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The price elasticity of charitable giving: New experimental evidence☆

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HIGHLIGHTS

- Measurement of price elasticity of charitable giving under rebate and matching subsidy mechanisms.
- Amazon Mechanical Turk was used to conduct an online survey.
- Intensive elasticity was calculated only for donors' subsample: donors are less responsive to price changes.
- Extensive elasticity was calculated: the probability of giving increases monotonically along with subsidy rates.
- Contributions under matching subsidies are significantly higher than contributions under rebate subsidies.

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ABSTRACT

We examine the charitable giving decisions of donors under two subsidy mechanisms, rebate and matching, and we calculate the price elasticity of giving. We implement an online survey using the Amazon Mechanical Turk platform. Participants are asked to make a series of allocation decisions between themselves and a charity of their choice. We vary endowment and subsidy rates in line with the literature. The results show that contributions under matching subsidies are significantly higher than contributions under rebate subsidies. Participants who usually make a donation are more likely to give and are less responsive to price changes. Moreover, the probability of giving increases monotonically along with subsidy rates.

1. Introduction

Many governments support charities in order to increase private charitable contributions. Adopting a rebate subsidy mechanism is a common way to do this. A rebate subsidy refunds a portion of the contribution to the giver, thereby lowering the effective price of giving. Alternatively, governments can use another incentive mechanism, the matching subsidy. Under this mechanism, the basic-rate income tax paid on the donation of a taxpayer is automatically given to the charity. Giving a refund s_r of a donation is equivalent to matching a donation at the rate of $s_m = s_r/(1 - s_r)$. In case of equivalence of tax rates, the total amount received by the charity should be the same regardless of the subsidy type.

However, several studies on charitable giving have shown that a rebate subsidy leads to lower levels of overall donations than an equivalent matching subsidy, despite the fact that both embody the same donation incentive structure (Eckel and Grossman, 2003, 2006; Davis and Millner, 2005; Blumenthal et al., 2012; Scharf and Smith, 2015; Huck and Rasul, 2011; Karlan and List, 2007; Eckel and Grossman, 2008, 2017).

In our work, we further investigate whether total donations are higher under the matching subsidy by using a survey-based approach that allows us to control for all the factors affecting donation decisions, as in laboratory experiments. Differently from common laboratory experiments, we do not ask university students to participate in our experiment. Rather, we draw our sample randomly from a pool of Amazon Mechanical Turk workers. This useful tool allows us to implement incentive-compatible donation tasks on a very heterogeneous population. Our experiment is thus implemented in a fully controlled environment, and our results are generalizable to a wide population of donors. We ask participants to make allocation decisions under either rebate subsidies

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or matching subsidies. Participants have to choose how to split their endowment between themselves and a popular international charity of their choice. The allocation decision problems vary in endowment and subsidy rates. We then calculate the price elasticities for all the participants (total elasticities) and for a subsample of donors (intensive elasticities), defined as those participants who made a donation under the no-subsidy scenarios. Moreover, we calculate the probability of giving at each subsidy rate (extensive elasticities).

Our contribution to the literature is twofold. First, we provide further evidence on the price elasticities of donation by using a heterogeneous population sample (-0.22 for rebate vs -1.14 for matching). The particular features of our subject pool, which consists of adults of all range of age, education, income, etc., allow us to provide further evidence of the price elasticities of giving. Moreover, our survey approach allows us a great deal of control over the decision environment. The results confirm the findings in the literature: contributions under matching subsidies are found to be significantly higher than contributions under rebate subsidies. Moreover, we find that regular altruistic behaviour increases the probability of making a donation; that males are less altruistic than females; and that older participants donate more than participants younger than 35 in both subsidy types. Finally, strongly Democratic participants are more altruistic than strongly Republican ones under the rebate subsidy. Second, we investigate how the probability of donating depends on the subsidy rate and donor's attitude to donate. We find that the probability of giving increases monotonically along with subsidy rates and that participants who usually donate are more likely to give and are less responsive to price changes.

The remainder of the paper is organized as follows. We present our experimental design and procedure in Section 2 and outline the results in Section 3. Section 4 then discusses the results and concludes the paper.

2. The experiment

2.1. Participants: Amazon Mechanical Turk workers

Our sample was randomly drawn from the Amazon Mechanical Turk (MTurk) platform (Crump et al., 2013; Paolacci et al., 2010). We used questions on experiment rule comprehension. Participants had two opportunities to select the right answer. Participants who selected the wrong answer twice were automatically dropped. Moreover, participants received reminders about this rule, which increased their attention to the experimental instructions.

A total of 333 participants took part in our experiment. We restricted the sample to the USA location. Participants received an invitation email that informed them about the general scope of our research, the type of experiment involved, the average time the experiment would take, and the expected payment. They provided their Amazon ID and a randomly generated code at the end of the experimental tasks that was assigned to them in order to prevent them from taking part in the experiment more than once. The experiment lasted for approximately 15 min. Participants received a fixed payment of USD 0.20 for their participation and an additional payment depending on the decision problem randomly chosen for the payment.

2.2. Experimental design and procedure

Participants were assigned to either the matching treatment, involving decisions with matching subsidies ($N = 151$), or the rebate treatment, involving decisions with rebate subsidies ($N = 182$).[1] In both treatments, participants faced a series of real-donation allocation decisions. There were eight allocation decision problems, each differing by endowment ($1.5 and $2) and by the cost of contributing $1 ($1, $0.80, $0.75, and $0.50). In the rebate sessions, the rates were 0, 20, 25, and 50%. In the matching sessions, contributions were matched at the rate of 0, 25, 33 1/3 and 100%.

We provided participants a list of four very popular international charities to cover a discrete range of possible issues: The Red Cross, WWF, Save the Children, and Doctors without Borders. After all the decisions were made, participants completed a socio-demographic survey. A final online screen showed each participant their final earnings, including the participation fee, and their random code to be claimed in MTurk.[2] On average, participants received a total payment of nearly USD 2. The experiment had no time constraint.

3. Results

3.1. Average contribution by subsidy

Table 1 shows the average gross contribution to the charity by subsidy. The first column indicates the two endowment levels used in the experiment, and the second column shows the corresponding price of giving $1 to the charity. Column A reports the average gross contribution to the charity under the rebate subsidy (not adjusted for the rebate). Column B shows the gross contribution of equivalent allocations under the matching subsidy calculated as $(1 - s_r)$ multiplied by the % of average gross contributions under rebate subsidy. Column C reports the actual average gross contribution to the charity under the matching subsidy. The last column of Table 1 reports the p-value means test for the equivalence of columns B and C.

The average gross contributions under matching subsidy are always significantly higher than contributions under rebate subsidies (p-value < 0.001). Participants never made an equivalent donation; they always donated significantly more under the matching framework. Wilcoxon rank-sum tests and median tests confirm the above result (p-values < 0.001).

3.2. Price and income elasticities

We estimate the price and income elasticity of contributions for the two subsidies (see Table 2). We first consider the entire sample, including those who donated $0; we will refer to these estimated elasticities as "total elasticities". We then run new estimates of price and income elasticities only for the subsample of those who donated an amount greater than zero in the no-subsidy scenario. These elasticities are referred to as "intensive elasticities". We use Tobit maximum likelihood models to account for the censored nature of the dependent variable. Standard errors are clustered on the subject level.[3] The dependent variable for all regressions is the gross contribution to the charity. For the computation of income elasticities, the endowment variable is included in the regression models. Total price elasticity is -0.22 under the rebate subsidy and -1.14 under the matching subsidy. We find slightly lower intensive elasticities for rebate (-0.18) and matching (-1.12), reflecting the lower responsiveness of the donor subsample to price variations. As expected, both total and intensive price coefficients are negative, meaning that charitable giving is decreasing in price.

[1] See Table 1 in the Appendix for the summary statistics.

[2] We adopt the experimental instructions by Eckel and Grossman (2006). See the online Appendix.

[3] All variables enter the model in logarithm form. Therefore, we add a small amount of $0.1 to adjust for zero donations, thus allowing the dependent variable to be expressed as a logarithm.To check the robustness of our results we estimated price and endowment elasticities by using Poisson regression models that allow the dependent variable to have zero values. We obtain similar results.