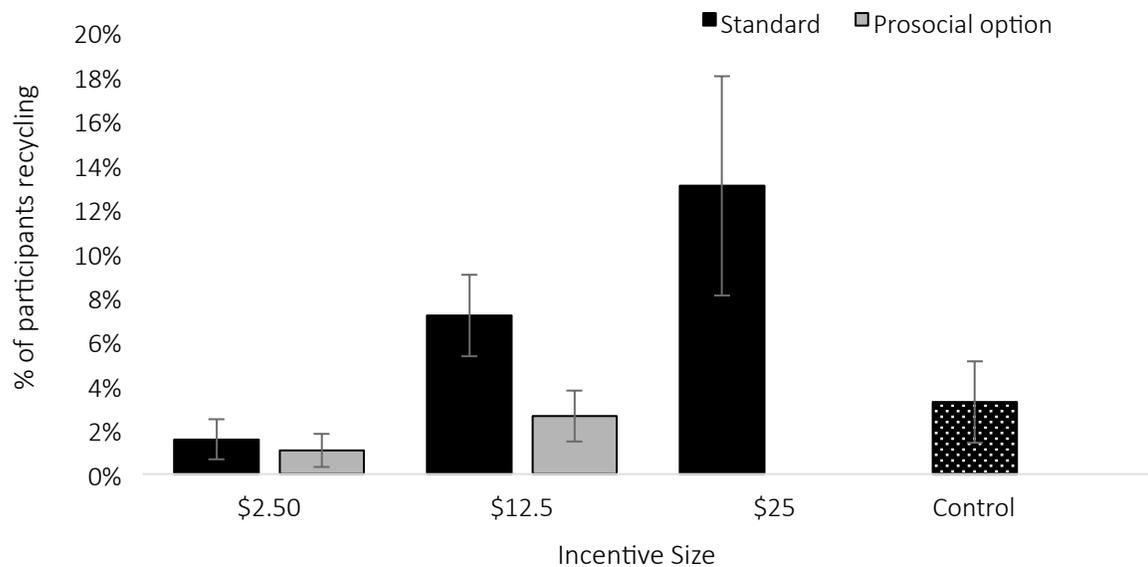
Figure 1 shows the proportion of households that participated in the recycling campaign. Using a two-sided fisher-exact test, we found that across incentive levels, fewer residents participated in the recycling campaign when offered the optional prosocial incentive (1.64%) compared to those offered the standard incentive (5.32%;  $p < 0.01$ ). A pair-wise comparison analysis indicates that at \$25, participation likelihood was *dramatically* lower under the optional prosocial (0%) versus standard incentive (13.0%;  $p = 0.01$ ). For the medium-size (\$12.5) incentive, again, people were less likely to participate in the campaign under the optional prosocial than under the standard incentive (2.6% and 7.2%, respectively;  $p = 0.06$ ). There was no significant difference in participation likelihood under the low (\$2.5) incentive (Optional Prosocial = 1.1%, Standard = 1.6%;  $p > 0.99$ ).

Incentive size influenced behavior only in the standard incentive conditions: More households participated when the campaign offered \$12.5 and \$25, compared to a \$2.5 incentive ( $p = 0.01$  and  $p < 0.01$ , respectively). The difference in participation likelihood between the \$12.5 and \$25 standard incentives was not statistically significant ( $p = 0.23$ ). In contrast, analyses of households in the optional prosocial incentive conditions revealed no differences in participation likelihood (\$2.5 vs. \$12.5,  $p = 0.45$ ; \$2.5 vs. \$25,  $p > 0.99$ ; \$12.5 vs. \$25,  $p = 0.59$ ). Note that this pattern is consistent with prior work showing scope insensitivity in the domain of prosocial behavior (DellaVigna & Pope, 2017; Imas, 2014; Jung, Nelson, Gneezy, & Gneezy, 2017). Of households assigned to the Control condition, 3.3% participated, which was only significantly different from participation likelihood in the \$25 standard incentive condition ( $p = 0.06$ ).

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<sup>9</sup> Results did not vary when we included the entire sample in the analyses (see Online Appendix).

**Figure 1** Participation likelihood, Experiment 1. Error bars represent  $\pm 1$  SE.<sup>10</sup>



To further explore the effect of incentive size on participation likelihood, we used regression models treating the incentive as continuous, ranging from \$0 to \$25. We present the results (Table 1) using a linear probability model (I and II)<sup>11</sup>, and a logit regression (III, IV, V and VI), assuming the probability of recycling to be a rare event for our logit estimation. This estimation penalizes the likelihood produced by a potential bias from a small sample (King & Zeng, 2001). Results from the first two models indicate that when offered standard incentives, households were 0.5% more likely to recycle for every dollar increase ( $p < 0.01$ ). In contrast, households assigned to the optional prosocial incentive were *less* likely to recycle as the reward increased ( $p < 0.01$ ). This analysis produced a significant interaction ( $p < 0.01$ ). Results from the logit estimation are qualitatively similar to those of the linear probability models (see Online Appendix for results with building fixed effects).

The findings from our recycling experiment suggest that prosocial incentives lead to lower engagement on the extensive, participation margin. Notably, these results are inconsistent with standard economic models of

<sup>10</sup> Participation likelihood in the ‘\$25 Prosocial Option’ condition was 0%.

<sup>11</sup> We use a linear probability model because it provides a direct interpretation for the interaction terms (Ai & Norton, 2003).

decision-making, which would predict that having an option to donate would lead to positive selection of individuals motivated by both the prosocial opportunity and by self-serving motives.

Building on the results of Experiment 1, we designed Experiment 2 to a) test the robustness and replicability of our findings in a setting closer to a labor market context, and b) test our proposition that making the prosocial contribution optional offers a conservative examination of the effectiveness of prosocial incentives on the participation margin.

**Table 1.** Treatment effect on the probability of recycling.

DV: Pr(Recycling)	I (all)	II (all)	III (all)	IV (all)	V (no donation message)	VI (donation message)
Donation option message	-0.038*** (0.012)	0.001 (0.018)	-1.210*** (0.422)	-0.324 (0.707)		
Monetary reward (in USD)	0.003*** (0.001)	0.005*** (0.001)	0.066*** (0.021)	0.081*** (0.024)	0.081*** (0.024)	0.009 (0.050)
Donation option × Reward		-0.005*** (0.002)		-0.072 (0.055)		
Constant	0.030*** (0.010)	0.015 (0.011)	-3.55*** (0.315)	0.015 (0.011)	-3.727*** (0.354)	-4.051*** (0.612)
N	951	951	951	951	524	427

\* $p < 0.10$ ; \*\*  $p < 0.05$ ; \*\*\*  $p < 0.01$

Models I and II are linear regression models. Models III to VI are logit regressions, considering:  $\text{logit}(Y_i) = \alpha + \beta X_i + \gamma Z_i + \varepsilon_i$  or  $\text{logit}(Y_i) = \alpha + \beta X_i + \gamma Z_i + \beta X_i Z_i + \varepsilon_i$ , where  $Y_i$  is a dichotomous variable indicating if household  $i$  participated in the recycling program,  $X_i$  indicates whether the household was assigned to an optional donation condition, and  $Z_i$  is the incentive level (\$0 to \$25).

Note: Standard errors in parentheses.

### 3. Experiment 2: Online Labor Market

#### 3.1 Design and Procedure

Individuals ( $N = 1,345$ ) were hired to work on a job using the Prolific Academic online labor market, a UK-based crowdsourcing platform.<sup>12</sup> The job was described as reviewing online image links for a database in exchange for a flat payment of £0.50.<sup>13</sup> The posting did not mention the possibility of being offered an additional job nor of performance-based rewards. We instructed workers (49.7% female; mean age = 32.9,  $SD=11.3$ ) to test ten URLs of images and verify they were working properly, allowing us to generate a research dataset of working links. Once completed, workers were informed they had completed the job and received their code to collect their payment. At this point, all workers were offered the opportunity to work on an unrelated paid job that involved providing URL links of 25 images of animals or wildlife that we could add to our existing database. We used this job to test the effectiveness of incentive type and magnitude on participation likelihood. Note that this was an actual job, similar to those often offered on crowdsourcing platforms.

We randomly assigned workers to one of three incentive conditions: standard incentive (“If you complete this bonus task, we will pay you an additional £[0.01/1.00] beyond what you have already earned”), mandatory prosocial incentive where the entire amount earned would be donated to a charity (“If you complete this bonus task, we will donate £[0.01/1.00] to the Make-A-Wish Foundation, a major charity organization that grants the wishes of children with life-threatening illnesses (<http://wish.org/>)”), or optional prosocial incentive, similar to the one used in Experiment 1, where workers could choose to donate all their earnings to charity (“If you complete this bonus task, we will pay you an additional £[0.01/1.00] beyond what you have already earned and at the end of the task you will have the option to donate this £[0.01/1.00] to the Make-A-Wish Foundation, a major charity organization that grants the wishes of children with life-threatening illnesses (<http://wish.org/>)”). Including the mandatory prosocial incentive condition allowed us to directly test whether the ineffectiveness of prosocial incentives observed in Experiment 1 was due to their optional nature. Also, similar to Experiment 1, each incentive type varied in incentive size: low (£0.01) and high (£1.00). In total, the experiment consisted of six experimental conditions, in a between-subjects design (Appendix Table A.1). Workers who chose to accept the

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<sup>12</sup> See Peer et al. (2017) for analysis and description of this platform.

<sup>13</sup> See Online Appendix for experimental materials for all experiments, as well as descriptions of additional studies conducted before Experiment 2.

job were given the opportunity to quit and forfeit the additional incentive, or to continue searching, after each URL they provided. Once finished, we asked workers assigned to the optional prosocial incentive condition whether they wanted to donate, or keep, their payment.

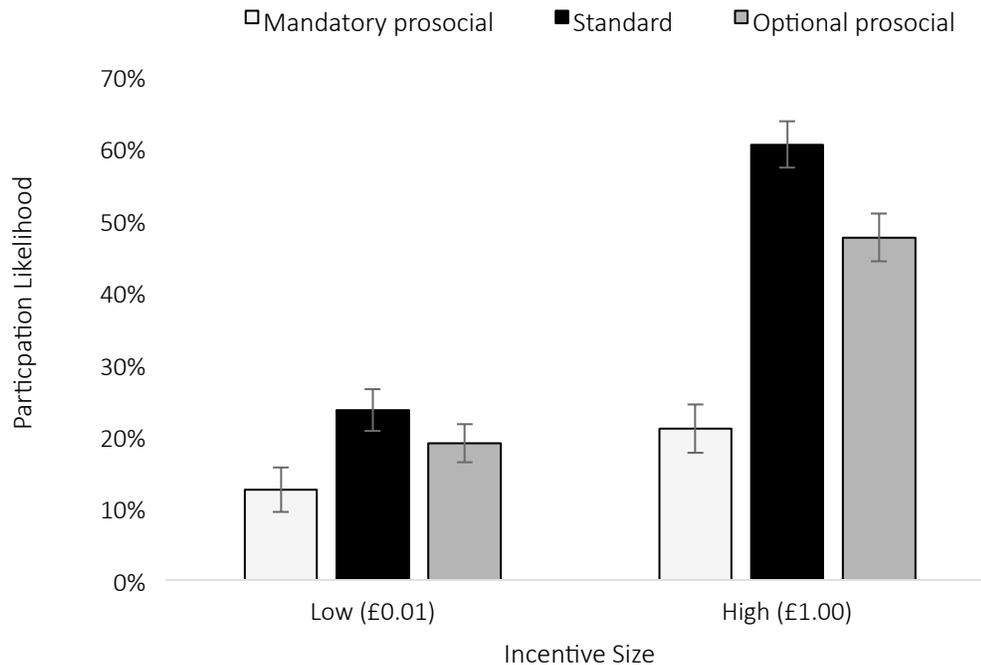
### 3.2 Results

Figure 2 shows the percentage of workers who opted in to the second job, by incentive type and size. Replicating the results of Experiment 1, our analyses showed that when the incentive was high (£1.00), more workers opted in when offered a standard (60.5%) versus optional prosocial (47.6%;  $\chi^2(1) = 7.75, p < 0.01$ ), and mandatory prosocial (21.1%;  $\chi^2(1) = 70.50, p < 0.01$ ) incentive. We further found a significant difference in participation likelihood between the optional and mandatory prosocial incentive conditions, ( $\chi^2(1) = 33.71, p < 0.01$ ), supporting our assertion that the former is a conservative test for the effectiveness of prosocial incentives on the extensive margin. Analyses of participation likelihood under the low incentive (£0.01) revealed similar patterns: Workers were more likely to opt-in when offered a standard (23.6%), compared to a mandatory, prosocial incentive (12.6%;  $\chi^2(1) = 9.48, p < 0.01$ ). Note that this finding contradicts previous research showing that prosocial incentives dominate standard ones when the stakes are low (e.g., Imas 2014). The difference in participation likelihood between the standard and optional prosocial (19.0%) incentives was non-significant ( $\chi^2(1) = 1.38, p = 0.24$ ). Finally, the optional prosocial incentive was again more effective than the mandatory prosocial incentive, with the difference being marginally significant, ( $\chi^2(1) = 3.62, p = 0.06$ ).

An analysis of participation likelihood as a function of incentive level showed that among workers in the standard incentive conditions, participation was greater under the high incentive than the low incentive ( $\chi^2(1) = 62.4, p < 0.01$ ). Incentive size did not influence participation likelihood in the mandatory prosocial incentive conditions ( $\chi^2(1) = 1.6, p = 0.21$ ). Participation likelihood in the optional prosocial incentive conditions was also sensitive to incentive size ( $\chi^2(1) = 41.1, p < 0.01$ ), though to a lesser magnitude than observed under standard incentives. Although speculative, we believe it is plausible that positive selection was more likely to operate when the incentive was high, as a large majority of participants treated the optional prosocial incentive as if it was self-

benefiting: conditional on opting-in, a mere 7.2% of participants in the high optional prosocial incentive condition donated their earnings versus 56.0% in the low optional prosocial incentive condition ( $\chi^2(1) = 27.05, p < 0.01$ ).

**Figure 2** Participation likelihood, Experiment 2. Error bars represent  $\pm 1$  SE.



Recall that workers who opted in could quit before completing the entire job, allowing us to measure effort, despite using fixed compensation contingent on completion.<sup>14</sup> While the analysis conditional on opting-in may be subject to self-selection, it can be informative in comparing the effectiveness of incentives along participation and effort margins.

To examine decisions concerning both margins, we use a truncated-normal hurdle model (Burke, 2009; Cragg, 1971). This model is especially useful in our case because workers deciding to quit mid-task are forfeiting payment (i.e., it is a different decision process than whether to opt-in in the first place). Another benefit of this model is that Tobit models are nested in the hurdle model. Formally, the model is represented by:

$$\begin{aligned}
 y^*_{i1} &= w_i\alpha + v_i && \text{Opt-in decision} \\
 y^*_{i2} &= x_i\beta + u_i && \text{Effort decision}
 \end{aligned}$$

<sup>14</sup> We considered all URLs with “http” or “data:image” as part of the link, and subtracted repetitions.

$$y_i = x_i\beta + u_i \quad \text{if } y_{i1}^* > 0 \text{ and } y_{i2}^* > 0$$

$$y_i = 0 \quad \text{otherwise}$$

where the latent variable  $y_{i1}^*$  represents peoples' decision to participate in the job, and  $w_i$  is a set of factors affecting that decision (in our case, incentive type and size). The latent variable  $y_{i2}^*$  represents participants' effort (i.e., whether they stop or continue searching), and  $x_i$  is also a set of factors, which now affect effort. The variable  $y_i$  is the number of URL searches observed.

Results from our model are shown in Table 2 below. The upper part of the table shows the analysis of participation decisions, as reported above, in a regression framework. As can be seen, relative to a standard incentive, workers in the high incentive condition were less likely to opt-in under optional ( $\beta = -0.33, p < 0.01$ ), or mandatory prosocial ( $\beta = -1.07, p < 0.01$ ) incentives. Participation likelihood was significantly higher under the high optional prosocial incentive compared with the high mandatory prosocial incentive condition ( $\beta = -0.74, p < 0.01$ ). At the low incentive level, workers were also less likely to opt-in under mandatory prosocial incentives than standard incentives ( $\beta = -0.43, p < 0.01$ ). The coefficient for the difference between optional prosocial and standard incentives was also negative, but it was non-significant ( $\beta = -0.16, p = 0.24$ ). Finally, the difference in participation likelihood between the optional and mandatory prosocial incentives was marginally significant ( $\beta = -0.27, p = 0.06$ ).

As shown in the lower part of Table 2 and in Figure 3, the analyses of effort conditional on opting-in reveal that when the incentive was low, workers assigned to both mandatory and optional prosocial incentives worked harder ( $M = 17.8, SD = 10.9$ , and  $M = 15.5, SD = 11.3$ , respectively) than those assigned to standard incentives ( $M = 10.5, SD = 11.4$ ) ( $\beta = 25.62, p = 0.03$  and  $\beta = 19.34, p = 0.06$ , respectively). As previously discussed, this result replicates findings showing that prosocial incentives are more effective at motivating effort than standard incentives when the stakes are low. When incentives were high, there were no significant differences in effort between standard ( $M = 17.8, SD = 10.5$ ) and mandatory prosocial ( $M = 17.2, SD = 11.1; p = 0.56$ ) incentives, or

between the standard and optional prosocial incentives ( $M=16.1$ ,  $SD = 11.4$ ;  $p = 0.24$ ). We acknowledge that due to differences in participation likelihood, these results should be treated with caution.<sup>15</sup>

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<sup>15</sup> Given research suggesting that guilt and image concerns may affect effort under prosocial incentives (Gneezy et al., 2014; Grossman & van der Weele, 2017), we included exploratory measures intended to assess the extent to which guilt and image concerns influenced behavior. We found that guilt partially mediated opt-in rates under high mandatory or optional prosocial incentive, compared to a high standard incentive. Image concerns did not mediate the effect of the optional prosocial incentive on opt-in likelihood. Neither image nor guilt concerns mediated behavior under low incentives. See Online Appendix for detailed descriptions of measures and analyses.

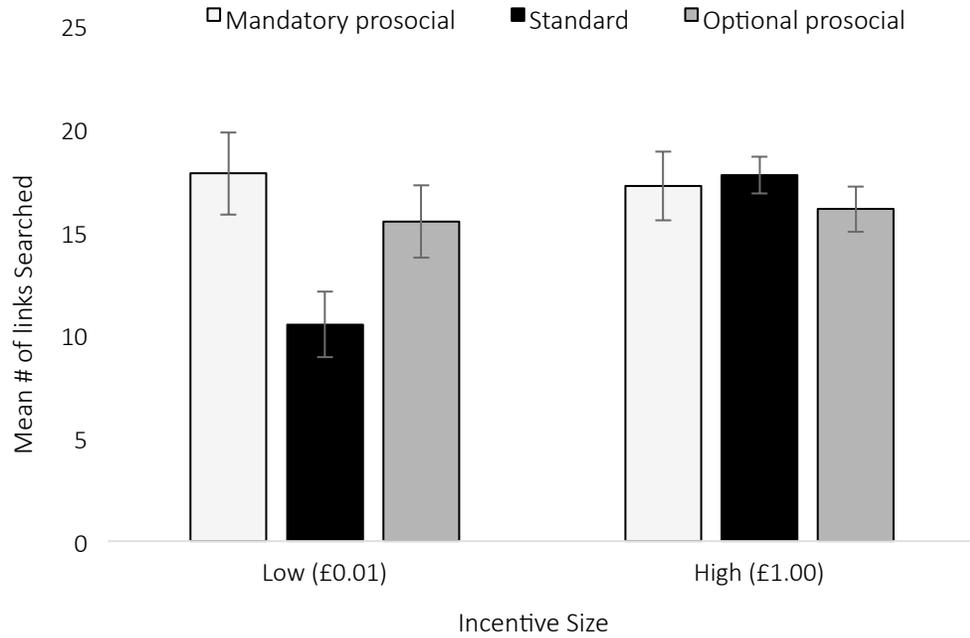
**Table 2.** Effect of incentives on participation likelihood and exerted effort, Experiment 2

Opt-in decision Probit model	I (Low incentive)	II (High incentive)	III (all)
High (amount)			0.986*** (0.125)
Prosocial option	-0.159 (0.135)	-0.327*** (0.118)	-0.159 (0.135)
Prosocial	-0.429*** (0.140)	-1.071*** (0.128)	-0.429*** (0.140)
High × Prosocial option			-0.169 (0.179)
High × Prosocial			-0.642*** (0.190)
Constant	-0.719*** (0.103)	0.267*** (0.083)	-0.719*** (0.094)
Number of searches Truncated regression model			
High (amount)			17.387*** (4.634)
Prosocial option	19.339* (10.381)	-2.838 (2.408)	13.077** (5.403)
Prosocial	25.615** (11.669)	-0.872 (0.784)	17.532*** (5.705)
High × Prosocial option			-16.170*** (6.102)
High × Prosocial			-18.480*** (6.763)
Constant	-21.738 (17.372)	13.310*** (1.956)	-5.507 (5.014)
Sigma	20.481*** (4.311)	14.229*** (1.096)	15.428*** (1.131)
N	676	669	1,345

\* $p < 0.10$ ; \*\*  $p < 0.05$ ; \*\*\*  $p < 0.01$

Note: Standard errors in parentheses.

**Figure 3** Mean number URL links searched, Experiment 2. Error bars represent  $\pm 1$  SE.



Experiments 1 and 2 show the adverse effect of using prosocial incentives, both optional and mandatory, for encouraging individuals to participate in a job or activity. In experiments 3 and 4, we provided workers with an opportunity to donate only a portion of their earnings to examine whether the ineffectiveness of prosocial incentives observed thus far can be attributed to the fact that workers had to donate the *entire* amount earned.

## 4. Experiments 3 and 4: Online Labor Market with Partial Prosocial Incentive

### 4.1 Design and Procedure

In Experiments 3 and 4 we examine whether the ineffectiveness of optional prosocial incentive observed thus far is driven by workers having to decide whether to keep or donate the *entire* amount earned. Both experiments followed the same procedure of Experiment 2, but allowed workers to donate a small portion of the payment while keeping the rest. In Experiment 3, workers ( $N = 916$ ; 54.7% female; mean age = 31.7) were randomly assigned one of four conditions: (1) Standard incentive of £1.00 payment, (2) Standard incentive consisting of a £1.00 payment and an option to donate £0.10 (partial optional prosocial incentive), (3) Standard incentive consisting of a £0.90 payment and a mandatory £0.10 donation (partial mandatory prosocial incentive), and (4) Standard incentive of £0.90. The third condition—offering a partial mandatory prosocial incentive—examines whether workers prefer to avoid choosing whether to donate part of their earnings, while the fourth condition was added to check whether differences are due to an income effect. To examine whether differences between standard and partial prosocial incentives may vary depending on the total amount offered, we also conducted another experiment, experiment 4, using £0.70 (instead of £1.00). In experiment 4 ( $N = 1,208$ ; 57.1% female; mean age = 34.9), workers were offered one of the following incentives: (1) Standard incentive consisting of a £0.70 payment, (2) Standard incentive consisting of a £0.70 payment and an optional £0.10 donation, and (3) Standard incentive consisting of a £0.60 payment and a mandatory £0.10 donation.<sup>16</sup>

### 4.2 Results

Table 3 shows the logit regression models for each experiment (I and II). Because the results of the two experiments did not differ meaningfully, we also include a pooled analysis in Column III. Results indicate that workers were more likely opt-in under a standard incentive (49.0%) than under a *partial* optional prosocial incentive (43.6%;  $p = 0.06$ ) or under a partial mandatory prosocial incentive (42.5%;  $p = 0.02$ ), with no difference across these two ( $p = 0.69$ ). We found that offering an additional £0.10 did not affect participation likelihood in

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<sup>16</sup> We deemed an additional, £0.60 standard incentive condition, unnecessary given that we did not observe an income effect in Experiment 3.

either the standard or partial prosocial incentive conditions. Among those who opted-into the partial optional prosocial incentive, 48.7% donated the £0.10. Finally, there was no difference in the effort expended (i.e., number of links provided) by workers across conditions, consistent with the results observed in Experiment 2 in all the high incentive conditions. These results confirm that workers prefer to avoid prosocial incentives, even when it constitutes only a small fraction of their earnings.

**Table 3.** Effect of incentive on participation likelihood, Experiments 3 (I) and 4 (II)

Pr(opt-in) <i>Baseline incentive: Standard</i>	I (Total amount £1.00)	II (Total amount £0.70)	III (Both)
Partial optional prosocial	-0.442** (0.189)	-0.087 (0.141)	-0.214* (0.113)
Partial mandatory prosocial	-0.263 (0.187)	-0.266* (0.143)	-0.260** (0.113)
Standard lower	-0.212 (0.188)		
Constant	0.160 (0.133)	-0.154 (0.100)	-0.041 (0.80)
N	916	1,208	1,894

\* $p < 0.10$ ; \*\*  $p < 0.05$ ; \*\*\*  $p < 0.01$

“Standard lower” represents the £0.90 standard incentive in Experiment 3, where the standard incentive was £1.00.  
Note: Standard errors in parentheses.

## 5. Discussion

To better understand how prosocial incentives might perform in real-world organizational settings, where mandating charitable donations may not be possible and opportunities to avoid the task are often available, we tested the efficacy of prosocial incentives on individuals’ willingness to participate in an activity or job in the first place. We further examined the effectiveness of a nudge variant of prosocial incentives—an *optional* prosocial incentive—that arguably leverages the best of both standard and prosocial incentives by appealing to both individuals wishing to keep their earnings as well as those wishing to act prosocially and donate them.

Results obtained across four experiments suggest that within the context of real-world settings, prosocial incentives may not be effective at increasing participation; individuals were more likely to avoid activities that involve prosocial incentives relative to standard incentives across all incentive levels. Residents invited to partake in a recycling campaign, as well as individuals invited to complete a job on an online crowdsourcing platform, were less likely to participate when offered prosocial incentives compared to those presented with standard incentives.

Our data further show that making the charitable element of a prosocial incentive optional does not increase participation relative to standard incentives. This finding is in contrast to predictions of standard models, which suggest that by appealing to a broader range of individuals—those interested in working for charity and those interested keeping the payment—optional prosocial incentives should be at least as effective as standard incentives. Instead, we find that optional prosocial incentives are significantly and consistently less effective on the participation margin compared with standard incentives. Finally, we demonstrate that the ineffectiveness of the prosocial incentives as nudges was not because workers offered a prosocial incentive would need to donate the entire amount earned—participation likelihood remained low even when individuals could choose to donate only a small, fixed portion of their earnings.

One potential explanation for the observed ineffectiveness of prosocial incentives on participation likelihood is the negative feelings associated with making tradeoffs between the self-serving and other-benefiting considerations (Berman & Small, 2012). Experiments 3 and 4 attempted to mitigate the negative feelings associated with making tradeoffs between the self and others by reducing the agency individuals feel over the choice between keeping and donating the incentive, however, this did not increase the opt-in rate. It may be that workers perceived the partial mandatory donation as a loss from their earnings, and they therefore preferred to avoid the job. Future work may consider framing the donation differently (similar to a matching bonus). In addition, future research may investigate whether different ‘partial’ donation amounts (e.g., 5% instead of 10% of the earnings) make a difference in worker’s participation decisions.

The current research contributes to our understanding of how monetary incentives influence behavior. In particular, we present evidence showing that prosocial incentives do not increase effort (i.e., intensive margin conditional on participation) in situations where individuals can choose to decline participation in the job/activity in the first place and that attempting to nudge participation by making the prosocial incentive optional is unlikely to have the intended effect. The second contribution of this research is methodological. In contrast to prior research in lab settings, where the decision to opt out or avoid participating would have been awkward or costly, since participants already opted-in by showing up, we tested the effectiveness of standard and prosocial incentives in field settings where the option to avoid participation was easy.

To date, research has focused primarily on the effectiveness of prosocial incentives on effort, implicitly taking participation for granted. Critically, however, before one can decide how much effort to exert in a task, she would first need to choose to engage in it. Consequently, the present research focuses on a question that is of paramount importance to managers and organizations—whether employees would choose to participate in an activity involving prosocial incentives, in the first place. The results obtained in the four experiments described here lead to a definite, unambiguous conclusion: workers are substantially less likely to choose to participate in a task involving prosocial, compared with standard, incentives. In extending the current work, it would be valuable to see how differentially using the two types of incentives—standard and prosocial—across margins would affect effort and performance. Standard incentives can be used on the participation margin—to encourage individuals to opt-in—and prosocial incentives could be used, conditional on participation, to encourage individuals to expand effort. Our findings suggest that a failure to consider these factors could negatively impact the effectiveness of prosocial incentives, relative to self-benefiting ones.

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Appendix

Figure A.1 Sample of recycling flyers (original and translation), Experiment 1



Standard Incentive

“We will wait for you in” [place]  
 [Date and schedule]  
 “As a thank you, if you recycle you will receive CLP\$5,000 in cash.”  
 [Amount varied depending on the experimental treatment]  
 “\*This amount is for selected households, and it can be received only once”  
 [Types of recycling]

Optional Prosocial Incentive

“We will wait for you in” [place]  
 [Date and schedule]  
 “As a thank you, if you recycle you will receive CLP\$5,000 in cash (if you prefer, you can also donate this money to an environmental cause).”  
 [Amount varied depending on the experimental treatment]  
 “\*This amount is for selected households, and it can be received only once”  
 [Types of recycling]

Acknowledgment (no cash)

“We will wait for you in” [place]  
 [Date and schedule]  
 “As a thank you, if you recycle you will receive an acknowledgement and will be able to know about easy ways you can help by recycling”  
 “\*This acknowledgement is for selected households, and it can be received only once”  
 [Types of recycling]

**Table A.1** Experimental conditions, Experiment 2.

	Small incentive (£0.01)	Large incentive (£1.00)
Standard incentive	If you complete this bonus task, we will pay you an additional £0.01 beyond what you have already earned.	If you complete this bonus task, we will pay you an additional £1.00 beyond what you have already earned.
Optional prosocial incentive	If you complete this bonus task, we will pay you an additional £0.01 beyond what you have already earned and at the end of the task you will have the option to donate this £0.01 to the Make-A-Wish Foundation, a major charity organization that grants the wishes of children with life-threatening illnesses ( <a href="http://wish.org/">http://wish.org/</a> ).	If you complete this bonus task, we will pay you an additional £1.00 beyond what you have already earned and at the end of the task you will have the option to donate this £1.00 to the Make-A-Wish Foundation, a major charity organization that grants the wishes of children with life-threatening illnesses ( <a href="http://wish.org/">http://wish.org/</a> ).
Mandatory prosocial incentive	If you complete this bonus task, we will donate £0.01 to the Make-A-Wish Foundation, a major charity organization that grants the wishes of children with life-threatening illnesses ( <a href="http://wish.org/">http://wish.org/</a> ).	If you complete this bonus task, we will donate £1.00 to the Make-A-Wish Foundation, a major charity organization that grants the wishes of children with life-threatening illnesses ( <a href="http://wish.org/">http://wish.org/</a> ).

**Table A.2** Experimental conditions, Experiments 3 and 4

Standard incentive	If you complete this bonus task, we will pay you an additional £[1.00/0.70] beyond what you have already earned.
Partial optional prosocial incentive	If you complete this bonus task, we will pay you an additional £[1.00/0.70] beyond what you have already earned and at the end of the task you will have the option to donate [10%/14%] of this £[1.00/0.70] (£0.10) to the Make-A-Wish Foundation, a major charity organization that grants the wishes of children with life-threatening illnesses ( <a href="http://wish.org/">http://wish.org/</a> ).
Partial mandatory prosocial incentive	If you complete this bonus task, we will pay you an additional £[0.90/0.60] beyond what you have already earned, and donate an extra £0.10 to the Make-A-Wish Foundation, a major charity organization that grants the wishes of children with life-threatening illnesses ( <a href="http://wish.org/">http://wish.org/</a> ).

Note: Between brackets are values, separated by “/”, used in Experiments 3 and 4, respectively. In addition, Experiment 3 included an additional, smaller standard incentive (£ 0.90, same text).