

# **The Economics of Altruism, Paternalism and Self-control**



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THE ECONOMICS OF ALTRUISM, PATERNALISM  
AND SELF-CONTROL

Anna Breman



STOCKHOLM SCHOOL  
OF ECONOMICS  
HANDELSHÖGSKOLAN I STOCKHOLM

*EFI, The Economic Research Institute*



Dissertation for the Degree of Doctor of Philosophy, Ph.D.  
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To my family



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Stockholm, April 2006  
Anna Breman



## Summary of Thesis



## Introduction

Philanthropy is fashionable - following Bill Gates and Bono, there is a new enthusiasm for giving away money among the rich and famous (The Economist, 2006). Yet, before this trend among the very wealthy, the vast majority of ordinary people made charitable contributions (Andreoni, 2004; Vesterlund, 2006). Why do so many people voluntarily give away their hard-earned money? This is one of the enduring questions in economics. A science based on self-interested behavior does not easily accommodate behavior that is seemingly altruistic.

Economists have shown that charitable giving in many ways is like a purchase of any other commodity. Donations depend on how much we earn and how costly it is to give. Tax deductibility, insurance motives, and status have been shown to influence the level of giving (see, e.g., Andreoni, 2004; Vesterlund, 2006). But selfish motives cannot explain all giving. What about the donor who each month anonymously supports a poor child in a foreign country?

This thesis empirically and experimentally tests altruism, paternalism and self-control in charitable giving. Three of four papers specifically address the question of giving to foreign aid. While there is a vast literature on foreign aid effectiveness (see, e.g., World Bank, 1998), and some literature on government incentives behind foreign aid, (see, e.g., Alesina and Dollar, 2000) there is, to my knowledge, no literature on individual donors' motives for giving foreign aid.

Donor preferences will impact when and how individuals are willing to make contributions and are therefore of importance to policy-makers. For example, a government may want to levy taxes for foreign aid. How can it design policy so as to get support from tax-paying voters? A charitable organization may want to finance a project that last for several years. How does a charity ensure long-term donor commitment? Understanding donor preferences can help answer these types of questions.

Furthermore, knowledge about donor preferences will help economic theorists to model charitable behavior. Traditionally, economists have modeled charitable behavior as a donor contributing to a public good (Hochman and Rodgers, 1969; Kolm, 1969), and more recently as an impurely altruistic donor who cares about a public good but also about the warm-glow he receives from giving (Andreoni, 1989, 1990).

An alternatively approach is to model individuals as caring about the utility of the recipient (see, e.g., Becker, 1981). This thesis shows that donor preferences may often be more complex and that previous theories could be complemented by incorporating, for example, paternalistic preferences and time-inconsistent preferences.

This thesis does not argue that the current level of charitable giving and foreign aid is too low and should be increased nor that it is too high and should be reduced. Whether charitable donations and foreign aid is believed to be effective or detrimental, the question still remains as to what induces people to give their money away. This thesis aims at providing some answers to this question. More specifically, the included papers investigate (1) inter-temporal choice in charitable giving, (2) the interplay between government grants and private donations, (3) paternalistic preferences, and (4) altruism over borders. The following section summarizes in more detail the included papers.

## Summary of Papers

### Paper 1: Give More Tomorrow

Many charities ask donors to commit to monthly contribution schemes. Monthly contributors give a fixed sum every month, which is automatically deducted from their bank account. These donors are the most profitable ones for a charity. On average, they give more than donors who contribute sporadically. They also facilitate the long-run financial planning of the charity, and they reduce the administrative and fundraising costs.

What will influence a donor's decision to commit to a monthly contribution scheme? If the costs and benefits associated with contributing to a charity occur at different points in time, the answer will depend on the donor's inter-temporal preferences. More specifically, it will be of importance whether donors are time consistent or whether they exhibit present-biased preferences.

This paper designs and tests a fundraising strategy that allows for present-biased preferences among donors. The strategy, Give More Tomorrow, was implemented as a randomized field experiment in collaboration with a large charity. 1134 donors that make monthly contributions were randomly assigned to one of two treatment groups. In the first group, monthly donors were asked to increase their donation starting immediately. In the second group, monthly donors were asked to increase their donations starting two months later.

Mean donations were 32 percent higher in the latter group, a highly significant difference. Donations conditional on giving were also significantly higher in the latter group. The effect of the GMT strategy is economically large and highly profitable to the charity.

### Paper 2: Crowding Out or Crowding In?

The crowding-out hypothesis says that private givers, who are also taxpayers, will use their tax-financed donations as a substitute for their voluntary donations, thus reducing the net effectiveness of grants (Warr, 1982, 1983; Roberts, 1984; Bernheim, 1986; and Andreoni, 1988). While theory predicts a one-to-one relationship between

government grants and private donations, econometric and experimental studies have found evidence of partial or no crowding out (see, e.g., Khanna et al., 1995; Payne, 1998; Khanna and Sandler, 2000; and Okten and Weisbrod, 2000). A recent contribution to this literature argues that government grants reduce the organizations' fundraising efforts, which may indirectly cause a decrease in private contributions (Andreoni and Payne, 2003).

This paper employs a previously unexplored panel dataset to test whether government grants crowd out private donations to charitable organizations, controlling for changes in the organizations' fundraising behavior. The data covers all registered charitable organizations in Sweden between 1989 and 2003. We have a total of 361 organizations where the largest group is health related. The panel data allows us to control for unobserved organizational heterogeneity and time fixed effects. Furthermore, we use a 2SLS specification to control for possible endogeneity in government grants and fundraising expenditures.

Complete crowding out can be strongly rejected. In the 2SLS regression, the estimated crowd-out is small and highly significant in the full sample, on average 5.0%. In the disaggregated sample, we cannot reject zero crowding out for any type of organization in the 2SLS regressions. Furthermore, we find strong evidence that organizations are net revenue maximizing, indicating that fundraising activities are efficient.

### **Paper 3: Is Foreign Aid Paternalistic?** (with Ola Granström and Felix Masiye)

In this paper, we experimentally investigate whether donors are paternalistically altruistic when contributing to foreign aid. A paternalist may be defined as someone who advances other people's interests, such as life, health, or safety, at the expense of their liberty or autonomy. In economic theory, a donor is said to be paternalistically altruistic if he cares about a recipient's wellbeing, but does not fully respect the recipient's preferences (Pollak, 1988; Jones-Lee, 1991, 1992; Jacobsson et al., 2005).

In a double-blind experiment, a subject chooses whether to make a monetary or a tied transfer (mosquito nets) to an anonymous household in Zambia. Recipients have revealed preferences for money, as their willingness to pay for mosquito nets is positive but below the market price. A monetary transfer will therefore preserve the household's preferences while a tied transfer is paternalistic.

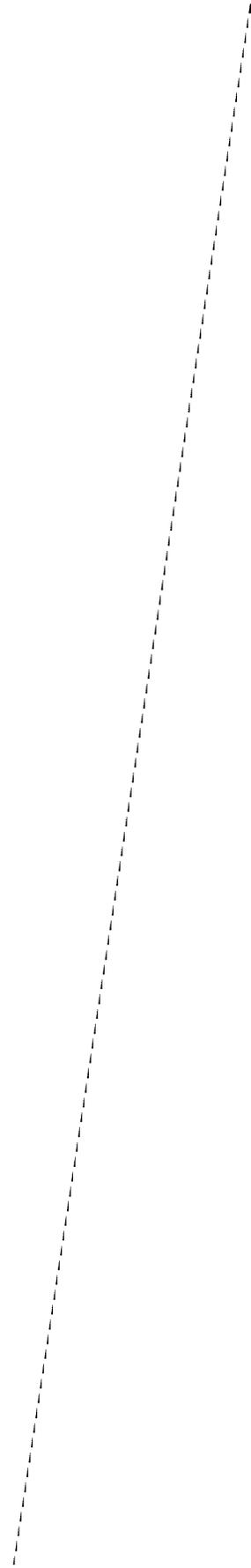
The mean donation of mosquito nets differs significantly from zero, thereby implying paternalistic preferences among donors. Paternalistic donors constitute 65 percent of the total sample, whereas purely altruistic donors constitute 15 percent. We conclude that health-focused paternalistic rather than purely altruistic preferences dominate the foreign-aid giving of individuals.

**Paper 4: Altruism without Borders?** (with Ola Granström)

Why do individuals contribute to foreign aid? Does the willingness to give increase the more we know about the recipients? Although there is some literature on the strategic interests of countries in providing foreign aid, (see, e.g., Alesina and Dollar, 2000) very little is yet known about which preferences guide the foreign-aid giving of individual donors.

This paper experimentally tests altruism over borders. We design a cross-country dictator game where the degree of identification of the recipient is varied in four treatments: (1) anonymity, (2) photo, (3) information and (4) photo and information. In addition, questionnaire data on donor characteristics is gathered.

The mean donation is 55%, which is considerably higher than in standard dictator games. In contrast to previous within-country experiments, we find no significant effect of identification on donations. Furthermore, we find that women donate significantly more than men (64 compared to 50 percent) and that those who state that aid is too large donate significantly less than those who state that aid is too small (24 compared to 67 percent).

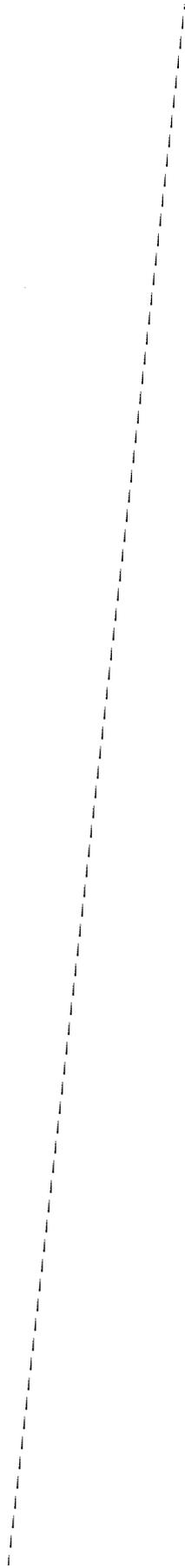


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# Papers



## PAPER 1

# Give More Tomorrow

**ABSTRACT.** This paper designs and tests a fundraising strategy that allows for present-biased preferences among donors. The strategy, Give More Tomorrow, was implemented as a randomized field experiment in collaboration with a large charity. 1134 donors that make monthly contributions were randomly assigned to one of two treatment groups. In the first group, monthly donors were asked to increase their donations starting immediately. In the second group, monthly donors were asked to increase their donations starting two months later. Mean donations were 32 percent higher in the latter group, a highly significant difference. Donations conditional on giving were also significantly higher in the latter group. The effect of the GMT strategy is economically large and highly profitable to the charity.

Key words: Field Experiment, Intertemporal choice, Charitable giving

JEL classifications: C93, L31, D91.

## 1. Introduction

Many charities ask donors to commit to monthly contribution schemes. Monthly contributors give a fixed sum every month, which is automatically deducted from their bank account. These donors are the most profitable ones for a charity. On average, they give more than donors who contribute sporadically. They also facilitate the long-run financial planning of the charity, and they reduce the administrative and fundraising costs.

What will influence a donor's decision to commit to a monthly contribution scheme? If the costs and benefits associated with contributing to a charity occur at different points in time, the answer will depend on the donor's intertemporal preferences. More specifically, it will be of importance whether donors are time consistent or whether they

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exhibit present-biased preferences.<sup>1</sup> While time-consistent donors have a constant discount rate, donors with present-biased preferences will have a relatively high discount rate over short horizons and relatively low discount rate over long horizons.

This paper designs and tests a strategy aiming at increasing donations to a charity by taking into consideration present-bias preferences. The strategy, Give More Tomorrow (GMT)<sup>2</sup>, consists of asking existing donors to commit to an increase in their monthly contributions starting from a period in the future. If the donor agrees to an increase in donations, the higher sum will automatically be deducted from his/her account on a monthly basis.<sup>3</sup>

A simple theoretical framework presents the intuition behind the GMT strategy. We combine a model of impure altruism (see, e.g., Andreoni, 1989, 1990) with a model of present-biased preferences (see, e.g., O'Donoghue and Rabin, 1999). In a model with impure altruism, donors derive utility from the public good to which they are contributing, but also from the act of giving (the warm-glow). The warm-glow from giving occurs when a donor commits to giving, while the public good is realized in a future period. In a three-period model, we compare the donor's optimal contribution in two cases; (1) when the donor is asked to make an immediate contribution, and (2) when the donor is asked to make a contribution in the following period. The model predicts that donors with time-consistent preferences will give the same amount in the two cases, while donors with present-biased preferences can be expected to give more when they are allowed to postpone the payment. Furthermore, we show this prediction to hold, notwithstanding if donors are pure altruists, impure altruists or solely motivated by warm-glow.

The GMT plan was implemented as a randomized field experiment in collaboration with Diakonia, a large Swedish charity. Diakonia was chosen for two reasons. First, the projects financed by Diakonia support long-run sustainable development in poor

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<sup>1</sup> The term "present-biased" preferences is used by O'Donoghue and Rabin (1999) while Laibson (1997) uses the term "quasi-hyperbolic", Krusell and Smith (2003) "quasi-geometric", and Weibull and Saez-Marti (2005) "quasi-exponential". Throughout this paper, the term present-biased preferences will be used.

<sup>2</sup> This name is a tribute to the seminal paper of Benartzi and Thaler (2004) "Save More Tomorrow" that designs a savings scheme that takes into account present-biased preferences and loss aversion. The SMarT scheme significantly increases participants' savings rates. For further discussion on how this paper is related to theirs, see section 3.

<sup>3</sup> There is no end date, but the donor is free to opt out at any time. The average monthly donor remains with this charity for seven years and drop-out rates tend to be very low. To drop out, the donor must call the charity or alternatively his/her bank and ask them to stop the monthly contributions. No written notification is required.

countries.<sup>4</sup> Thus, donors contribute to a public good that will have positive long-run consequences, but no immediate effect. Second, the fact that the recipients are in foreign countries means that donors' motivation to give should stem from altruism or warm-glow rather than from personal consumption or insurance motives.

The field experiment was carried out between October 18 and November 21, 2005 within one of the charity's regular fund-raising campaigns. The donors were randomly divided into two treatment groups, where 553 donors were reached in the first group and 581 in the second. A telemarketing company was contracted to make the calls according to a pre-written manuscript. Two manuscripts were produced that were identical in all respects but the timing of the increase in the donation. In the first group, Give More Now (GMN), donors were asked to increase their donations starting from the next planned payment (November 28). In the second group, Give More Tomorrow (GMT), donors were asked to increase their donation from January 28, 2006. The delay in the payment between the two treatment groups was thus two months.

The results show that both mean donations and the frequency of donations are higher in the GMT group as compared to the GMN group. The mean increase in donations was 32 percent higher in the GMT group, a highly significant difference. Mean donations conditional on giving were also significantly higher in the GMT group as compared to the GMN group, the difference being 19 percent. The frequency of increases in donations was 11 percent higher in the GMT group, but the difference is not statistically significant.

Furthermore, data on donor characteristics is used to perform several robustness tests. The data consists of the age and sex of the donor and the sum donated before the experiment. After controlling for donor characteristics, the GMT treatment is still highly significant in all specifications. Moreover, age and gender are negatively correlated with the level of donations, but the effect is only significant for age. The original sum donated is not correlated with the increase in donations.

These findings are significant for several reasons. First, it shows that donors' behavior is consistent with a model combining present-biased preferences with charitable giving. This gives further evidence that present-biased preferences are an important phenomenon in many economic decisions. The effect of the GMT strategy is not only statistically significant, but also economically large.

Second, the GMT strategy is highly profitable for the charity. A simple calculation reveals that it takes six months of the higher donations in group GMT to compensate

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<sup>4</sup> Two projects presented to the monthly donors as examples of the activities they are financing are (1) Working for debt relief for poor countries, and (2) Farming education for poor individuals in Cambodia so as to make them self-reliant.

for the two months lost. Considering that the average monthly donor remains with the charity for seven years, the GMT scheme is clearly profitable. A revenue maximizing charity should thus consider present-biased preferences among donors.

Third, the results are found in a field experiment. It was implemented as part of a regular fundraising campaign among the existing donors of a well-known charity. The external validity is therefore high.

The remainder of this paper is organized as follows. Section 2 presents the model and section 3 reviews the related literature. Section 4 describes the experimental design, while section 5 presents the results. Section 6 provides a brief discussion and concludes.

## 2. The model

This section presents a simple framework to explain how donors' optimal contribution can be affected by present-biased preferences. The model combines a model of warm-glow giving (Andreoni, 1989, 1990) with a model of present-biased preferences (see, e.g., Rabin and O'Donoghue, 1999).

Charitable contributions have been modeled as an individual deciding how much to contribute to a public good.<sup>5</sup> Even if the recipients of the charity are individuals who receive a private good, charitable giving, motivated by altruism, creates a public good out of charity. The fact that others feel altruistic toward these individuals means that private consumption of these goods becomes a public good. It is not possible to prevent non-contributors from also benefiting, nor is there a cost associated with others enjoying these benefits. The output of the charity is thus non-exclusive and non-rival in consumption.<sup>6</sup>

In the field experiment, a donor decides how much to contribute to foreign aid. The projects financed by Diakonia aim at supporting long-run sustainable development. To emphasize this fact, the charity has chosen to call the monthly donors "Sponsors for Change". Thus, there is a delay between the contribution (the cost) to the charity and the benefit from contributing (the realization of the public good).

There is, however, a second benefit from contributing to the charity, which is the warm-glow the donor may derive from giving. The warm-glow will be experienced at the time of committing to giving. This idea was first mentioned by Andreoni and Payne (2003) who write that "a commitment to a charity may yield a warm-glow to the givers before they actually mail the check. Hence, the benefits can flow before the

<sup>5</sup> See Hochman and Rodgers (1969) and Kolm (1969) for the first papers that argue that charitable giving, motivated by altruism, creates a public good out of giving.

<sup>6</sup> For a more thorough discussion on this topic, see, e.g., Andreoni (2004) or Vesterlund (2006).

costs are paid". In the experiment, we can expect the warm-glow to be realized (1) at the time of payment in the GMN treatment and (2) at the time of commitment to giving in the GMT treatment.

Thus, we have two benefits from giving; the realization of a public good and the warm-glow from giving. In the GMN treatment, the delayed realization from the public good may cause donors to procrastinate and/or give less than the optimal amount. In the GMT treatment, the cost is delayed to help time-inconsistent donors overcome procrastination. Furthermore, the warm-glow now occurs before the payment. These two effects reinforce each other to increase donations in the GMT treatment as compared to the GMN treatment.

This section first presents donors' intertemporal preferences, and then turns to their instantaneous preferences. Finally, we combine the two models and compare the two cases tested in the field experiment. What is the optimal contribution when individuals are asked to "give more now" and when they are asked to "give more tomorrow"?

**2.1. Charitable giving and intertemporal preferences.** Assume that there are  $n$  individuals in the economy. Let  $u_{it}$  be a person  $i$ 's *instantaneous utility* in period  $t$ . A person in period  $t$  cares about her present utility, but also about her future instantaneous utilities. Let  $U_i^t(u_{it}, u_{it+1}, \dots, u_{iT})$  represent person  $i$ 's *intertemporal preferences* from the perspective of period  $t$ , where  $U_i^t$  is continuous and increasing in all components. The standard model in economics is exponential discounting. For all  $t$ ,  $U_i^t(u_{it}, u_{it+1}, \dots, u_{iT}) \equiv \sum_{\tau=t}^T \delta^{\tau-t} u_{i\tau}$ , where  $\delta \in (0, 1]$  is a "discount factor".

Exponential discount functions capture that individuals are impatient, but it assume that they are time consistent, i.e. a person's relative preferences for well-being at an earlier date over a later date are the same notwithstanding when she is asked. But intertemporal preferences might not be time consistent. Instead, people tend to exhibit a special type of time-inconsistent preferences that are called present-biased (O'Donoghue and Rabin, 1999). When considering trade-offs between two future moments, present-biased preferences give a stronger relative weight to the earlier moment as it gets closer. Present-biased preferences can be represented by: for all  $t$ ,

$$(2.1) \quad U_i^t(u_{it}, u_{it+1}, \dots, u_{iT}) \equiv u_{it} + \beta \sum_{\tau=t+1}^T \delta^{\tau-t} u_{i,t+\tau}$$

where  $0 < \beta, \delta \leq 1$ . In this model,  $\delta$  represents long-run, time-consistent discounting while  $\beta$  represents a "bias for the present". If  $\beta = 1$ , then preferences become exponential, while  $\beta < 1$  implies present-bias preferences.

2.1.1. *Charitable behavior.* The model employs Andreoni's (1989, 1990) model of warm-glow giving to characterize charitable behavior. In this model, individuals do not only care about the overall provision of a public good, but also about the act of giving. This is thus a model of impure altruism from which the cases of pure altruism and pure warm-glow giving can be derived as special cases.<sup>7</sup>

Assume that each individual  $i$  in period  $t$  consumes a composite private good  $x_{it}$  and a public good  $G$ . Let an individual's contribution to the public good in period  $t$  be  $g_{it}$  and define  $G_t = \sum_{i=1}^n g_{it}$ . The feature that the individual does not only care about the provision of the public good, but also about the warm-glow  $g_{it}$  from her own donation is captured by directly adding an individual's donation in the utility function:  $u_{it} = u_{it}(x_{it}, G_t, g_{it})$ . For simplicity, it is standard in the literature to assume that there is a simple linear technology that implies a one-to-one transformation from private good to public good (Andreoni 2004). Furthermore, each individual is endowed with money income,  $m_{it}$ . The donor's budget constraint is  $x_{it} + g_{it} = m_{it}$ . The donor then faces the following optimization problem:

$$(2.2) \quad \begin{aligned} \max_{x,g} u_{it} &= u_{it}(x_{it}, G_t, g_{it}) \\ \text{s.t. } x_{it} + g_{it} &= m_{it} \\ G_t &= \sum_{i=1}^n g_{it} \\ g_{it} &\geq 0 \end{aligned}$$

The model is solved by assuming a Nash equilibrium, i.e., it is assumed that each person  $i$  solves the maximization problem taking the contributions of the others as given. Let  $G_{-i} = \sum_{i \neq j} g_j = G - g_i$  equal the total contributions of all individuals except person  $i$ . Then, under the Nash assumption, each person  $i$  treats  $G_{-i}$  as independent of  $g_i$ . Add  $G_{-i}$  to both sides of the budget constraint and to the fourth constraint. The optimization problem can be written with each individual choosing  $G_t$  rather than  $g_{it}$ :

$$(2.3) \quad \begin{aligned} \max_{x,G} u_{it} &= u_{it}(x_{it}, G_t, G_t - G_{-it}) \\ \text{s.t. } x_{it} + G_t &= m_{it} + G_{-it} \\ G_t &= \sum_{i=1}^n g_{it} \\ G_t &\geq G_{-it} \end{aligned}$$

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<sup>7</sup> A donor is said to be *purely altruistic* if she only cares about the public good while *pure warm-glow giving* implies that the donor is only motivated by warm-glow and does not care about the overall level of the public good.

To illustrate how warm-glow can affect the level of charitable contributions, assume that the  $n$  individuals have identical Cobb-Douglas preferences and identical incomes  $m_{it} = m$  that do not change over time. The instantaneous utility function for person  $i$  in each period  $t$  is then

$$(2.4) \quad u_{it} = \ln x_{it} + \alpha_1 \ln G_t + \alpha_2 \ln g_{it}$$

where  $\alpha_1$  is the pure altruism weight, i.e. how much the donor cares about the overall level of the public good, and  $\alpha_2$  is the weight the individual assigns to warm-glow.

We analyze the case with three time periods. In each period, the donor has exogenous income  $m$ . In the first period, the donor must commit to how much to contribute to the public good and the warm-glow from giving is received at the time of commitment. The actual payment will be made in either the first or the second period, while the public good is realized in the third and final period. It is assumed that the donor can make a credible commitment to giving. This is a strong, but realistic assumption in this setting. In the experiment, the amount the donor has committed to giving is automatically withdrawn from the donor's bank account and donors do not default.

We compare the two cases investigated in the field experiment where an individual is asked to either "Give More Today" or to "Give More Tomorrow". The difference between the two cases is reflected in donors' budget constraint. In the first case, donors make a contribution in the first period while in the latter case, the contribution is deducted in the second period.

*2.1.2. Behavior with Immediate Payment.* This section analyzes the case where donors are asked to increase their payments immediately. In the first period, the donor decides on how much to give, makes the payment and receives the warm-glow from giving. The public good is realized in the third period. Substituting the instantaneous utility into the intertemporal utility function, we get:

$$(2.5) \quad \max_{x,G} U^t(u_{i1}, u_{i2}, u_{i3}) \equiv \ln x_{i1} + \alpha_2 \ln g_{i1} + \beta \delta [\ln x_{i2}] + \beta \delta^2 [\ln x_{i3} + \alpha_1 \ln G]$$

$$s.t. \quad x_{it} + G - G_{-i} = m \quad t = 1$$

$$x_{it} = m \quad t = 2, 3$$

Inserting the BC into the utility function and solving for the first-order condition give:

$$(2.6) \quad -\frac{1}{m - G + G_{-i}} + \alpha_2 \frac{1}{G - G_{-i}} + \alpha_1 \frac{\beta \delta^2}{G} = 0$$

Since individuals are identical, the Nash equilibrium gift will be the same for all  $i$ , thus  $G = ng^*$ . The optimal contribution will then be:

$$(2.7) \quad g_{GMN}^* = \frac{\alpha_1 \beta \delta^2 m / n + \alpha_2 m}{1 + \alpha_1 \beta \delta^2 / n + \alpha_2}$$

Taking first derivatives, we see that  $g_{GMN}^*$  is increasing in  $m$ , increasing in  $\alpha_1$  (the parameter of pure altruism), increasing in  $\alpha_2$  (the parameter indicating warm-glow), and decreasing in  $n$  (the number of donors). It is also increasing in  $\beta$  indicating that the more patient is the donor in the short run, the more she gives. Equally, it is increasing in  $\delta$  indicating that the more patient is the donor in the long run, the more she gives.

2.1.3. *Behavior with delayed payment.* This section analyzes what happens if the charity adopts a Give More Tomorrow Strategy (GMT). In the first period, the donor makes a commitment on how much to give, and receives the warm-glow for giving. In the second period, the donor makes the payment and the public good is realized in the third period. The donor now faces the following optimization problem:

$$(2.8) \quad \max_{x,G} U^t(u_{i1}, u_{i2}, u_{i3}) \equiv \ln x_{i1} + \alpha_2 \ln g_{i1} + \beta \delta [\ln x_{i2}] + \beta \delta^2 [\ln x_{i3} + \alpha_1 \ln G]$$

$$s.t. \quad x_{it} + G - G_{-i} = m \quad t = 2$$

$$x_{it} = m \quad t = 1, 3$$

Once more inserting the BC into the utility function and solving for the first-order condition give:

$$(2.9) \quad \alpha_2 \frac{1}{G - G_{-i}} - \frac{\beta \delta}{m - G + G_{-i}} + \alpha_1 \frac{\beta \delta^2}{G} = 0$$

The Nash equilibrium contribution is:

$$(2.10) \quad g_{GMT}^* = \frac{\alpha_1 \beta \delta^2 m / n + \alpha_2 m}{\beta \delta + \alpha_1 \beta \delta^2 / n + \alpha_2}$$

Once more, taking first derivatives, we see that  $g_{GMT}^*$  is increasing in  $m$ , increasing in  $\alpha_1$  (the parameter of pure altruism), increasing in  $\alpha_2$  (the parameter indicating warm-glow), and decreasing in  $n$  (the number of donors). However, it is now decreasing in  $\beta$ , indicating that the less patient the donor is in the short run, the more she gives. The effect of  $\delta$ , the long-run discounting, is ambiguous and depends on the relative strength of the warm-glow parameter  $\alpha_2$  as compared to the pure altruism parameter  $\alpha_1$ .<sup>8</sup>

Furthermore, the only difference between the optimal contributions in the GMN and GMT treatments is the term  $\beta \delta$  in the denominator in (2.10). Thus, we have that  $g_{GMT}^* > g_{GMN}^*$ . The difference between the GMT and the GMN treatments will be greater if donors have present-biased preferences ( $0 < \beta < 1$ , and  $\beta < \delta$ ) as compared to the case with time-consistent preferences ( $\beta = 1$ ).<sup>9</sup>

A special case, which nicely shows the intuition behind the experiment is when  $\delta = 1$ , i.e. when we can assume there to be no long-term discounting (cf. Akerlof, 1991; O'Donoghue and Rabin, 1999). In the field experiment, the delay between the commitment and the payment is a matter of months and a reasonable approximation is then that  $\delta = 1$ . In this case, for individuals with present-bias preferences  $0 < \beta < 1$ , it follows that  $g_{GMT}^* - g_{GMN}^* > 0$ . If individuals are time consistent ( $\beta = 1$ ), then  $g_{GMT}^* = g_{GMN}^*$ .

The model predicts that donors with present-biased preferences will give more in the GMT treatment, compared to the GMN treatment, while donors with time-consistent preferences will give the same amount in the two treatments.<sup>10</sup>

<sup>8</sup>  $\frac{\partial g_{GMT}^*}{\partial \delta} = \frac{\beta m n (\alpha_1 \beta \delta^2 - \alpha_2 n)}{(\alpha_2 n + \beta \delta n + \beta \delta \alpha_1)^2}$ .

<sup>9</sup>  $g_{GMT}^* - g_{GMN}^* = \frac{(1 - \beta \delta) [\alpha_2 m n^2 + \alpha_1 \beta \delta^2 m n]}{(\beta \delta n + \alpha_2 n + \alpha_1 \beta \delta^2)(n + \alpha_2 n + \alpha_1 \beta \delta^2)}$ .

<sup>10</sup> If  $\delta < 1$ , the prediction will be that the difference between the GMT and the GMN treatment will be larger for donors with present-biased preferences as compared to time-consistent donors. How large this difference is will depend on the degree of present-bias among donors, i.e. the size of  $\beta$ . The smaller the  $\beta$ , the higher is the difference between the two treatment groups.

2.1.4. *Pure Altruists versus Warm-glow Givers.* The above analysis assumes that individuals are impure altruists motivated by the realization of the public good *and* the warm-glow from giving. However, individuals might be pure altruists only motivated by the public good, or they might be solely motivated by the warm-glow from giving. We will call this latter group "warm-glow givers".<sup>11</sup> Does this affect the predicted outcome in the experiment?

The optimal level of contribution if all givers are pure altruists ( $\alpha_2 = 0$ ) is, in the GMN case,  $g_{GMN}^* = \frac{\alpha_1 \beta \delta^2 m / n}{1 + \alpha_1 \beta \delta^2 / n}$ , and in the GMT case,  $g_{GMN}^* = \frac{\alpha_1 \beta \delta^2 m / n}{\beta \delta + \alpha_1 \beta \delta^2 / n}$ . Making the same assumption as above that  $\delta = 1$ , i.e. that the long-run discount factor can be approximated by 1, we see that, for individuals with present-bias preferences,  $0 < \beta < 1$ , it follows that  $g_{GMT}^* - g_{GMN}^* > 0$ . For time-consistent individuals ( $\beta = 1$ ),  $g_{GMT}^* = g_{GMN}^*$ .

If, on the other hand, all givers are warm-glow givers ( $\alpha_1 = 0$ ), the optimal giving is, in the GMN case,  $g_{GMN}^* = \frac{\alpha_2 m}{1 + \alpha_2}$ , and in the GMT case,  $g_{GMT}^* = \frac{\alpha_2 m}{\beta \delta + \alpha_2}$ . Once more, for individuals with present-bias preferences  $0 < \beta < 1$ , it follows that  $g_{GMT}^* - g_{GMN}^* > 0$ , and for time-consistent individuals ( $\beta = 1$ ),  $g_{GMT}^* = g_{GMN}^*$ .

Hence, whether donors are motivated by pure altruism, impure altruism or warm-glow giving does not affect the prediction of behavior in the experiment. If donors have present-biased preferences, the GMT treatment should increase donations compared to the GMN treatment. If donors are time consistent, the GMT treatment should have no effect on donations.<sup>12</sup>

### 3. Review of related literature

To our knowledge, there are no studies investigating intertemporal choice in the context of charitable giving. There are, however, some studies using randomized field experiments to examine other aspects of charitable giving and two field studies on present-bias preferences and savings. This section first reviews the field experiments in the literature on charitable giving and then turns to the literature on intertemporal choice and the field studies of savings and discusses how these are related to our study.

<sup>11</sup> Note that, in the case of impure altruism, the impact of pure altruism will become small as the number of donors grows large. As  $n \rightarrow \infty$ , donors will only be motivated by warm-glow. This is consistent with the model in Ribar and Wilhelm (2002).

<sup>12</sup> Once more, if  $\delta < 1$ , the prediction will be that the difference between the GMT and the GMN treatment will be larger for donors with present-biased preferences compared to time-consistent donors. How large this difference is will depend on the degree of present-bias among donors, i.e. the size of  $\beta$ . The smaller the  $\beta$ , the larger is the difference between the two treatment groups.

The field experiments related to charitable giving have investigated different aspects of the demand side of soliciting donations from private donors. List and Lucking-Reiley (2002) investigate the effects of seed money<sup>13</sup> on charitable giving, while Falk (2004) studies charitable giving as a gift exchange. Landry et al. (2005) approach nearly 5000 households in a door-to-door fund-raiser. They find that asking donors to participate in a lottery raised approximately 50% more in gross proceeds than the voluntary treatment.

This study employs the same methodology as the above mentioned field experiments. The experiment is carried out in collaboration with a real charitable organization and donors are randomly allocated into different treatment groups. This field experiment, however, investigates a very different aspect of donor behavior as compared to previous studies.

Laboratory studies of intertemporal choice typically ask a donor to choose between a smaller, more immediate reward and a larger, more delayed reward. The researcher then varies the delay and the amount of the reward. A classic example would be to first ask a subject to choose between \$10 today and \$ 12 in two days. Most subjects then prefer the immediate payment. When asked to choose between \$10 in a week and \$ 12 in one week and two days, the majority of subjects now choose the latter option. This behavior would imply time-inconsistent preferences. Frederick et al. (2002) provide an excellent review of these types of studies. In this field experiment, there would ideally be three treatment groups asking donors in the different groups to increase their donation (1) immediately, (2), in two months, and (3) in four months. If we could observe a difference between immediate payment and payment in two months, but not between two months and four months, this would be evidence of time-inconsistency. The field setting only allows us to use immediate payment versus payment in two months. The result could thus reflect a normal discount rate and does not have to imply time-inconsistency. The magnitude of the implied discount rate will indicate whether the result reflects normal long-run discounting or a bias for the present.

The field study closest to the one in this paper is that by Thaler and Benartzi (2004). They design and implement the Save More Tomorrow (SMarT) plan, which offers employees to commit in advance to allocating a portion of their future salary increases toward retirement savings. The precommitment helps individuals with present-bias preferences overcome their self-control problem, while starting at the time of the next salary increase hinges upon the assumption of loss aversion.

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<sup>13</sup> Seed money implies that the charity first raises part of the money required for a project before they solicit money from the general public. The fact that other donors have already contributed sends a signal to the donors that it is an important project and more donors are then likely to follow as shown in the study.

A related study is conducted by Ashraf et al. (2006) as a field experiment in the Philippines. The SEED (Save, Earn, Enjoy Deposits) scheme helps individuals increase their savings by offering an enforceable commitment device<sup>14</sup> in collaboration with a local bank.

Both the SMarT and the SEED plan offer strong evidence that these commitment devices help individuals save more. The SMarT plan was implemented at three independent companies. For instance, in the first company investigated, the average savings rates for SMarT participants increased from 3.5 percent to 13.6 percent in the course of 40 months. Over twelve months, the SEED plan increased average savings balances by 80 percent for the treatment group, relative to the control group. Both programs thus seem to have had a lasting impact on the participants' savings.

How is this study related to the field studies of savings? The design is closer to that of Thaler and Benartzi (2004) rather than that of Ashraf et al. (2006). Consistent with the SMarT plan, individuals are asked to commit now, but "pay" in the future. However, this paper differs from the SMarT plan in three important respects; (1) The context of charitable giving presents a different range of costs and rewards compared to savings. (2) There is no self-selection problem since donors are randomly selected into different treatment groups. (3) We isolate the pre-commitment effect and do not take into account loss aversion. Other key features of this experiment are discussed in the following section.

#### 4. Experimental Design

The field experiment was carried out in collaboration with Diakonia, one of the largest and most well-known charities in Sweden. Diakonia focuses on international aid. According to its policy document, "Diakonia is a Christian development organization working together with local partners for a sustainable change for the most exposed people of the world" (Diakonia, 2006). It is financed through private donations, but does also receive considerable support from the Swedish development agency SIDA. It has more than two thousand monthly donors. The monthly donors are called "Sponsors for Change" to emphasize the charity's goal to influence long-term sustainable development. This section describes how the field experiment was implemented, its key design features and finally the hypotheses tested.

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<sup>14</sup> The commitment device is a bank account, which restricted access to the deposits until the individual holding the bank account had reached a targeted savings goal.

**4.1. Implementation.** The experiment took place within one of the Charity's regular fund-raising campaigns and aimed at increasing the donors' monthly contributions. It targeted more than 1200 existing monthly donors. The targeted donors were chosen on basis of their not already having increased their donation in the past year and that they were less than 80 years old.

A telemarketing company, specializing in helping charitable organizations, was contracted to call the donors and ask them to increase their donations. The callers followed a pre-written manuscript where they first thanked the donors for contributing to the Charity and then asked if they would consider increasing their monthly donation. Two manuscripts were produced that were identical in all respects but the timing of the increase in the donation.

The donors were randomly divided into two treatment groups. The difference between the two treatment groups was the timing of the increase in the donation. The experiment was carried out between October 18 and November 21, 2005. The monthly contributions are automatically deducted from the donor's account on the 28th of every month. In treatment one, the first increase in the monthly donation then took place on November 28, while in treatment two, the first increase occurred on January 28. The delay in payment between group GMN and group GMT was thus two months. The following citation shows the difference in language between treatment one and treatment two.

**Treatment 1: Give More Now (GMN).** "We would like to ask you, who are a Sponsor for change, if you have the possibility of increasing your contribution?"

**Treatment 2: Give More Tomorrow (GMT).** "We would like to ask you, who are a Sponsor for change, if you have the possibility of increasing your contribution beginning in January 2006?"

If the donor said no, the caller thanked him/her for the current support. If the donor was hesitant, the caller emphasized that any amount, no matter how small, would be valuable and appreciated. If the donor agreed to increase the donation, the caller informed him/her that a letter confirming the change would be sent to the donor, repeating the agreed upon increase in the donation and the date when the first increase would occur<sup>15</sup>. The caller then thanked the donor for her support and wished the donor a pleasant evening/day.

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<sup>15</sup> Note that the letter was sent only to inform the donor of the change. The donor did not have to send any information back to the charity. Since the donor had already given the charity its bank account number, the charity could directly implement the agreed upon change in the monthly contribution.

**4.2. Key design features.** There are three key features of the experimental design; the timing of the increase in the donation, the use of donors that give monthly contributions, and the absence of a binding commitment device.

First, what is the optimal delay between commitment and payment in the GMT group? On the one hand, the lag should be long enough to overcome present-biased preferences. On the other hand, it should be as short as possible to minimize the cost to the charity. In collaboration with the charity, we chose the lag to be two months, as one month might have been too short to overcome present-bias and three months were potentially unnecessarily expensive for the charity. The charity's fund-raising campaign was planned for late October and beginning of November. A two-month lag thus implied January. There was, however, no particular emphasis or justification given to donors for this time lag.

Second, monthly donors were targeted. This was done to minimize the difference in total cost between the two treatment groups. For a donor who contributes every month for many years, the cost difference between the GMN and GMT treatments is negligible. Moreover, the profitability of the GMT strategy hinges upon donors giving over a longer time period. A company that asks buyers to "Buy Now, Pay Later" will generally demand high interest rate payments to compensate for the money lost during the lag between the purchase and the payment. A charity does not have that option. The profitability of the GMT scheme will depend on whether there is a positive effect on donations and whether this effect is sufficiently large to make up for the two months between commitment and payment.

Third, there is no binding commitment device available to the charity. The charity asks donors to make monthly contributions, but the donor is always free to opt out or reduce her contribution.<sup>16</sup> However, there seems to be a substantial status quo bias in donor behavior. The average monthly donor remains with this particular charity for seven years and, unless asked to, it is rare that donors change the level of their monthly contributions (neither upwards nor downwards).<sup>17</sup>

**4.3. Hypotheses.** The results can be analyzed both by the level of donations and the frequency of donations. The main assumption to be tested is that a delay in the first payment increases mean donations against the alternative that there is no effect of the delay. Let  $x_{ij}$  denote a donation of donor  $j$  ( $j = 1, \dots, n$ ) in treatment  $i$  ( $i = 1, 2$ ), where treatment 1 is the "Give More Now" group and treatment 2 is the "Give More

<sup>16</sup> There are some charities that demand a minimum monthly contribution, but many charities, including this one, do not.

<sup>17</sup> We will follow up the two treatment groups after six months to investigate whether there are any differences in drop out rates between the two groups.

Tomorrow" group. Furthermore, let  $\mu_i$  denote the mean increase in treatment  $i$  and let  $f_i$  denote the frequency of positive donations in treatment  $i$ . When a donor decides to increase his/her monthly contribution, we say that a donor *upgrades* the contribution. Then, we test the following three main hypotheses about donor behavior.

**H<sub>1</sub>:** The increase in donations is higher when donors are allowed to postpone the first payment. In other words, the average increase should be higher in treatment 2 (GMT) than in treatment 1 (GMN). Hence, we get the following null hypothesis  $H_1 : \mu_1 = \mu_2$ .

**H<sub>2</sub>:** The increase in donations is higher when donors are allowed to postpone the first payment, conditional on upgrading. In other words, the average increase should be higher in treatment 2 (GMT) than in treatment 1 (GMN) among the donors that upgrade their contributions. Hence, we get the following null hypothesis  $H_2 : (\mu_1 | x_{1j} > 0) = (\mu_2 | x_{2j} > 0)$ .

**H<sub>3</sub>:** The frequency of positive donations is higher when donors are allowed to postpone the first payment. The frequency of donors should therefore be higher in treatment 2 (GMT) than in treatment 1 (GMN). We get the following null hypothesis  $H_3 : f_1 = f_2$ .

The three hypotheses are tested against the alternative that the mean increase in donation is not equal. If, as hypothesized above, mean contributions are higher when the payment is delayed, i.e. if we can reject the null hypotheses that the increases in contributions are independent of the treatment, we may conclude that there is such a thing as a postponement effect increasing the willingness to give.

## 5. Results

More than 1200 donors were called, 553 of which were reached in group GMN and 581 in group GMT. The total number of observations was thus 1134. This section first presents the summary statistics from the experiment and then turns to the statistical analysis and robustness tests. Furthermore, we test how donor characteristics influence the level of donations and whether men and women respond differently to the GMT strategy.

**5.1. Descriptive statistics.** More than 30 percent of the donors contacted through the fund-raising campaign agreed to increase their donations. Figure 1 shows the distribution of donations conditional on upgrading. The median increase in donations was SEK 50 in both treatment groups. However, increases of SEK 100 or more were more common in group GMT relative to group GMN.

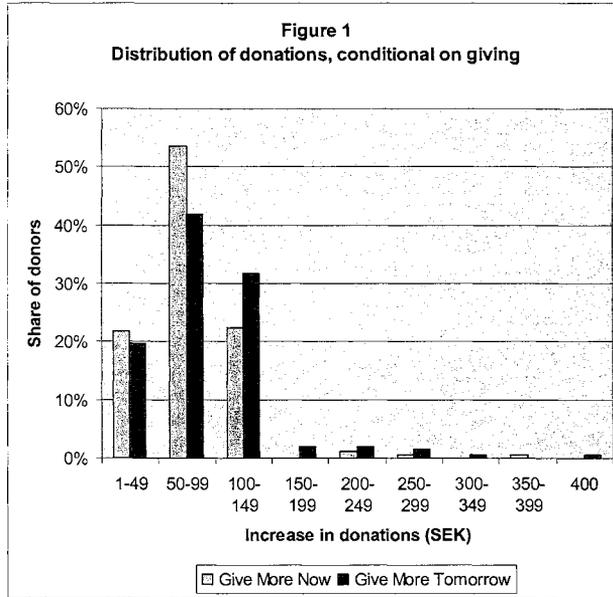


Table 1 gives the summary statistics for the experiment. Mean donations were 32% higher in the GMT group relative to the GMN group. This result is driven by the fact that both average donations and the frequency of donations were higher in the GMT treatment. Mean donations conditional on upgrading were 19% higher, while the frequency of donations was 11% higher.

TABLE 1. Summary Statistics

Treatment group	GMN	GMT	Treatment effect
<i>Increase in mean donation (SEK)</i>	18.6	24.64	32.4%
Standard Deviation	35.84	45.58	
Number of observations	553	581	
<i>Increase in mean donations, conditional on upgrading (SEK)</i>	60.53	72.30	19.4%
Standard deviation	40.54	51.52	
Number of observations	170	198	
<i>Share of donors upgrading</i>	30.7%	34.1%	11.1%

Furthermore, data on donor characteristics is presented in table 2. The average (median) age of the donor participating is 55 (58) years in the GMN treatment and

59 (61) in the GMT treatment. The average (median) contribution before the fundraising campaign took place was SEK 148 (100) and SEK 133 (100) in the GMN and GMT groups, respectively<sup>18</sup>. Women are somewhat overrepresented in the GMT group at 60 percent compared to 52 percent in the GMN treatment. Despite the randomization, there are some differences in donor characteristics.<sup>19</sup> This could cause the results to be biased if women and men behave differently or if age is of importance for charitable behavior. To test whether this is the case, section 5.3 presents the results from regressing the increase in donations on a treatment dummy, controlling for donor characteristics using OLS and Tobit regressions.

TABLE 2. Donor characteristics

Treatment group	GMN	GMT	Full sample
Average age	55	59	57
Median age	58	61	60
Average contribution	148	133	141
Median contribution	100	100	100
Share women	52%	60%	56%

**5.2. Statistical analysis.** This section presents the results from the statistical analysis of the experimental results. Since most donors did not increase their donations, the distribution of increases in donations is highly skewed towards zero. To test equality of means, double-sided t-tests and the non-parametric bootstrap method are used. Unlike t-tests, bootstrapping does not require that the underlying population is normally distributed, only that the observed distribution of the sample is a good estimate of the underlying population distribution (Efron and Tibshirani, 1993). The bootstrapping method consists of drawing with replacement  $N$  independent bootstrap samples from the observed sample. Each new sample is of the same size as the observed sample. For each bootstrap replication, a t-test is calculated. The p-value is based on the number of times the bootstrapped t-test is greater or equal to the original t-test calculated from the observed sample. For the results reported in table 3, 5099 bootstrap replications are used.

<sup>18</sup> SEK 100  $\simeq$  USD 12.

<sup>19</sup> We test whether there are any significant differences in donor characteristics between the two treatment groups. Using t-tests, we cannot reject that the mean donation before the experiment is the same in the two treatment groups ( $p=.20$ ), but we can reject that the average age ( $p=.00$ ) and the frequency of women ( $p=.01$ ) are the same in the two treatment groups.

TABLE 3. Bootstrapping, T-test and Pearson chi2

Null Hypothesis	Bootstrap	T-test	Pearson chi2
	$\mu_1 = \mu_2$	$\mu_1 = \mu_2$	$f_1 = f_2$
<i>Full sample</i>			
p-value	.0096	.013	.23
Number of observations	1134	1134	1134
<i>Conditional on giving</i>			
p-value	.014	.015	
Number of observations	368	368	

Table 3 also reports the Pearson's chi2 test, which is used to test the equality of frequency of donors upgrading in the two treatment groups (D'Agostino et al., 1988). The null is that the frequency of increases in donations is the same in the two treatment groups.

Hypothesis 1 and hypothesis 2 that say that mean donations are equal in the two treatment groups for (1) the full sample and (2) the sample conditional on upgrading can be strongly rejected. The t-tests reject the null hypothesis of equal means in groups GMN and GMT for the full sample ( $p=0.013$ ) as well as conditional on upgrading ( $p = 0.015$ ). Bootstrapping confirms this result. Table 3 shows that we can reject the hypothesis of equal means, both for the full sample ( $p < .01$ ) and for the reduced sample conditional on upgrading ( $p = .014$ ). Hence, the effect on mean donations of allowing donors to Give More Tomorrow is both statistically significant and economically large.

Furthermore, the frequency of donations was higher in the GMT treatment relative to the GMN treatment. It is, however, not possible in a double-sided Pearson's chi2 test to reject the third hypothesis that the frequency of donations is equal in the two treatment groups ( $p=0.23$ ). The significant increase in mean donations was thus mainly driven by an increase in the level of donation, rather than the frequency of donors upgrading.

Is the treatment effect sufficiently large to make this strategy profitable for the charity? Allowing donors to postpone the increase in donation for two months reduces the short-run revenue of the charity. It takes approximately six months of the higher level of donations in group GMT to make up for the two-month delay in payment. More specifically, donors in the GMN group increase their contributions from November and those in the GMT group from January, and the GMT group will thus be profitable in July. From then onwards, the GMT strategy will yield 32% higher donations each month relative to the GMN group. The average "Sponsor for Change" makes monthly

contributions for seven years. The GMT strategy is thus highly profitable for the charity.

**5.3. Regressions controlling for observed characteristics.** To control for donor characteristics, this section regresses the increase in donations on a treatment dummy and the observed donor characteristics. We first run OLS regressions with robust standard errors on the full sample (OLS1) and the sample conditional on upgrading (OLS2). However, since the full sample is censored from below at zero, we also perform a Tobit regression.

The data includes information on the sex and age of the donors and their monthly contribution before the experiment. These donor characteristics can potentially influence behavior in the experiment. In laboratory experiments, such as the dictator game and ultimatum games, women tend to donate more than men.<sup>20</sup> Laboratory evidence on age is scarce.<sup>21</sup> On the one hand, an income effect could cause older, retired donors to give less than younger individuals. On the other hand, many wealthier individuals turn to philanthropy at an older age. The effect of the sum donated before the experiment is not clear either. The original donation can be seen as a proxy for generosity, but it could equally reflect an income effect. It is thus a weak proxy for generosity.<sup>22</sup>

An additional explanatory variable, labeled "nix", is used in the regressions. It is a dummy that equals one for those donors who generally do not want to be approached by telephone salesmen, but who have given their phone numbers to the charity. These donors might be more negative towards fund-raising campaigns conducted by telephone, and can therefore be expected to give less.

The results are presented in table 4. A few results are noteworthy. First, the treatment dummy is significant in all specifications. The coefficient on the treatment dummy in OLS1 ( $p < 0.01$ ) implies that the mean donation is SEK 7.21 higher on average in the GMT treatment relative to the GMN treatment. The treatment effect is higher than in the experiment, where the difference is SEK 6.03.

Second, the gender dummy (which is equal to one for women and zero for men) is negatively correlated with an increase in donations. The effect is large, but insignificant in all specifications except the Tobit regression ( $p < 0.10$ ). Contrary to previous

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<sup>20</sup> See, e.g., Camerer (2003) for an overview of this literature.

<sup>21</sup> There is some evidence on younger children, but evidence on other age groups is rare. See Camerer (2003) for an overview of existing literature.

<sup>22</sup> Ideally, we would have collected data on income and wealth, but the charity does not have that kind of information about their donors. The fact that the study is a field experiment makes it impossible to collect the data through a questionnaire.

TABLE 4. Donors characteristics and sum donated: OLS and Tobit

<i>Dependent variable:</i>	<b>OLS1</b>	<b>OLS2</b>	<b>Tobit</b>
<i>Increase in donation</i>	<b>Full sample</b>	<b>Conditional on giving</b>	<b>Full sample</b>
Constant	30.77*** (5.86)	52.47*** (13.52)	-15.37 (15.39)
Treatment dummy	7.21*** (2.53)	9.92** (4.76)	16.47** (7.08)
Age	-.17** (.08)	-.17 (.18)	-.44* (.22)
Gender	-4.08 (2.55)	-2.44 (4.76)	-12.17* (7.07)
Original donation	.008 (.008)	.18*** (.03)	-.00 (.02)
Nix	-6.51** (2.57)	-16.23*** (4.39)	-12.41 (8.02)
F-test	2.85	11.02	11.37
p-value	(.01)	(.00)	(.04)
R <sup>2</sup>	.017	.173	.002
Number of observations	1134	368	1134

Note: Robust standard errors in parentheses.

experimental results, women seem less generous than men. This result could be driven by the fact the women, on average, have a lower income than men.

Third, age is negatively correlated with the increase in the sum donated in OLS1 and Tobit, indicating that older donors give less. The effect is significant, but small.

Fourth, increases in donations do not seem to be determined by the level of contribution before the experiment. The coefficient on the original sum donated is close to zero and insignificant in OLS1 and Tobit. In OLS2, where only donors upgrading their contributions are included, the coefficient is highly significant ( $p < 0.01$ ) and positive. The effect is very small, however.

Fifth, the variable "nix", indicating reluctance against telephone campaigns is as expected negatively and significantly correlated with the increase of the sum donated. It is noteworthy that many of the donors in this category did increase their donations.

The OLS and Tobit regressions show that the main result, that the GMT strategy has a positive and significant impact on donations, is robust to controlling for donor

characteristics. Moreover, we see in some cases, donor characteristics are weakly related to charitable behavior. Women and older individuals tend to give less. These are also the groups that are somewhat over-represented in the GMT group, which could lead to a downward bias in the experimental results. If anything, the magnitude of the GMT effect was underestimated in the experiment.

**5.4. Gender differences.** The previous section analyzed the effect of donor characteristics on the level of donations controlling for a treatment effect. In this section, we investigate whether men and women respond differently to the GMT treatment itself. More specifically, do women and men exhibit different degrees of present-bias in their preferences?

There is some evidence that this might be the case. Ashraf et al. (2006) conduct a baseline survey before implementing the SEED plan in the Philippines, which indicates that women exhibit a lower discount rate for the future relative to current trade-offs. The study also shows that women, to a larger extent than men, use the commitment savings scheme offered in the experiment.

TABLE 5. Summary statistics, gender differences

Treatment group	GMN	GMT	Treatment effect
<b>Men</b>			
<i>Increase in mean donation (SEK)</i>	20.0	27.8	38.6%
Standard Deviation	35.2	53.9	
Number of observations	268	235	
<i>Increase in mean donations, conditional on giving (SEK)</i>			
	60.3	77.7	28.7%
Standard deviation	36.1	65.4	
Number of observations	89	84	
<b>Women</b>			
<i>Increase in mean donation (SEK)</i>	17.3	22.5	30.4%
Standard Deviation	36.4	38.8	
Number of observations	285	346	
<i>Increase in mean donations, conditional on giving (SEK)</i>			
	60.7	68.3	12.5%
Standard deviation	45.1	38.0	
Number of observations	81	114	

Table 5 presents summary statistics for this experiment, showing the increase in donations for men and women separately. Considering the full sample, we note that the

treatment effect is a 39 percent increase in donations for men, while the corresponding effect is 30 percent for women. The treatment effect conditional on upgrading is considerably larger for men at 29 percent, versus 13 percent for women.

To investigate whether the treatment effect is significant for men and women separately, we once more use t-tests and bootstrapping. The null hypothesis is that mean donations are equal in the two treatment groups (1) for the full sample, and (2) conditional on upgrading. The results are presented in table 6. We see that the difference in the donation is significant for men both for the full sample ( $p = 0.06$ ) and conditional on giving ( $p = .04$ ). The difference is significant for women only for the full sample ( $p = .09$ ) and not for the sample conditional on upgrading ( $p = .23$ ). The corresponding t-tests give the same results.

TABLE 6. Bootstrapping, T-tests, Gender differences

	Bootstrapping		T-test		T-test
	Men	Women	Men	Women	Difference
<b>Null Hypothesis</b>	$\mu_1 = \mu_2$	$\mu_1 = \mu_2$	$\mu_1 = \mu_2$	$\mu_1 = \mu_2$	$\Delta\mu_m = \Delta\mu_w$
<i>Full sample</i>					
p-value	.06	.09	.06	.08	>.10
Number of observations	503	631	503	631	1134
<i>Conditional on giving</i>					
p-value	.04	.23	.03	.22	<.01
Number of observations	173	195	173	195	368

Finally, table 6 also presents the result from testing whether the treatment effect is higher for men than it is for women. The null hypothesis is that the increase in donations in response to the GMT treatment is equal for men and women. For the full sample, we cannot reject that the treatment effect is of the same magnitude for men and women ( $p > .10$ ). However, conditional on upgrading, we can reject that men and women respond equally to the treatment effect ( $p < .01$ ). The result indicates that both men and women exhibit present-bias preferences, but that the effect is larger for men than it is for women. The increase in donations for men is mainly driven by an increase in donations conditional on upgrading, while for women the overall positive effect is driven by an increase in the frequency of donations.

**5.5. Age differences.** As with gender, we want to test whether age may influence the response to the treatment in the experiment. There are potentially two channels through which age may affect behavior. First, learning may move individuals from having present-biased preferences towards time-consistency. If time-consistency increases

with age, we should see that the difference between donations in the GMN and the GMT treatments should be smaller for older donors as compared to younger ones.

Second, the number of months that the donor expects to continue giving should be shorter, the older is the donor. This should cause older donors to give more, on average, than younger ones.

TABLE 7. Summary statistics, age differences

Treatment group	GMN	GMT	Treatment effect	T-test $\mu_1 = \mu_2$ p-value
<b>Young, age &lt;30</b>				
<i>Increase in mean donation (SEK)</i>	15.9	22.2	39.7%	.63
Standard Deviation	50.3	56.9		
Number of observations	55	27		
<b>Middle aged, 30 ≤ age ≤ 60</b>				
<i>Increase in mean donation (SEK)</i>	22.1	29.4	32.8%	.06
Standard deviation	36.0	50.3		
Number of observations	261	256		
<b>Old, age &gt;60</b>				
<i>Increase in mean donation (SEK)</i>	15.3	20.8	35.3%	.08
Standard Deviation	31.3	39.5		
Number of observations	237	298		
<b>Very old, age &gt;70</b>				
<i>Increase in mean donation (SEK)</i>	13.0	17.6	35.6%	.18
Standard deviation	25.4	32.0		
Number of observations	131	152		

Table 7 presents summary statistics for donors by age group. Donors are divided into four age groups related to their income. Young donors (age < 30) are students and those who are relatively new in the labor force. Middle aged (30 ≤ age ≤ 60) represents most individuals participating in the labor force while old are those aged above 60. The legal retirement age in Sweden is 65, but the average retirement age is 61 (RFV, 2004). Finally, there is a category "very old" (age > 70) which is a subgroup to the category "old" where the vast majority can be expected to be retired.

We see that the treatment effect is of similar magnitude in all age groups, but only significant for middle aged and old.<sup>23</sup> These findings contradict learning. Older donors respond by an equal percentage increase in donations as younger donors. Moreover, it

<sup>23</sup> The lack of significance in the other two groups "young" and "very old" is due to small sample sizes (82 and 283, respectively).

is not the case that older donors give more than younger donors, which would be the case if the expected duration of giving were shorter among older donors. Overall, we find no evidence of the response to the GMT treatment differing between age groups.

## 6. Conclusions

This field experiment shows that a charity can boost donations by using a simple strategy allowing donors to precommit to future donations. The Give More Tomorrow strategy increases mean donations by 32 percent. The effect is both statistically significant and highly profitable to the charity.

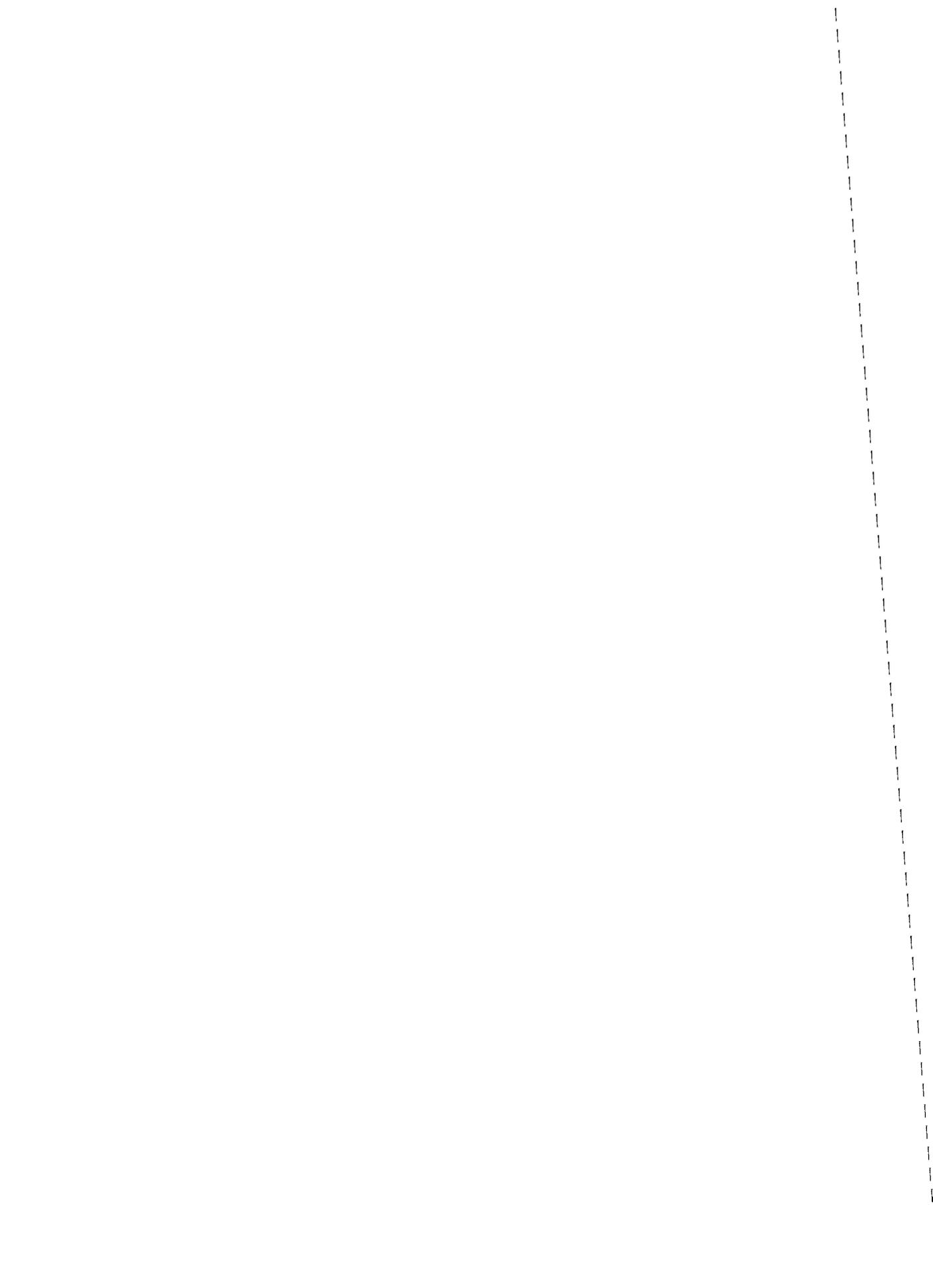
The large effect of the GMT strategy indicates that at least some donors have present-biased preferences. The field experiment does not control for a preference reversal in intertemporal choice, and there are two ways in which this result could be consistent with time-consistent discounting. One possibility is that the donor only plans to give for at most six months, which is unrealistically short compared to observed donor behavior. Another possibility is that the donor has a per-period discount rate of approximately 0.7, which is not consistent with other studies of intertemporal choice. On the contrary, studies of present-biased preferences have found short-run discount rates ( $\beta$ ) around 0.5-0.7 and long-run discount rates ( $\delta$ ) to be about 0.95-0.97, which is more consistent with the findings of this paper (Angeletos et al., 2001; Frederick et al., 2002).

Furthermore, the GMT has a significant impact on donations for both men and women, but the effect is larger for men. There are at least two possible explanations for this gender difference. On the one hand, there might be a difference in the frequency of present-biased preferences among men and women. This hypothesis has some support in other literature (Ashraf et al., 2006). On the other hand, the gender difference can be related to income. On average, men have higher incomes than women and it might therefore be easier for men to increase their contributions. We do see that, for men, the increase in donations is driven by a large increase in the level of donations. For women, the result is mainly driven by an increase in the frequency of upgrading donors, rather than the level of donations.

What do these results suggest for future research? First, it would be interesting to see more research on gender difference and present-bias preferences. Controlling for income could help shed some light on this issue. While income data will be difficult to gather in a field experiment, a laboratory experiment would open up the possibility to control for such variables. Second, what is the effect of the GMT strategy if we test a different population, i.e. donors that have not already committed to giving? This

could be done, for example, by testing the GMT strategy in a campaign aiming at recruiting new monthly donors.

What do our results suggest for policy? From the perspective of the charity, monthly donors are the most profitable. Status quo bias seems to have a large impact on the behavior of these donors. While loyalty and low drop out rates are the advantages, no upward adjustment in the sums contributed is the disadvantage. A revenue maximizing charity should therefore combine monthly contribution schemes with fund-raising campaigns that implement the GMT strategy. The status quo bias will prevent donors from opting out of the scheme, while the GMT strategy will boost their monthly contributions.

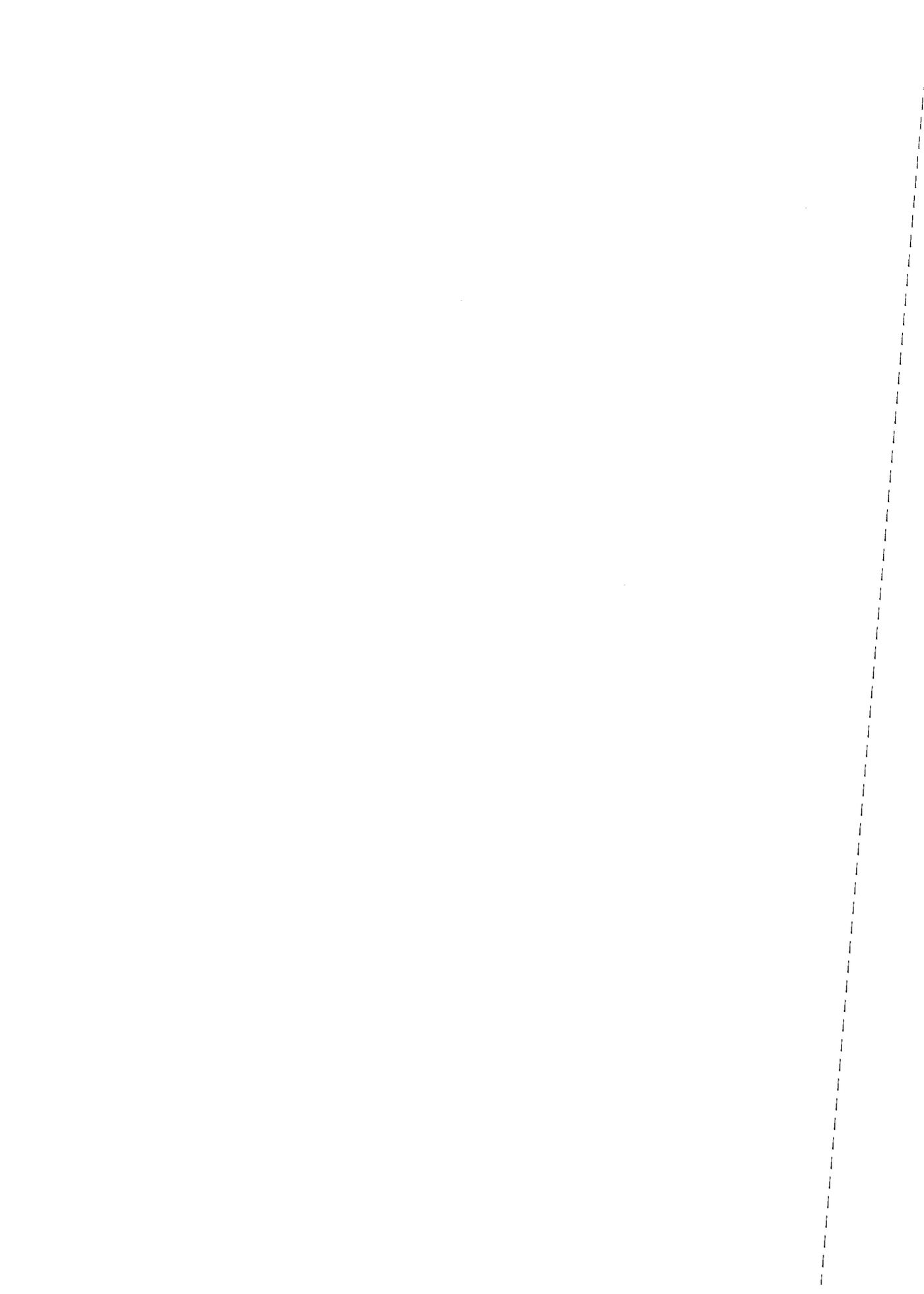


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## Crowding Out or Crowding In?

Anna Breman

**ABSTRACT.** This paper employs a previously unexplored panel dataset to test whether government grants crowd out private donations to charitable organizations, controlling for changes in the organizations' fundraising behavior. The data covers all registered charitable organizations in Sweden between 1989 and 2003. We have a total of 361 organizations where the largest group is health related. The panel data allows us to control for unobserved organizational heterogeneity and time fixed effects. Furthermore, we use a 2SLS specification to control for possible endogeneity in government grants and fundraising expenditures. Complete crowding out can be strongly rejected. In the 2SLS regression, the estimated crowd-out is small and highly significant in the full sample, on average 5.0%. In the disaggregated sample, we cannot reject zero crowding out for any type of organization in the 2SLS regressions. Furthermore, we find strong evidence that organizations are net revenue maximizing, indicating that fundraising activities are efficient.

### 1. Introduction

Charitable organizations are typically financed by a mix of private contributions and government grants. This is the case in the United States where non-profit organizations provide more than 50% of the social services.<sup>1</sup> Lately, European countries such as Sweden have seen an increase in the number of charitable organizations receiving government contracts to provide such services (Statskontoret, 2004). At the same time, the number of charitable organizations has increased.<sup>2</sup> One of the fundamental policy questions in public finance is therefore how government grants to such organizations affect private contributions. Do government grants crowd-out or crowd-in private donations?

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<sup>1</sup> See, e.g., Salomon 1990.

<sup>2</sup> The data set employed in this paper shows that, in Sweden, the number of registered charities has grown by 146 percent between 1989 and 2003.

The crowding-out hypothesis says that private givers, who are also taxpayers, will use their tax-financed donations as a substitute for their voluntary donations, thus reducing the net effectiveness of grants.<sup>3</sup> While theory predicts a one-to-one relationship between government grants and private donations, econometric and experimental studies have found evidence of partial or no crowding out.<sup>4</sup>

A recent contribution to this literature argues that government grants reduce the organizations' fundraising efforts, which may indirectly cause a decrease in private contributions (Andreoni and Payne, 2003). The authors provide empirical evidence that the negative effect of government grants on fundraising activities is sufficiently large to potentially explain the crowding out observed in earlier work.

This paper employs a previously unexplored panel dataset to estimate the effect of government grants on private donations, controlling for changes in the organizations' fundraising behavior. The dataset is a panel of all registered charities in Sweden between 1989 and 2003. We argue that this dataset is particularly suited for this purpose. First, it covers all registered charities in Sweden which have fundraising activities targeted towards the public. Second, to facilitate the public's trust in the organizations, the charities have to undergo yearly supervision and report detailed financial information. Third, the accounting practices are the same for all these charities, which makes the data directly comparable between organizations and over time.

Furthermore, the data allows us to test if crowding out differs between different types of charities. There are 361 organizations in the dataset, which are divided into four categories; (1) health, (2) social services (other than health), (3) international aid and (4) other organizations. The first three groups are the ones we traditionally consider as charitable organizations, supporting homeless, disabled, and conducting foreign aid. The last group mainly consists of charities focusing on protecting the environment or advocating human rights. Although this is a rather diverse group, the common factor is that they are lobbying organizations, rather than social service providers. Typical examples are Amnesty and Greenpeace.

To test whether government grants crowd out private donations, we control for changes in the organizations' fundraising expenditures. We add other time-varying organizational variables as well as organizational fixed effects and year fixed effects. The organizational fixed effects allow us to control for unobserved organizational heterogeneity, such as reputation, while the year fixed effects control for macroeconomic shocks and political effects. A two-stage least squares specification is employed to control for possible endogeneity in the key explanatory variables government grants and

<sup>3</sup> See, e.g., Warr (1982, 1983), Roberts (1984), Bernheim (1986), and Andreoni (1988).

<sup>4</sup> See e.g. Khanna et al. (1995), Payne (1998), Khanna and Sandler (2000), and Okten and Weisbrod (2000).

fundraising expenditures. Finally, we perform several robustness tests, such as tests of instrumental validity, over-identification and autocorrelation.

The empirical analysis reveals that the effect of government grants on private donations is small. For the full sample, we find that government grants have a negative and significant impact on private donations, both in the OLS and 2SLS regressions. The estimated crowding out is, on average, 2.1% and 5.0%, respectively. At the disaggregated level, we cannot reject zero crowding out in most specifications. The exceptions are for *social services* organizations and *other* organizations in the fixed-effect OLS regressions. For *social services* organizations, the estimated crowd-out is, on average, 2.3%. For *other* organizations (mainly environmental and human rights), government grants significantly crowd in private donations, on average, by 6.9%.

Furthermore, we find that organizations are net revenue maximizers, i.e. that a one-percent increase in fundraising costs increases private donations by one percent. This is true for the full sample as well as for health organizations and *other* organizations in all specifications. For *social services* and *international aid* organizations, we can reject net revenue maximization in the fixed effect OLS regressions, but not in the 2SLS regressions.

These results are important for several reasons. First, they strongly reject the hypothesis that government grants completely crowd out private contributions, and it gives further support to the alternative hypothesis that government grants have no/small effect on private donations. In the few cases where we can reject zero crowding out, the negative effect is small. Second, the empirical analysis suggests that organizations are net revenue maximizers and thus, effective in their fundraising efforts. This is a realistic result in a highly competitive market with many new entrants, such as the Swedish one.

This paper proceeds as follows: Section 2 discusses the results from previous studies. Section 3 describes the dataset. Section 4 presents the empirical model for measuring crowding out and section 5 estimates this model. Section 6 provides a brief conclusion.

## 2. Previous literature

The classical model of charitable giving predicts that there is a one-to-one relationship between government grants and private donations. The key assumption in the model is that individuals solely benefit from their private consumption and the realization of a public good. The intuition is that government grants are indirect private

contributions collected through taxes and, as private givers only care about the overall level of the provision of the public good, private donations and government grants should be perfect substitutes.<sup>5</sup>

There are, however, several reasons why complete crowding out might not be observed in the data. First, if the assumption of neutrality between tax-collected contributions and direct private contribution is relaxed by assuming that individuals may derive private enjoyment from the act of giving so-called “warm-glow giving”, the complete crowd-out may fail (Andreoni 1989, 1990; Ribar and Wilhelm, 2002). Ribar and Wilhelm (2002) show that such warm-glow preferences will make the crowding out hypothesis sensitive to the number of donors: a small number of donors (as in an experimental setting) will increase the marginal utility of each individual’s own gift, thus causing complete crowding out. In a setting with many donors, the marginal utility of an individual’s own contribution will be small and the warm-glow effect will dominate biasing crowding-out towards zero.

Second, complete crowding out is also based on the assumption of fiscal transparency. Eckel et al. (2005) argue that donors/taxpayers might not understand the sources and opportunity costs of funding for charities they support, which will cause complete crowding out to fail. In their study, they implement an experiment with two different settings, which are identical except for the framing. Consistent with the crowding-out hypothesis, they report almost complete crowding out when subjects are told that they are “taxed” with contributions to charitable organizations, but partial crowding out otherwise.

Third, government grants can be seen as a signal that a charity is reliable. If the government is perceived as having superior information, this endorsement effect might cause government grants to *crowd in* private donations (Rose-Ackerman, 1982). The crowding-in hypothesis has not been directly tested using the government as a third party donor, but it has been experimentally tested using private third-party donors (List and Lucking-Reily, 2002; Vesterlund, 2003; Potters, Sefton and Vesterlund, 2005). These studies provide strong evidence of an endorsement effect.

A number of experimental and empirical studies have been conducted to test the crowding-out hypothesis. The experimental setting has been that of a public goods experiment. Andreoni (1993) was the first to perform such an experiment finding evidence of partial crowding out. This result was confirmed in a later experiment by Bolton and Katok (1998).

Early empirical literature relied on income tax returns or expenditure surveys as their source of private donations (see Payne, 1998 for an excellent survey of these

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<sup>5</sup> See, e.g., Warr (1982, 1983), Roberts (1984), Bernheim (1986), and Andreoni (1988).

studies), while more recent studies use panel data. Khanna et al. (1995), the first to employ a panel dataset, used a 7-year panel of 159 charities in the U.K., finding no evidence of crowding out. In a more recent contribution using the same U.K. data, Khanna and Sandler (2000) improve upon their previous study by applying 2SLS to control for possible endogeneity of government grants. Once more, they find evidence of crowding in rather than crowding out for the full sample. Payne (1998) exploits a dataset on 430 American non-profit organizations between 1982 and 1992, and also uses a 2SLS specification to control for possible endogeneity of government grants. The estimated crowding out was significantly different from zero, and a one dollar increase in government grants, on average, crowded-out private donations by about 50 cents. Okten and Weisbrod (2000), with data on American non-profit organizations, find that government grants do generally not crowd out private donations. On the contrary, in most industries, there are significant positive effects. No crowding out is equally the result in Ribar and Wilhelm (2002) who use a panel for 1986-93 of 125 international relief and development organizations in the United States. On the other hand, Gruber and Hungerman (2005) find evidence of crowding out in a study on faith-based charity during the great depression. The estimated crowd-out was small as a share of total New Deal spending (3%), but large as a share of church spending (30%).

Among the above mentioned empirical studies, only Khanna et al. (1995), Khanna and Sandler (2000) and Okten and Weisbrod (2000) include fundraising expenditures as an explanatory variable, and none of them consider endogeneity in both government grants and fundraising expenditures.

Andreoni and Payne (2003) argue that the incomplete crowding out observed in most empirical and experimental literature is due to a change in the behavior of the organization, rather than to a change in the behavior of private givers. Using data on American charities, they find that government grants significantly reduce the organizations' fundraising activities. Straub (2004) takes into account the possible effect of government grants on fundraising activities when estimating crowding out for a set of public radio stations in the U.S. The advantage of the public radio data is that it matches household- and firm-level information. The hypothesis that crowd-out is dollar-for-dollar is rejected while the hypothesis that crowd-out is zero cannot be rejected. The study uses cross-sectional data, and it is restricted to one sector. The Swedish data has the advantage of being a panel covering all types of charitable organizations. The following section presents the dataset.

### 3. The SFI Dataset

The data on charitable organizations comes from the Swedish Foundation for Fundraising Control (SFI)<sup>6</sup>. The data covers all registered charities in Sweden that have fundraising activities targeted towards private givers. We have collected data for the period 1989 to 2003, which gives us a panel of 361 organizations over 15 years.

Since the 1940s, Sweden has a system where bank accounts starting with the number 90 are exclusively used for public fundraising by charitable organizations. To receive a so-called 90-account, the organizations must be approved by SFI and thereafter, they have to follow the SFI rules regarding fundraising and undergo yearly supervision. If an organization does not fulfill the statutes, norms and guidelines of SFI, the 90-account is immediately withdrawn. In Sweden, the 90-account is seen as a guarantee of the seriousness of charitable organizations. The benefit of this system is thus that it increases the public's trust in the work of charitable organizations and reduces the risk of fraud. It also facilitates comparisons between organizations and hence, renders it a more reliable dataset for the researcher.

The data in earlier studies faced several measurement problems.<sup>7</sup> We identify a number of ways in which this dataset improves upon the previous literature.

- (1) *It covers all registered charities in Sweden.* Previous studies have used sub-groups of charities within a given country. There is no selection bias in the Swedish dataset due to the type of charities investigated.
- (2) *The data is directly comparable between organizations and over time.* There are no diverging accounting practices between the organizations; SFI has detailed guidelines on how to report on the economic activities of the organization. All economic reports are controlled by a certified auditor according to SFI's specific directives.
- (3) *There are more than 20 financial variables in the dataset.* The richness of the dataset allows us to control for organization-specific variables that may influence the behavior of the charity itself as well as private givers and government decision makers. Such variables include, for example, financial assets, membership fees and debts.
- (4) *Program service revenues are included in government grants.* One of the major difficulties in the earlier studies using U.S. data is that program service revenue is not included in government grants. Program service revenue is payment for

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<sup>6</sup> See <http://www.insamlingskontroll.a.se/>. The Swedish name is "Stiftelsen för Insamlingskontroll". This non-profit organization is financed through contributions from the charitable organizations entitled to use a 90-account.

<sup>7</sup> See Andreoni and Payne (2003) for an overview.

specific services performed by a charity under a government contract. It is thus taxpayers' money and should cause crowding out to the same extent as other government grants.

- (5) *Fundraising expenditures* are only used towards the collection of private donations and there is a clear separation between fundraising costs and administrative costs. In the U.S. data, it is unclear whether fundraising may also include the costs associated with applying for government funding or even the costs of reporting and complying with the grants. In the Swedish dataset, this problem does not arise since it is clearly specified in the instructions to the organizations that fundraising expenditures should show the "costs that the organization has incurred to collect the donations accounted for from the public".<sup>8</sup>

Although the dataset comes to terms with several of the potential sources of measurement errors in earlier studies, it is not without problems. A problem of this dataset is the fact that government expenditures can include donations from other charitable organizations. This is done for accounting purposes, however. The headquarters of large organizations with regional offices generally receive some of the money collected regionally. To avoid that these private contributions are counted twice (first at the regional level and then at the national level), thus overstating total private contributions, these donations are added to government grants instead of private contributions. Therefore, we exclude those organizations representing headquarters of large organizations with regional offices (for example, the Red cross, the Salvation Army).

Moreover, this dataset shares the disadvantage of the U.S. datasets that there are many zeros reported in the measurements of interest. Some data cleaning is therefore necessary. Organizations are excluded according to these (sequentially followed) rules:

- (1) All organizations with two or fewer years of observations in the sample (77 organizations, 107 observations).
- (2) All organizations that are national headquarters of regional organizations (6 organizations, 82 observations).
- (3) All organizations that report zero government grants for all years for which the organization is in the sample (103 organizations, 835 observations).

This leaves 2503 observations and 252 organizations, where 78 organizations (845 observations) are health-related, 51 (515) social services, 70 (652) international aid, and 53 (491) other organizations. Health-related are those organizations delivering health services or supporting health-related research, such as The Swedish Cancer Society<sup>9</sup>.

<sup>8</sup> SFI's accounting guidelines 2002.

<sup>9</sup> Cancerfonden.

The social services organizations are those delivering social services such as food and shelter. In this group, we find organizations such as the Red Cross and Stockholm's City Mission (where the latter primarily targets the homeless). The international aid organizations work in many fields such as education, health and humanitarian aid. For example, SOS Children's Villages finance housing, education, food and health care for orphans in developing countries. The last category "Other" organizations mainly consists of environmental and human rights organizations including, among others, Greenpeace, the World Wide Fund for Nature (WWF), Amnesty and the Swedish Peace and Arbitration Society<sup>10</sup>. In this group, we equally find some missionary organizations that do not carry out any social work, but focus on delivering bibles and preaching. Tables 1 and 2 show the number of organizations (number of observations within parentheses) that are religious or non-religious and whether the recipients of aid are domestic, foreign or both.

From table 1, we see that the religious organizations are in minority, representing 19 percent of all organizations. Moreover, the religious organizations are mainly found in the categories "social services" and "other" organizations.

TABLE 1. Cause and Religion

<i>Class</i>	<i>Religious</i>		<i>Total</i>
	<i>No</i>	<i>Yes</i>	
Health	77 (840)	1 (5)	78 (845)
International aid	54 (465)	16 (187)	70 (652)
Social Services	36 (347)	15 (168)	51 (515)
Other	38 (315)	15 (166)	53 (491)
<i>Total</i>	<i>205</i> <i>(1977)</i>	<i>47</i> <i>(526)</i>	<i>252</i> <i>(2503)</i>

Regarding the division of organizations working domestically and those targeting foreign recipients, we see in table 2 that the majority of organizations are domestically oriented. However, 39 percent of the charities target their funds to foreign or both foreign and domestic recipients.

<sup>10</sup> Svenska Freds- och Skiljedomsföreningen.

TABLE 2. Cause and Targeted Recipients

<i>Class</i>	<i>Recipient</i>			<i>Total</i>
	<i>Domestic</i>	<i>Foreign</i>	<i>Both</i>	
Health	78 (845)	0 (0)	0 (0)	78 (845)
International aid	0 (0)	70 (652)	0 (0)	70 (652)
Social Services	45 (463)	0 (0)	6 (52)	51 (515)
Other	30 (218)	17 (200)	6 (73)	53 (491)
<i>Total</i>	153 (1526)	87 (852)	12 (125)	252 (2503)

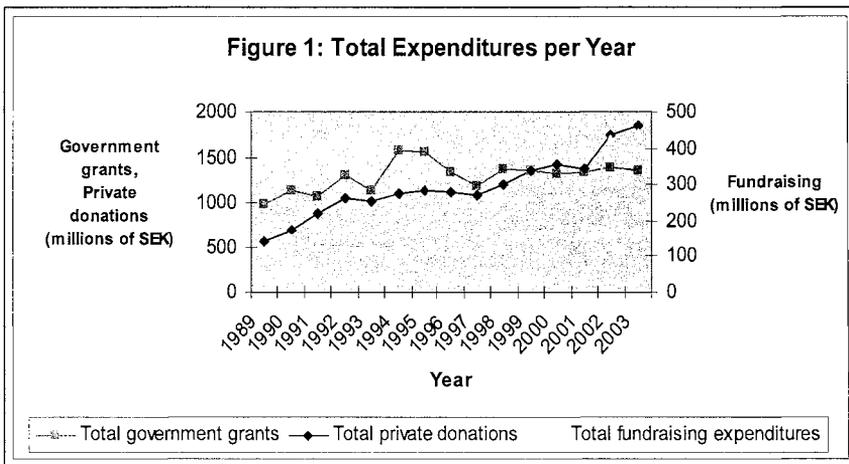
Table 3 reports summary statistics for the five main categories separately. The sums reported are adjusted for inflation, using the Consumer Price Index provided by Statistics Sweden.<sup>11</sup> 1990 is the base year. Mean donations of government grants are the highest to international aid organizations at SEK 11.2 million per organization per year, followed by opinion/lobby organizations at SEK 9.55 million. Government grants to health organizations are the lowest at SEK 3.96 million per year.

TABLE 3. Summary Statistics

	<i>Number of firms</i>	<i>Number of observations</i>	<i>Mean (SEK 1,000)</i>	<i>Standard deviation</i>
<i>Health</i>	78	845		
Total private donations			3465	7230
Total government grants			3960	11149
Total fundraising expenditures			972	3631
<i>International aid</i>	70	652		
Total private donations			10881	25332
Total government grants			11186	39138
Total fundraising expenditures			1594	5524
<i>Social Services</i>	51	515		
Total private donations			6733	14178
Total government grants			7918	33831
Total fundraising expenditures			851	2969
<i>Other</i>	53	491		
Total private donations			8376	15091
Total government grants			9551	24624
Total fundraising expenditures			1068	3346

<sup>11</sup> The Consumer Price Index is available at Statistics Sweden's website [www.scb.se](http://www.scb.se).

Finally, graph 1 shows the yearly trend in total expenditures for our key variables government grants, private donations and fundraising costs. Since fundraising expenditure is considerably lower than private donations and government grants, it is measured by the scale on the right-hand side of the graph, and the other two are measured on the left-hand side. While private donations and fundraising expenditures have increased over time, government grants have remained at a more constant level and even decreased in some years. From this graph alone, we cannot see any clear indication that private donations have declined when government grants have increased or vice versa. The following section gives the empirical specification used to test the crowding-out hypothesis.



#### 4. Empirical Specification

The data matches private donations and government grants organization by organization. All data is reported on a yearly basis, and includes other organizational specific characteristics that vary over time which might influence private donations, such as fundraising expenditures and membership fees.

Several U.S. studies (see, e.g., Payne, 1998; Payne and Andreoni, 2003) focus on state-level charities and therefore include time-varying economic and political indicators at the state level. However, this approach is not suitable for the Swedish context for the following reasons. First, Sweden is a small homogenous country and most charities are nation-wide, targeting the entire population in their fundraising efforts.

Second, regional income differences are relatively small in Sweden due to extensive redistribution at the national level. We will lose many organizations if we only include those specific to a certain region, and little will be picked up due to small variations in regional variables.

We utilize the following empirical model to test the crowding-out hypothesis:

$$P_{it} = \alpha + \beta Gov_{it} + \delta F_{it} + \mathbf{Z}_{it}\boldsymbol{\gamma} + \mu_i + \nu_t + \varepsilon_{it}, \quad (1)$$

where  $P_{it}$  denotes private donations received by charitable organization  $i$  at time  $t$ .  $Gov_{it}$  is the government grants received by the charitable organization and  $F_{it}$  is fundraising expenditures by the charitable organization, directed at private donations.  $\mathbf{Z}_{it}$  represents the vector of other revenue and/or expenditure measures at the organizational level.  $\mu_i$  and  $\nu_t$  represent the unobserved heterogeneity at the organization- and time-level, respectively. The crowd-out parameter is measured by  $\beta$ , i.e. the coefficient on government grants.

We estimate this specification with ordinary least-squares (OLS) and two-stage least-squares (2SLS). Since we have a panel dataset, we include organization and year fixed effects. The organization fixed effects are incorporated to control for time-invariant heterogeneity in the charities, such as their reputation, age and method of operation that may affect the collection of government grants. The year-fixed effects capture the macro-level time varying shocks that affect all charities similarly, such as nation-wide economic shocks and political measures.

In addition to the above measures, we included various measures to help control for time-varying changes at the organizational level. For all organizations, we include fundraising expenditures, membership fees, and the price of giving.

It has been shown that organizations might devote fewer resources to fundraising after receiving government grants (Andreoni and Payne, 2003). Therefore, we are particularly interested in fundraising expenditures. An organization's fundraising expenditures include salary costs and marketing expenditures directly targeted at increasing private donations. We can test whether the organizations are net revenue maximizers, i.e. whether a one-percent increase in fundraising expenditures increases private donations by one percent. The coefficient on fundraising expenditures should then be equal to one. If it is larger (smaller) than one, less (more) than the optimal amount is spent on fundraising.

Moreover, we include membership fees in the regressions. Fundraising, particularly in smaller organizations, is sometimes done on a voluntary basis. Membership fees can be seen as a measure of the amount of voluntary activity within an organization.

Including this measure helps control for voluntary activities not included in fundraising expenditures. On the one hand, it can thus be expected to increase private donations, while on the other hand, membership fees might crowd out other private giving by volunteers who consider their free time as their main contribution. The expected net effect of membership fees on private donations is therefore uncertain.

Finally, we include the price of giving, which is defined as

$$P = 1/[1 - (f + a)], \quad (2)$$

where the denominator denotes the proportion of the charity's total expenditure spent on charitable output (Weisbrod and Dominguez, 1986). In equation (2),  $f$  and  $a$  denote the proportions of total expenditure used for fundraising and administration, respectively. Unlike the U.S. and the U.K., charitable contributions are not tax deductible in Sweden (neither for private individuals nor for companies). Therefore, we can disregard the marginal tax rate in the price of giving.

We take the first-differences of equation (1) to eliminate unobserved heterogeneity at the organizational level. Time fixed effects are controlled for by using dummy variables for each year (excluding the first year). The first-difference estimator rather than the within-estimator is chosen, since first-differencing is more appropriate if we want to use lagged variables as instruments in the 2SLS specifications (Wooldridge, 2002). The empirical specification is thus

$$\Delta P_{it} = \beta \Delta Gov_{it} + \delta \Delta F_{it} + \gamma \Delta \mathbf{Z}_{it} + \nu_t \zeta + \Delta \varepsilon_{it}, \quad (3)$$

where  $\Delta P_{it} = P_{it} - P_{it-1}$ ;  $\Delta Gov_{it} = Gov_{it} - Gov_{it-1}$  and so on.

**4.1. Measurement issues.** We identify two regulations affecting the fundraising behavior of charitable organizations. (1) The 25 percent rule: according to SFI rules, fundraising and administrative costs combined cannot exceed 25 percent of total expenditures. (2) Matching grants: government grants often come in the form of matching grants, which requires the organization to raise money from private sources to qualify for grants.

First, the 25 percent rule is enforced to ensure that the money collected reaches the targeted cause and does not unduly benefit the administrators of the charities through, for example, excessive salaries. This upper limit on administrative and fundraising costs might counteract the possible negative effect of government grants on fundraising expenditures. Receiving government grants will increase total expenditures and thus, the share that can be spent on fundraising and administration.

Second, government agencies impose matching grants to counteract the negative impact that their grants may have on fundraising efforts. If matching grants are common and have the intended effect, we might not observe that government grants crowd out private donations through lower fundraising efforts. In this dataset, we know that the grants distributed through the Swedish development agency SIDA are predominantly matching grants. 10-20 percent of a project sponsored by SIDA must be raised through private contributions. Those grants are mainly given to international aid organizations, but can also be found among other charities targeting both domestic and foreign recipients. Unfortunately, the exact extent of matching grants among SIDA and other (non-SIDA) government grants is not known.

These two effects might influence how government grants affect fundraising expenditures and thus, indirectly private donations. The crowding out estimated in the following section controls for changes in fundraising expenditures. This effect should thus reflect “classic” crowding out, i.e. the direct effect of government grants on private donations.

## 5. Estimation

In estimating equation (3), there are two potential problems; serial correlation and endogeneity. Serial correlation in the error process is a common problem in panel data and, if present, the standard errors can be severely biased (see, e.g., Kézdi, 2003). We perform the Wooldridge test for autocorrelation in panel data (Drukker, 2003; Wooldridge, 2002, p. 283). If there is no serial correlation in the original dataset, taking first differences causes serial correlation in the error terms equal to -0.5. Therefore, we can take the first-differences and test whether the correlation in the error terms is equal to -0.5. The null is that there is no serial correlation. No serial correlation can be rejected ( $p < 0.01$ ). A reasonable assumption is that the error terms are serially correlated within each organization, but not in-between organizations. Therefore, we use robust standard errors controlling for serial correlation within each organization, but not in-between different organizations. In addition, the calculated standard errors are robust to arbitrary heteroskedasticity.

Furthermore, endogeneity might arise for two reasons. First, private donations and government grants might be jointly determined. For example, after a catastrophe such as a hurricane, the services of a social services organization (e.g. the Red Cross) are in high demand. Contributions are thus likely to be sought from both private givers and government donors. In other words, unmeasured influences, which only

influence a subset of organizations, may be increasing both government grants and private donations, and the measure of crowd-out would then be positively biased.

Second, we might encounter a problem of reversed causality between private donations and fundraising expenditures. Fundraising expenditures are targeted to increase private donations, but low private contributions in one year can cause fundraising expenditures to increase within the same year. The measure of fundraising expenditures would then be negatively biased.

To correct for this possible endogeneity of government grants and fundraising expenditures, we choose to use instrumental variables. In this section, we first report results without controlling for endogeneity, and then turn to results using a two-stage least-squares regression methodology. In both the OLS and the 2SLS regressions, we include organization and year fixed effects. Robust standard errors are used in all specifications.

**5.1. First-differenced OLS Regressions.** Table 4 reports the results from the first-differenced OLS regressions for the full sample of organizations. All variables are in thousand SEK<sup>12</sup> (inflation-adjusted with 1990 as the baseline year). Two parameters are of main interest, the crowding out parameter  $\beta$  and the fundraising parameter  $\delta$ . If government grants crowd out fundraising rather than private donations, we expect to find zero crowding out ( $\beta = 0$ ) after controlling for changes in fundraising expenditures. Furthermore, we want to test whether organizations are net revenue maximizers, i.e. whether  $\delta = 1$ .

For the full sample, we can reject  $\beta = 0$ . There is a small, but significant effect of government grants on private donations. On average, a SEK 1000 increase in government grants decreases private donations by SEK 21, after controlling for both year and organization fixed effects. We cannot reject that organizations are net revenue maximizers. Fundraising has a positive and significant effect on private donations; the coefficient is close to 1, which indicates that charities, on average, are net revenue maximizers.

The second specification (OLS2) shows what happens if we omit fundraising expenditures. If we fail to control for fundraising expenditures, this might lead to a spurious regression showing crowding out. If government grants crowd-out fundraising expenditures rather than private contributions, we would expect zero crowding out after controlling for fundraising expenditures. The estimated crowding out, however, is slightly smaller when fundraising expenditures are omitted, and we cannot reject zero crowding out. This indicates that the negative behavioral effect of government grants

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<sup>12</sup> 1 USD  $\simeq$  8 SEK.

TABLE 4. Private donations and government grants, OLS

<b>All organizations</b>		
<i>Dependent variable</i>	OLS(1)	OLS(2)
<i>ΔPrivate donations</i>		
ΔGovernment grants	-0.021** (.010)	-0.015* (.009)
ΔFundraising expenditures	.970*** (.075)	
ΔPrice	-3.21 (3.125)	-2.13 (4.737)
ΔMembership fees	-.150 (.213)	-.256 (.204)
R <sup>2</sup>	0.2214	0.0162
Fixed effects	Organization and year	Organization and year
Number of observations	2224	2224
Number of organizations	252	252

Notes: Robust standard errors in parentheses. \*\*\* denotes significance at  $p < 0.01$ , \*\* at  $p < 0.05$  and \* at  $p < 0.10$ .

on fundraising might be small in this sample. As discussed in the previous section, this might be due to the existence of matching grants, which counteract the negative effect that government grants have on fundraising. The coefficient on government grants could, however, be biased due to an omitted variable bias, which should be controlled for in the reduced form 2SLS regression.

Table 5 presents the results for the first-differenced OLS regressions for different types of organizations. For *health* and *international aid* organizations, zero crowding out cannot be rejected. For *social services* and *other*, zero crowding out can be rejected. The measures of crowding out are negative and significant for social services organizations (2.3%) and positive and significant for the category other organizations (6.9%), indicating that government grants crowd in private donations.

Furthermore, the effect of fundraising is positive, highly significant and close to one, indicating net revenue maximization for *health*, *international aid* and *other* organizations. For social services organizations, we can reject net revenue maximization. The coefficient on fundraising expenditures is less than one, indicating that social services organizations overspend on fundraising activities.

TABLE 5. Private donations and government grants, OLS

Type of organization	Health	International aid	Social Services	Other
<i>Dependent variable</i>	OLS(1)	OLS(2)	OLS(3)	OLS(4)
<i>ΔPrivate donations</i>				
ΔGovernment grants	-0.098 (.069)	-0.004 (.43)	-.023*** (.005)	.069** (.030)
ΔFundraising expenditures	.964*** (.073)	1.122*** (.042)	.42 (.29)	.818*** (.134)
ΔPrice	-64.04** (31.39)	-24.13 (19.13)	-8.154 (5.24)	3.397 (3.604)
ΔMembership fees	3.16* (1.80)	-.85 (.87)	2.314*** (.683)	-.319*** (.034)
R <sup>2</sup>	0.2561	0.3071	0.0966	0.3188
Fixed effects	Organization and year	Organization and year	Organization and year	Organization and year
Number of observations	764	569	457	434
Number of organizations	78	70	51	53

Notes: Robust standard errors in parentheses. \*\*\* denotes significance at  $p < 0.01$ ,

\*\* at  $p < 0.05$  and \* at  $p < 0.10$ .

Finally, we note that the price of giving has a large negative impact on private donations, except for the category *other* organizations. Membership fees enter with a positive sign for *health* and social services organizations, while it has a small negative impact for *international aid* and *other* organizations.

These estimates of government grants and fundraising expenditures could potentially be biased due to endogeneity. Therefore, we turn to a 2SLS specification.

**5.2. Two-Stage Least-Squares Regressions.** We use four instruments to control for possible endogeneity in government grants and fundraising expenditures; lagged government grants, lagged repayment, first-differenced administrative costs and lagged material assets.

The set of instruments relevant for government grants consists of government grants lagged one and two years, repayments of government grants lagged one year, and first-differenced administrative costs. Government grants are not likely to vary substantially over time and government grants in years  $t - 1$  and  $t - 2$  should therefore be a good

estimate of government grants in year  $t$ . Furthermore, if an organization has not used the grants in year  $t - 1$  (i.e. positive repayments), it is likely to receive a smaller amount in the following year. Repayments are therefore included as an additional instrument for government grants in the subsequent year. Administrative costs are associated with applying for and complying with government grants and that variable is therefore included as a third instrument. These three instruments are thus relevant. Are they also exogenous?

Lagged government grants are clearly relevant instruments, but might not be uncorrelated with the error term. We argue that the decision to donate to a charity is mainly influenced by current affairs and is not likely to be influenced by the financial situation in previous years. First, charitable donations are not tax deductible in Sweden and are therefore not associated with financial planning. Second, charitable contributions are known to be subject to "the power of the ask" (Andreoni and Payne, 2003; Andreoni, 2004), which implies that individuals do not donate money unless they are asked to do so. It follows that the decision to donate is highly determined by the current financial situation. This implies that lagged government grants are uncorrelated with the error term and thus exogenous. The same is true for repayments of government grants (lagged one year), which are highly correlated with government grants, but cannot be expected to influence private donations. Finally, there is a clear distinction between fundraising costs that are associated with private donations and administrative costs that are associated with government grants. The change in administrative costs between year  $t$  and  $t - 1$  can thus be expected to be correlated with the change in government grants, but uncorrelated with the error term.<sup>13</sup>

The set of instruments relevant for fundraising expenditures is lagged government grants and lagged material assets. Government grants are expected to reduce the organizations' fundraising efforts and they are therefore relevant instruments. Material assets are a measure of the wealth of the organization and are therefore included as an instrument for fundraising expenditures. The higher the wealth, the more can be spent on fundraising. Exogeneity of government grants has already been discussed. Material assets can be expected to be exogenous since information on material assets is generally not available to the public. Thus, it should not influence private donations, which makes material assets uncorrelated with the error term and valid as instruments for fund-raising expenditures.

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<sup>13</sup> The price of giving which can be expected to influence private donations is fundraising and administrative costs measured as the share of total expenditures. However, the correlation between administrative costs and the price of giving is close to zero (.005). The reason is that the relative shares of fundraising and administrative costs vary greatly between different charities and over time.

Table 6 reports the results from the 2SLS first-differenced regressions, including all organizations. It is clear from this table that including the instruments does not change the main result, i.e. that government grants decrease private donations by a small amount. For the full sample, we can reject zero crowding out. The estimated crowding out is slightly higher than in the previous OLS specification, on average 5.0%, and highly significant. Moreover, we cannot reject net revenue maximization, even though the coefficient on fundraising expenditures is higher than in the OLS specification and highly significant.

The results imply that crowding out was slightly positively biased and that fundraising expenditures were somewhat negatively biased in the first-differenced OLS specification. Furthermore, in line with the previous results, the regression excluding fundraising expenditures biases crowding-out towards zero and renders the entire regression less significant. Once more, the reduced-form regression indicates that the use of matching grants counteracts the negative effect that government grants might have on fundraising efforts.

In table 7, we report the 2SLS first-differenced estimates for the four types of organizations. The first three categories; *health*, *international aid* and *social services* show crowding out at 0.0%, 21.8% and 4.3%, respectively. However, in none of these cases can we reject zero crowding out and the results are only significant for social services organizations. The organizations in the category *other* have changed from crowding in to crowding out, but the effect is not significant and we cannot reject zero crowding out. Furthermore, we cannot reject net revenue maximization, i.e.  $\delta = 1$ , for any category of organizations in the 2SLS regressions.

To draw any conclusions on the effect of government grants on private donations, we need to assess the instruments and test whether government grants and fundraising expenditures are endogenous.

**5.3. Robustness.** There are two potential problems with instrumenting; first, the instrument might be weak, which can cause biased estimates. Second, government grants and fundraising expenditures might not be endogenous variables in the model. Therefore, we perform several robustness tests.

To assess the instruments, we carry out the Hansen-Sargan test for over-identifying restrictions. The null is that instruments are valid instruments, i.e. uncorrelated with the error term, and that the excluded instruments are correctly excluded from the estimated equation. A rejection of the null casts doubt on the validity of the instruments. In no specification can we reject the null that the instruments are valid.

The second test of instrumental validity is an F-test on the instruments in the first-stage regression. In the case of government grants, the instruments are strong

TABLE 6. Private donations and government grants, 2SLS

All organizations		
Dependent variable	2SLS(1)	2SLS(2)
$\Delta$ Private donations		
$\Delta$ Government grants	-.050** (.025)	-.030* (.018)
$\Delta$ Fundraising expenditures	1.237*** (.331)	
$\Delta$ Price	-3.147 (4.116)	.499 (3.790)
$\Delta$ Membership fees	-.111 (.231)	-.258 (.212)
R <sup>2</sup> on second stage	0.2040	0.0197
Results from first stage	Government grants, Administrative costs	Government grants Administrative costs
Instrument set	Repayments, Material assets	Repayments
F-test on instruments for government grants (p-value)	106.14 (.00)	80.24 (.00)
F-test on instruments for fundraising expenditures (p-value)	5.48 (.00)	
Over-identification test J-statistic (p-value)	1.667 (.80)	4.269 (.23)
Hausman test F-statistic (p-value)	1.71 (.18)	.64 (.42)
Fixed effects	Organization and year	Organization and year
Number of observations	1987	1987
Number of organizations	251	251

Notes: Robust standard errors in parentheses. \*\*\* denotes significance at  $p < 0.01$ , \*\* at  $p < 0.05$  and \* at  $p < 0.10$ .

in all regressions. The instruments also perform well for fundraising expenditures for the full sample and for all types of organizations except *international aid* and *other*, where they are somewhat weak. For *international aid* organizations and *other* organizations, weak instruments might cause the estimates of fundraising in the 2SLS to be biased. This might explain the counterintuitive result that fundraising expenditures have a small impact on private donations in the case of international aid organizations.

TABLE 7. Private donations and government grants, 2SLS

Type of organizations	Health	International aid	Social services	Other
<i>Dependent variable</i>	2SLS(1)	2SLS(2)	2SLS(3)	2SLS(4)
<i>ΔPrivate donations</i>				
ΔGovernment grants	-0.000 (.148)	-.218 (.214)	-.043* (.026)	-.069 (.069)
ΔFundraising expenditures	.751** (.305)	.051 (.570)	1.202 (1.223)	2.513 (1.766)
ΔPrice	-74.64 (49.86)	-46.82 (59.12)	-3.132 (8.454)	2.418 (2.448)
ΔMembership fees	2.857* (1.694)	-2.479 (2.225)	3.007*** (1.057)	.075 (.301)
R <sup>2</sup> on second stage	0.2400	.0212	.0239	-.3339
Results from first stage Instrument set	Government grants, Repayments, Administrative costs Material assets			
F-test on instruments for government grants (p-value)	96.10 (.00)	18.68 (.00)	2297.92 (.00)	34.11 (.00)
F-test on instruments for fundraising expenditures (p-value)	518.02 (.00)	4.04 (.00)	40.35 (.00)	3.20 (.01)
Over-identification test J-statistic (p-value)	2.192 (.70)	1.163 (.88)	3.563 (.47)	3.034 (.55)
Hausman test F-statistic (p-value)	0.41 (.67)	3.55 (.03)	.20 (.82)	8.44 (.00)
Fixed effects	Organization and year	Organization and year	Organization and year	Organization and year
Number of observations	687	507	410	294
Number of organizations	78	69	51	52

Notes: Robust standard errors in parentheses. \*\*\* denotes significance at  $p < 0.01$ , \*\* at  $p < 0.05$  and \* at  $p < 0.10$ .

Ideally, we would need to find better instruments for fundraising expenditures for the categories international aid and other organizations. These instruments are used since they perform well in the full sample and for all other types of organizations.

Finally, we want to test if government grants and fundraising expenditures are endogenous. If they are not, the first-differenced OLS regressions are more appropriate, and we should base our conclusion on those estimates. The assumption necessary to carry out a Hausman test of endogeneity is that the instruments are exogenous. The null hypothesis in the Hausman test is that government grants and fundraising expenditures are exogenous. The results in tables 7 and 8 suggest that we cannot reject exogeneity of government grants and fundraising expenditures in the overall sample ( $p = 0.18$ ). Dividing the sample indicates that government grants and fundraising expenditures are exogenous for health ( $p = .67$ ) and social services ( $p = .82$ ), but endogenous for international aid ( $p = .03$ ) and other organizations ( $p = .00$ ). These are also the categories where we find the largest differences between the OLS and the 2SLS estimates.

The robustness analysis indicates that there might not be a severe endogeneity problem in this sample. First, the Hausman test suggests that government grants and fundraising expenditures may not be endogenous. Exogeneity is only rejected for *international aid* organizations and *other* organizations. This seems intuitive, considering the origin of endogeneity in this sample. For government grants to be endogenous, there must be an unobserved event that simultaneously affects private donations and fundraising expenditures for a subset of organizations within one category, and is therefore not controlled for by organizational fixed effects or time fixed effects. Typical examples would be a hurricane, a famine or a natural disaster. These types of events are the most likely to influence the international aid organizations or the environmental organizations (included in the category "other"). It is hard to find similar events that would cause an endogeneity problem for health organizations, or for domestic social services organizations helping, for instance, the homeless.

Second, in the full sample, we can expect unobserved events to cause an endogeneity problem, but if these events are rare, the effect is likely to be small. We do find that the crowding out estimate is upward biased in the OLS compared to the 2SLS regression, but the bias is small. This reinforces the interpretation that endogeneity is only a problem for some types of organizations, and that the effect is not sufficiently large to have a substantial impact in the full sample.

## 6. Conclusions

Government grants to charitable organizations can crowd-out private donations for two reasons. First, the classic crowding-out hypothesis says that donors let their involuntary tax contributions substitute for their voluntary contributions. Second, the

strategic response of the charitable organization on receiving a government grant will be to reduce its fundraising effort; thus, indirectly reducing private donations.

We test the classic crowding-out hypothesis controlling for changes in fundraising behavior using a new panel dataset covering all registered charities in Sweden over 15 years. There are three main findings in this paper. First, we show that the direct effect of government grants on private donations is small. The full sample indicates a small and significant negative effect of government grants on private donations, even after controlling for changes in fundraising expenditures. At the disaggregated level, however, we cannot reject zero crowding out in most specifications.

Second, the organizations are net revenue maximizers, i.e. fundraising expenditures are at the level where, on the margin, a one-percent increase in fundraising generates a one-percent increase in private donations. This result suggests that organizations' fundraising behavior is efficient, and that organizations are not severely constrained by the rule that says that fundraising and administrative costs combined cannot exceed 25 percent of total expenditures.

Third, the results indicate that there may not be a negative impact of government grants on fundraising expenditures in this dataset. Although the effect of government grants on fundraising activities is not directly measured, we can compare the 2SLS regressions with and without fundraising expenditures, since the reduced form 2SLS regressions should control for the omitted variables bias. If government grants reduce fundraising expenditures, the crowding out should be larger in the 2SLS regressions without fundraising, compared to the 2SLS with fundraising. This is not the case. A reasonable explanation could be that the negative impact of government grants is counteracted by matching grants, which we know to be common in Sweden.

What do our results suggest for future research? First, the restrictions following government grants might differ for the various types of charities. The distinction between matching and non-matching grants can help explain how government grants affect fundraising behavior. Further research with more detailed data on matching grants could greatly contribute to our understanding of the organizations' behavioral response to government support. Second, there might be asymmetric information between private givers and charitable organizations about the quality of the charity. Private donors will therefore see government grants as a signal that the organization is serious, thus causing an increase in private donations. The positive effect on reputation might be larger for certain types of charities, for example newer and/or smaller charities that are less known by the public.

What do our results imply for policy? The hypothesis that government grants crowd out private donations one-to-one can be rejected. In those cases where government grants have a negative effect on private donations, the effect is small. Moreover, matching grants seem to counteract the possible negative effect that government grants may have on fundraising efforts. In the presence of matching grants, the net effect of government grants is clearly positive for all charitable organizations.



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## Is Foreign Aid Paternalistic?

Anna Breman, Ola Granström and Felix Masiye

**ABSTRACT.** We experimentally investigate whether donors are paternalistically altruistic when contributing to foreign aid. In a double-blind experiment, a subject chooses whether to make a monetary or a tied transfer (mosquito nets) to an anonymous household in Zambia. Recipients have revealed preferences for money, as their willingness to pay for mosquito nets is positive but below the market price. A monetary transfer will therefore preserve the household's preferences while a tied transfer is paternalistic. The mean donation of mosquito nets differs significantly from zero, thereby implying paternalistic preferences among donors. Paternalistic donors constitute 65 percent of the total sample, whereas purely altruistic donors constitute 15 percent. We conclude that health-focused paternalistic rather than purely altruistic preferences dominate the foreign-aid giving of individuals.

Keywords: Foreign aid, paternalism, altruism.

JEL Classification: F35, A13, C72, C91.

### 1. Introduction

Paternalism is broadly defined as acting for the good of another person without that person's consent. It is controversial as its end is benevolent while its means are (arguably) coercive.<sup>1</sup> A paternalist may thus be defined as someone who advances other people's interests, such as life, health, or safety, at the expense of their liberty or autonomy. In economic theory, a donor is said to be paternalistically altruistic if he cares about a recipient's wellbeing, but does not fully respect the recipient's preferences (Pollak, 1988; Jones-Lee, 1991, 1992; Jacobsson et al., 2005).

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<sup>1</sup> Suber (1999) provides a lucid introduction to the view on paternalism in philosophy. See also Dworkin (2002).

In the context of foreign aid, it is common that donors tie donations to specific causes, countries or victims. Kanbur (2003) notes that tied aid has been a key feature of foreign aid throughout history. U.S. development assistance began with food surpluses deployed as aid to Latin American countries in the nineteenth century. Moreover, donations to charitable organizations often include specifications as to how they may be used. While certain charities (e.g., Médecins Sans Frontières) discourage tied donations, judging that they have better information than donors as to where money is needed the most, many charities accept them in order not to forego possible donations.

This paper experimentally addresses the question as to what extent foreign aid is paternalistic. In a double-blind dictator game, subjects in Sweden can transfer money and/or mosquito nets to a real-life household in Zambia. The recipients have revealed preferences for money, as their willingness to pay for mosquito nets is positive but below the market price. A monetary transfer will therefore preserve the household's preferences while a tied transfer is paternalistic.

Although there exists a literature on the strategic interests of countries in providing foreign aid,<sup>2</sup> very little is yet known about which preferences guide the foreign-aid giving of individual donors. To what extent such donor preferences are paternalistically altruistic is important for theoretical as well as policy-related reasons.

Donor preferences are of importance to policy-makers since paternalistic altruism has a considerable impact on when and how individuals are willing to contribute to foreign aid. The current trend among governmental donor agencies is to move away from project aid where they directly control the use of aid funds to non-paternalistic budget support, where the recipient can choose how to best allocate the resources received (Sida, 2006). This policy switch may find little support among tax payers if preferences are paternalistic.

According to traditional altruistic theory, donors only care about the utility of the recipient and not about his consumption pattern (Becker, 1981). Hence, it would seem that a donor is never made worse off but might increase his utility by providing a cash transfer instead of a tied transfer, where the latter would put a constraint on the affordable market baskets of the recipient.

We propose an alternative approach, building on the work of Pollak (1988), Jones-Lee (1991, 1992) and Jacobsson et al. (2005). To give the intuition behind the experiment, we present simple theoretical definitions to identify selfish, altruistic and paternalistic preferences, respectively. These definitions are based on an augmented utility function where the utility of the recipient enters the donor's utility function.

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<sup>2</sup> See, e.g., Alesina and Dollar (2000) for an overview.

They are intuitive and easily translate into actual behavior observed in the experiment.

We use a framework of development assistance in health to test for paternalistic altruism in foreign-aid giving.<sup>3</sup> A double-blind dictator game<sup>4</sup> is conducted with subjects (dictators) in Sweden and real-life recipients (households) in Zambia. We use a within-subject treatment where the subject must choose directly between a monetary and a tied transfer (mosquito nets). The recipients have revealed preferences for a monetary transfer and we can thus say that such a transfer is purely altruistic (i.e., a monetary transfer respects the preferences of the recipient) while the tied transfer is paternalistically altruistic. A follow-up questionnaire is added to the experiment, which allows us to identify the motives driving selfish, altruistic and paternalistic behavior, respectively.

We show there to be strong evidence of paternalistic behavior in foreign-aid giving. Many donors do not respect the preferences of recipients. Mean donations of the paternalistic (tied) transfer (35.4%) differ significantly from zero. Paternalistic altruists constitute 65 percent of the total sample, whereas only 15 percent are pure altruists. The probability is significantly higher that a donor is paternalistically altruistic (82%) than purely altruistic (18%).

These results are important for several reasons. First, they help explain the pattern of tied aid observed throughout the history of development assistance. Second, they show that it may be necessary to better inform taxpayers of the advantages of budget support, if donor agencies aim at continuing moving away from project aid towards budget support. Finally, health-focused paternalism strengthens the case for health-related foreign aid.

The rest of the paper is structured as follows. A following brief section reviews the related literature on paternalistic preferences. The third section theoretically defines various donor preferences, while the fourth explains the design of the experiment. Our results are presented in the fifth section and the sixth section concludes.

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<sup>3</sup> Health-related aid has been an important target for official development assistance. Throughout the 1990s, when overall foreign aid was declining, official development assistance to the health sector rose (World Bank, 2004). The Gates Foundation, which with its assets of approximately US\$ 28.8 billion is a very important private provider of cross-country support, also primarily targets health aid.

<sup>4</sup> The game asks a dictator to unilaterally decide on the allocation of a fixed amount of money (previously received from the experimenter) between himself and the recipient. The double-blind design ensures that his decision is unknown to the other participants, including the experimenter.

## 2. A Review of Related Literature

The economic literature on paternalistic preferences developed in reaction to Becker's (1981) model of altruism within the household. In his model, altruistic parents always respect the preferences of their children. A weakness of the pure altruism model is its inability to explain the widespread use of tied transfers within the family (e.g., investment in college educations, down payments for house purchases) as well as by public institutions in developed countries (e.g., Medicaid).

Pollak (1988) demonstrates that tied transfers may be accounted for by incorporating paternalistic preferences into the donor's utility function.<sup>5</sup> Donors in his model are altruistic, but not in the Beckerian sense of respecting recipient preferences. They also care about the recipient's specific consumption pattern. There are two reasons why this may be the case. Donors may derive pleasure from the recipient's consumption of a particular good, independently of his preferences. Alternatively, donors may believe that they know the true, long-run interest of the recipient.<sup>6</sup>

Jones-Lee (1991, 1992) refines the study of paternalistic preferences. He introduces the concept of safety-focused paternalism, meaning that individuals care more about the safety of others than about other aspects of their well-being. Through the theoretical study of the value of a statistical life, Jones-Lee shows the willingness to pay for the safety of others to be higher with safety-focused paternalism than with pure altruism.

What Jones-Lee (1991, 1992) labels as safety-focused paternalism, others define as health-focused paternalism. Yet, the underlying idea is the same: altruism seems to be stronger for health care (or safety) than for the consumption of other goods (see e.g., Arrow, 1963; Pauly, 1971; Pollak, 1988). Such health-focused paternalism may explain the high degree of public subsidization of health care in developed countries (Jacobsson et al., 2005).<sup>7</sup>

<sup>5</sup> Note that two alternative explanations for tied transfers do not apply to our experiment. Blackorby and Donaldson (1988) claim that tied transfers allow donors without information on recipient preferences to distinguish between intended and non-intended recipients. In our experiment, however, there are no non-intended recipients since all recipients are in need of both types of donations. Moreover, the recipients have revealed preferences for the cash transfer. Bruce and Waldman (1991), on the other hand, argue that tied transfers (as opposed to cash transfers) allow recipients who expect future transfers from a donor to stop self-imposing poverty (i.e., overspend in each period). There is no repeated interaction in our experiment, which is why strategic motives for tied transfers are not credible.

<sup>6</sup> Paternalistic preferences may thus derive from the assumption that a recipient suffers from self-control problems, as described by Laibson (1997) and O'Donoghue and Rabin (1999). It has been argued that such bounded rationality may justify paternalistic policies, even in the absence of altruism (see Thaler and Sunstein, 2003; O'Donoghue and Rabin, 2003; Camerer et al., 2003).

<sup>7</sup> Alternatively stated, paternalistic preferences for health may explain why health care qualifies as a *merit want*, a concept introduced by Musgrave (1959).

Jacobsson et al. (2005) experimentally test for health-focused paternalism and find strong evidence of such behavior. In their within-country design, a donor may transfer money or nicotine patches to an anonymous smoking diabetes patient whose willingness to pay for the nicotine patches is positive but below the market price. In the between-subject treatments, average donations are 40% greater in the paternalistic group as compared to the purely altruistic group. Moreover, in within-subject treatments, between 82% and 91% of the donations are given in kind rather than as money. The strong paternalistic behavior holds in stability tests, which vary the framing and goods used (e.g., when food stamps are used instead of money, and when donors can transfer money or physical training to a non-smoking diabetes patient).

Our experiment differs in design from that of Jacobsson et al. (2005). We conduct a between-country experiment with donors in Sweden and real-life recipients in Zambia. Moreover, the recipients in our study are poor. Our experiment thus reflects the choices facing individuals donating to poor recipients in developing countries.

Before presenting the experiment, we introduce a set of theoretical definitions accounting for different donor preferences.

### 3. Theoretical Definitions

We modify Pollak's (1988) definition of paternalistic altruism to comply with the context of foreign aid. Furthermore, we employ a definition of health-focused paternalistic altruism going back to Jones-Lee (1991, 1992) and Jacobsson et al. (2005).

There are two types of agents: donors,  $d$ , and recipients,  $r$ . Each donor is matched with a recipient. The utility of a donor is increasing in his own consumption of non-health goods  $c^d$  and his own consumption of health care  $h^d$ .<sup>8</sup> Moreover, the donor's utility is non-decreasing in the non-health consumption  $c^r$  and health-care consumption  $h^r$  of the recipient. The donor's utility function may be written as

$$(3.1) \quad U^d = U^d[c^d, h^d, c^r, h^r].$$

The recipient's utility is simply  $U^r [c^r, h^r]$  and does not depend on the utility of the donor.

A utility-maximizing donor will make a positive transfer (donation) to the recipient, provided that the marginal utility he obtains from the recipient's consumption is higher than the marginal utility he obtains from his own consumption. A donation may either be a monetary (cash) transfer, or a tied (in-kind) transfer. Below, we analyze how donor preferences influence this choice.

<sup>8</sup> Alternatively,  $h$  could be considered as health and health care to be used to produce health.

**3.1. Different Types of Donors.** Our simple theoretical framework for donor preferences allows for five different types of donors: selfish, purely altruistic, paternalistically altruistic, health-focused paternalistic, and purely health-focused paternalistic.<sup>9</sup> The charitable behavior of these five types of donors differs as to the type of donation chosen.

DEFINITION 1. *A donor is selfish if  $\partial U^d/\partial c^r = 0$  and  $\partial U^d/\partial h^r = 0$*

A selfish donor only derives utility from his own consumption  $c^d$  and own health care  $h^d$ . He receives no utility from the consumption and health of the recipient. Hence, a selfish donor will never make a positive transfer to the recipient in this setting.<sup>10</sup>

DEFINITION 2. *A donor is purely altruistic if he is not selfish, i.e.,  $\partial U^d/\partial c^r > 0$  and  $\partial U^d/\partial h^r > 0$ ; and, furthermore, if*

$$(3.2) \quad \frac{\partial U^d/\partial c^r}{\partial U^d/\partial h^r} = \frac{\partial U^r/\partial c^r}{\partial U^r/\partial h^r}.$$

For a pure altruist, the marginal rate of substitution (MRS) between the recipient's non-health consumption and health-care consumption equals the recipient's own MRS between non-health consumption and the consumption of health care. This is the case only if the donor derives no utility from the consumption pattern of the recipient. That is to say that the donor should not care about in what combination the recipient consumes the two goods, only about his total utility. A purely altruistic donor will thus make a transfer fully respecting the preferences of the recipient; that is, a pure altruist will always make a monetary transfer.

DEFINITION 3. *A donor is paternalistically altruistic if he is not selfish, i.e.,  $\partial U^d/\partial c^r > 0$  and  $\partial U^d/\partial h^r > 0$ ; and, furthermore, if*

$$(3.3) \quad \frac{\partial U^d/\partial c^r}{\partial U^d/\partial h^r} \neq \frac{\partial U^r/\partial c^r}{\partial U^r/\partial h^r}.$$

For the paternalistic altruist, the MRS between the recipient's consumption of non-health goods and health-care consumption differs from the recipient's own MRS between non-health consumption and the consumption of health care. A paternalistic altruist will hence not fully respect the preferences of the recipient. Instead, he will

<sup>9</sup> Where "paternalistic" is short for paternalistically altruistic.

<sup>10</sup> Note that a selfish donor could make a positive transfer in a setting where strategic concerns were involved. In the presence of reputation-building and reciprocity, a selfish donor might give money to the recipient in the name of enlightened self-interest.

have a tendency to tie his transfer to the good for which he has paternalistic preferences. The choice between the monetary and the tied transfer depends on the strength of the donor's paternalistic preferences (i.e., how much he values the recipient's consumption following a specific pattern) and his beliefs about the recipient's willingness to pay for the tied good. For example, a donor with paternalistic preferences will make a monetary transfer provided that he believes the recipient's willingness to pay for the tied good to be sufficiently low.

DEFINITION 4. *A donor is health-focused paternalistic if  $\partial U^d/\partial h^r > 0$ ; and, furthermore, if*

$$(3.4) \quad \frac{\partial U^d/\partial c^r}{\partial U^d/\partial h^r} < \frac{\partial U^r/\partial c^r}{\partial U^r/\partial h^r}.$$

For paternalistic altruism to be health-focused, the donor's marginal utility with respect to the recipient's consumption of health care should be positive and his MRS between the recipient's non-health consumption and health-care consumption should be inferior to the recipient's own MRS between non-health consumption and the consumption of health care. Alternatively stated, the donor derives relatively more utility from the recipient's consumption of the health-related good than from his consumption of the other good than does the recipient himself. A health-focused paternalist will thus always have a tendency to tie his transfer to health care. Whether he actually does so depends on the strength of his health-focused paternalism, versus his beliefs about the recipient's willingness to pay for health care.

DEFINITION 5. *A donor is purely health-focused paternalistic if  $\partial U^d/\partial h^r > 0$  and if  $\partial U^d/\partial c^r = 0$*

A health-focused paternalistic donor derives no utility from the recipient's consumption of non-health goods, only from his health-care consumption. In this special case, the only transfer that makes any sense is one tied to health care. Hence, a pure health-focused paternalist will always donate health care to the recipient.

Using the above definitions, we can predict how different donors will behave in an experimental setting. Selfish donors will neither donate money nor mosquito nets while purely altruistic donors will donate money to preserve the preferences of the recipients. Paternalistic altruists and health-focused paternalists will either donate money or mosquito nets depending on the strength of their paternalistic preferences and their beliefs about recipients' willingness to pay for mosquito nets. A purely health-focused paternalist will always donate mosquito nets. The experiment presented in the following section will test purely altruistic versus health-focused paternalistic preferences.

#### 4. Experimental Design

The experiment was a double-blind n-donor dictator game carried out in two separate sessions using a within-subject treatment design. In each of the two sessions, 25 donors were matched with a single real-life household in a rural village in Zambia. The dictators, recruited among the undergraduate students at The Stockholm Institute of Education<sup>11</sup>, were randomly selected into the two sessions. The recipient households were recruited by Felix Masiye and Jesper Sundewall<sup>12</sup>.

When subjects arrived for the experiment, they were given a SEK 50 show-up fee, and were asked to sit and read the instructions quietly without interacting with any of the other subjects. Once all subjects had arrived, the instructions were read out by the experiment leader and one subject was chosen to be the monitor.<sup>13</sup> The monitor's name and e-mail address were marked on the board in the classroom to allow all participants to check with the monitor afterwards that the instructions had been followed. The monitor handed out large opaque envelopes which, in all cases but one, contained two smaller envelopes, two SEK 50 bills (i.e., SEK 100)<sup>14</sup>, as well as four pieces of paper (of equal size as the money bills).<sup>15</sup> As is customary in double-blind dictator games, one of the envelopes contained no money bills, only six pieces of paper. This is to ensure complete anonymity between dictators and the experimenter.

Each subject was asked to choose how to divide the SEK 100 between themselves and the recipient household in Zambia. Donations in the form of money were to be put into the small envelope marked "money", while donations in the form of mosquito nets were to be put into the small envelope marked "malaria bed net". This donor choice was made behind a screen and by one subject at a time. SEK 50 bills were used in the experiment since one mosquito net costs just below SEK 50.

After having decided on the division of the SEK 100, each subject moved to a second screen behind which he anonymously filled out a questionnaire about the experiment. Thereafter the subject was free to leave.

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<sup>11</sup> Stockholm Institute of Education is a teaching college with approximately 15,000 students enrolled in bachelor's and master's programs.

<sup>12</sup> Jesper is Junior Professional Officer at the Swedish International Development Agency (Sida) in Lusaka, Zambia.

<sup>13</sup> The reading-out-loud of instructions allowed participants to verify that they had all received identical instructions. The monitor's task was to see to it that the experiment was executed exactly as stated in the instructions.

<sup>14</sup> 1 US\$  $\approx$  SEK 7. SEK 100  $\approx$  US\$ 14.

<sup>15</sup> The blank pieces of paper ensure that all envelopes are of equal thickness. A donor that keeps all or some money to himself will substitute the money with the pieces of paper so that the returned envelope is not empty.

When all subjects had made their decisions and filled out the questionnaire, the monitor opened each envelope together with the instructor and took note of the results. The monitor's name and e-mail address were noted by the experimenter. The money and bed nets were distributed to the recipient households in Zambia by Felix Masiye and Jesper Sundewall. A certificate showing that the money and bed nets had been delivered to the recipients was then sent by e-mail to the monitors.

The possible outcomes observed in the dictator game are described in Table 1. *Outcome* denotes the terminology used for different types of donors. The donors who chose not to make a transfer to the recipient are denoted *selfish*, while those only donating money are called *purely altruistic*. *Paternalistic* is short for health-focused paternalistically altruistic. A paternalistic donor made at least part of his transfer in mosquito nets. The distinction between weak and strong paternalists highlights the difference between those donating both money and a mosquito net (*weakly paternalistic*) and those donating only mosquito nets (*strongly paternalistic*).

Note that this terminology is a generalization used for tractability. For example, even an altruistic or paternalistic donor would make a SEK 0 transfer in case his willingness to give was above zero, but below the minimum positive donation in this experiment, i.e. SEK 50. The category *selfish* can thus be seen as an upper bound of the number of selfish donors. Furthermore, some paternalistic donors might not be paternalistic enough to give mosquito nets. The two categories *weakly* and *strongly paternalistic* donors taken together constitute a lower bound for the number of paternalistic donors.

TABLE 1. Possible outcomes in the dictator game

Total sum donated	Envelope marked "Money"	Envelope marked "Malaria bed net"	Outcome
0	0	0	Selfish
50	50	0	Purely altruistic
50	0	50	Strongly paternalistic
100	50	50	Weakly paternalistic
100	100	0	Purely altruistic
100	0	100	Strongly paternalistic

**4.1. Hypotheses.** The experiment was a within-subject treatment design where each subject (dictator) was observed making a choice between different alternatives.<sup>16</sup> A dictator had to decide how to divide SEK 100 between himself and the recipient.

<sup>16</sup> The within-subject design is discussed in more detail in section 4.2 on design concerns.

Each subject who chose to make a positive donation had to decide whether to make this donation in the form of (1) money, (2) mosquito nets, or (3) both money and mosquito nets.

We test whether we can find evidence of paternalistic behavior in giving aid. As explained above, we label the donors as selfish ( $s$ ), purely altruistic ( $a$ ), weakly paternalistic ( $wp$ ), and strongly paternalistic ( $sp$ ). These four groups are mutually exclusive. A fifth group of donors is the paternalistic group ( $p$ ), including both the weakly and the strongly paternalistic donors ( $p = wp + sp$ ).

Let  $\mu_j$  denote the mean donations of good  $j = \{m, n\}$ , where  $m = \text{money}$  and  $n = \text{mosquito nets}$ . Furthermore, let  $f_i$  denote the fraction of donors belonging to group  $i$ , where  $i = \{s, a, sp, wp, p\}$ . We consider the  $(1 - f_s)N$  experiment subjects<sup>17</sup> who are non-selfish (i.e., altruistic) and we let  $prob(p)$  denote the probability of such a donor being a paternalist ( $p$ ) and not purely altruistic ( $a$ ). Similarly, consider the  $(1 - (f_s + f_{wp}))N$  experiment subjects and let  $prob(sp)$  denote the probability of such a donor being a strong paternalist ( $sp$ ) and not purely altruistic ( $a$ ).

We have the following four hypotheses:

$H1$  : Donors exhibit paternalistic preferences implying that mean donations of mosquito nets are positive. We test the null hypothesis that  $\mu_n = 0$ .

$H2$  : Mean donations of mosquito nets are higher than mean donations of money. We test the null hypothesis that  $\mu_m = \mu_n$ .

$H3$  : The probability is higher that a non-selfish donor is paternalistic rather than purely altruistic. We test the null hypothesis that  $prob(p) = 0.5$ .

$H4$  : The probability is higher that a non-selfish donor is strongly paternalistic rather than purely altruistic. We test the null hypothesis that  $prob(sp) = 0.5$ .

Before presenting the results in section 5, we discuss specific features of the experimental design.

**4.2. Design Concerns.** Three key design features deserve to be highlighted: (i) the within-subject treatment design; (ii) the choice of the tied transfer; and (iii) the composition of the recipient households.

(i) We used a double-blind within-subject treatment design, which implies that a single subject is observed choosing between several alternatives. A first advantage of this design is that the subject serves as his own control group. Such a design is statistically more powerful than a between-subject design since it automatically controls for individual differences (see, e.g., Camerer, 2003). A second advantage is that the within-subject design imposes a direct choice between a tied transfer and

<sup>17</sup>  $N = \text{total number of observations } (N = 48)$ .

money. Thus, it makes it possible to categorize subjects according to their behavior in the experiment. The alternative would have been a between-subject design, where the subjects in treatment one were asked to donate money and subjects in treatment two were asked to donate mosquito nets. We would then have compared the mean donations in the two groups. However, in treatment two, mosquito nets would be the only possible donation and all altruistic subjects would have to make a tied transfer. Since they would not have had any choice, it would be difficult to label them as paternalistic.

(ii) To identify paternalistic preferences, the recipients need to have revealed preferences for money over the tied transfer. This is the case if we can find a tied transfer which is widely available but not bought by the recipients. In other words, the willingness to pay for the tied transfer should be positive but below the market price. Specifically, the tied transfer had to meet the following criteria:

- (1) Health-related;
- (2) Willingness to pay should be positive but below the market price;
- (3) Widely available and easily accessible (i.e., no prescription drugs);
- (4) No externalities (i.e., the chosen health-related good should be associated with a non-communicable disease): if the donated health good has positive external effects, a tied transfer might be better than donating the equivalent amount of money, since more than one household will benefit from the donation.

Insecticide treated nets (ITNs)<sup>18</sup> protecting individuals from malaria meet all these requirements. Studies show that the willingness to pay for mosquito nets is positive, but below the market price (Onwujenwe et al., 2000, 2003; Guyatt et al., 2002). Moreover, mosquito nets are widely available at local supermarkets and pharmacies in this part of Zambia. An insecticide treated mosquito net costs 30 000 kwacha, which is approximately \$6.50. The households have chosen not to buy nets despite availability and a high prevalence of malaria. Thus, we can conclude that the households have revealed preferences for money. A monetary transfer ensures that a household's preferences are respected.

Furthermore, malaria is not directly communicable between humans: it is transmitted through a bite by the *Anopheles* mosquito. Treating patients suffering from malaria will reduce the prevalence of malaria-carrying mosquitoes in an area, creating a positive external effect. Mosquito nets, on the other hand, prevent humans from catching the disease in the first place. Even if there were a small negative effect of mosquito nets on the number of malaria-carrying mosquitoes, it would be negligible in this setting where a maximum of 50 households receive nets in an area of 25 000 inhabitants.

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<sup>18</sup> What we hitherto have labeled, and will continue to label, "mosquito nets".

(iii) Participating households were recruited according to the following criteria:

- (1) They should not possess any mosquito nets prior to the experiment, and they had to commit to using any mosquito nets donated to them in the experiment.
- (2) Each household should consist of at least four individuals, to ensure that it would be reasonable to donate more than one net. (Note that two persons easily can sleep under one mosquito net.)

Permission to recruit households were sought and given by the village chief. Before consenting to participate, the households were informed about the study and the possible outcomes, including the possibility of receiving no donation at all.

**4.3. Questionnaire data.** A questionnaire allows us to observe donors' characteristics and motives for giving or not giving to foreign aid.<sup>19</sup> The questionnaire was filled out anonymously by the dictators after having chosen how to divide the money but before they left the room. (The full questionnaire is available in the appendix.)

The main purpose of the questionnaire was twofold. We wanted to address the relationship between donor characteristics and the choice of donation (i.e., the donated amount and the choice between transferring money and mosquito nets). Furthermore, our purpose was to assess whether subjects donated mosquito nets because they mistakenly believed there to be positive externalities associated with nets.

Those who only gave mosquito nets had the following four mutually exclusive alternatives to motivate their choice (where the third alternative was added to control for positive externalities):

- (1) I care more about the health of the household members than about other aspects of their situation;
- (2) By giving mosquito nets, the household receives a good it needs at the same time as I make sure that the money is not used to buy goods I believe might be harmful (such as tobacco and alcohol);
- (3) I believe that the mosquito nets can have positive effects for other persons than the ones using the nets; and
- (4) None of the above is consistent with my reasons for only donating money. Instead I motivate my choice in the following way... (to be filled out by the subject).

No subject chose the third alternative. The subjects seem to have accurately realized that giving mosquito nets to a very small fraction of the inhabitants in a village will not affect the overall prevalence of malaria-carrying mosquitoes in the area.

<sup>19</sup> Breman and Granström (2005) provide an overview of donor characteristics and their effects on charitable giving (using a different yet similar data set).

**4.4. Statistical Tests.** Experimental bargaining data tends to be highly skewed, and our data is no exception. In these cases, the traditional parametric approach is not appropriate. Bootstrapping techniques have proven a powerful tool in dealing with this kind of data. They involve the creation of pseudoreplicate datasets by resampling. Thus, bootstrapping allows for testing without imposing normality on the data, i.e., by inferring the underlying distribution that has generated the data (see Efron and Tibshirani, 1993; Mooney and Duval, 1993).

To test hypothesis 1 and hypothesis 2 regarding mean offers conditional on type of donation, we thus use bootstrapping techniques. Reported significance levels have been obtained using 5,099 resamples. Moreover, for comparison we provide results from the non-parametric Wilcoxon signed-ranks test for paired data and an ordinary t-test.

To investigate whether the probability that, for instance, a non-selfish donor displays paternalistic behavior differs from the probability that he displays purely altruistic behavior, we use a binomial probability test.<sup>20</sup> For non-selfish donors, the choice between paternalistic and purely altruistic behavior can be described as a Bernoulli trial: a donor is either a paternalist (a "success" or 1) or a pure altruist (a "failure" or 0). In this case, it is possible to use a binomial test to investigate whether the probability of being of a certain donor type significantly differs from the probability of being of another donor type (see, e.g., Siegel and Castellan, Jr., 1988, ch. 4; Davis and Holt, 1993, ch. 9). Thus, we use the binomial probability test on hypotheses 3 and 4.

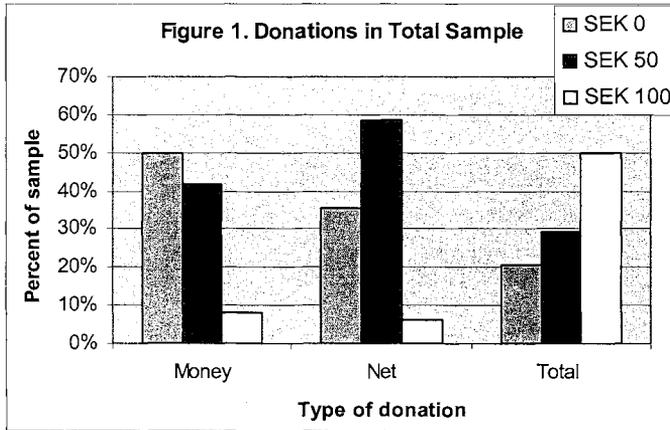
## 5. Results

We conducted the experiment in January 2005 at the Stockholm Institute of Education. 52 subjects participated in the two sessions of which two received blank notes of paper and two were chosen to be monitors. The total number of observations was thus 48.

**5.1. Experimental results.** Figure 1 presents the distribution of donations in the experiment for the various types of donations. Table 2 shows experiment results (mean donations) depending on the type of donation while Table 3 presents results depending on donor type. Some descriptive statistical findings stand out.

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<sup>20</sup> We do not test whether fractions of different types of donors (such as  $f_p$  and  $f_a$ ) significantly differ from each other. The reason is that we have paired data, whereas tests such as Pearson's chi-squared test and Fisher's exact test require two independent samples (see e.g., Siegel and Castellan, Jr., 1988, ch. 6).



Almost 80 percent of the subjects donated a positive amount, the majority of which donated the maximum amount of SEK 100. Hence, the mean donation for the total sample is high at 65 percent. Yet, of greater importance to us here is the paternalistic behavior of donors. The mean donation of mosquito nets (35%) points to the influence of paternalistic preferences on donor behavior. Indeed, the mean donation of mosquito nets is higher than the mean donation of money (29%). Studying the shares of different donors in the experiment reinforces this picture. Paternalistic donors constitute 65 percent of all experiment subjects, whereas purely altruistic donors constitute 15 percent of the sample. In the sub-set of altruistic donors, 82 percent display paternalistic behavior and only 18 percent qualify as pure altruists. Finally, in the sub-set of paternalists, nearly half the donors (45%) behave as strong paternalists, i.e., they only donate mosquito nets.

We test the four hypotheses presented in section 4.1. The results for hypothesis 1 and hypothesis 2 regarding mean offers conditional on type of donation are reported in Table 2 (all  $p$ -values are double-sided). The results for hypotheses 3 and 4 concerning the probability that a donor is of a certain type are reported in Table 3.

The mean donation of mosquito nets is significantly higher than zero. Using the bootstrap test on hypothesis 1, we can reject the null that the mean donation of mosquito nets equals zero ( $p < 0.001$ ).

Testing hypothesis 2 using bootstrapping, the null cannot be rejected ( $p = 0.350$ ). Hence, we cannot reject that the mean donations of money and mosquito nets are the same.

TABLE 2. Mean donations conditional on type of donation

	Type of donation		
	Money	Mosquito nets	
Number of observations	48	48	
Mean Donation	29.2	35.4	
STD of donation	32.3	29.1	
<b>H1: Mosquito nets versus zero</b>			
	Bootstrap test	t-test	Wilcoxon
p-value	<0.001	<0.001	<0.001
<b>H2: Mosquito nets versus money</b>			
	Bootstrap test	t-test	Wilcoxon
p-value	0.350	0.360	0.188

Note: All p-values are two-sided

Using the binomial probability test on hypothesis 3, we can reject the null that it is equally likely for an altruistic donor to be a pure altruist as a paternalist. The probability of paternalistic behavior ( $\hat{prob}(p) = 0.816$ ) is significantly ( $p < 0.001$ ) higher than the probability of purely altruistic behavior ( $\hat{prob}(a) = 0.184$ ). When testing hypothesis 4, finally, we cannot reject ( $p = 0.189$ ) the null that the probability of being a strong paternalist ( $\hat{prob}(sp) = 0.667$ ) equals the probability of being a pure altruist ( $\hat{prob}(a) = 0.333$ ).

TABLE 3. Share of donors in different categories

Donor Type	Selfish	Pure altruist	Paternalist	Weak paternalist	Strong paternalist
No. of observations	10	7	31	17	14
% of total sample	20.8%	14.6%	64.6%	35.4%	29.2%
% of altruists	-	18.4%	81.6%	44.7%	36.9%
% of paternalists	-	-	-	54.8%	45.2%
<b>H3: Probability of being paternalistic</b>					
Binomial test	$prob(p) = .5$				
$\hat{prob}(p)$	0.816				
p-value	<0.001				
<b>H4: Probability of being strongly paternalistic</b>					
Binomial test	$prob(sp) = .5$				
$\hat{prob}(sp)$	0.667				
p-value	0.189				

Note: All p-values are two-sided.

We conclude that there is strong evidence of paternalistic preferences in foreign-aid giving. Many donors do not only care about the overall well-being of recipients, but also about their specific consumption pattern. That is, paternalistic donors provide recipients with mosquito nets, even if the recipients have revealed preferences for the monetary transfer.

**5.2. Questionnaire data.** Exit questionnaires were mainly used to address the following three issues. First, whether there are significant relationships between donor characteristics and the amount donated to the recipient. Second, whether mosquito nets were – mistakenly – associated with positive externalities. Third, what chief motivations participants gave for their choices of donation. Below, we consider each topic in turn.

Summary statistics for the questionnaire data on attitudes to foreign aid and donor characteristics are presented in Table 4. Note that donations, on average, are higher for women than for men and seem to increase with age. When we run OLS regressions with total donations as the dependent variable and donor characteristics as explanatory variables, it turns out, however, that the difference between female and male donors is not statistically significant. Donations do not seem to be affected by the attitude to foreign aid either. Yet, age has a statistically significant effect on donations.<sup>21</sup>

Regarding the motives for giving mosquito nets versus money, our primary concern was to ensure that mosquito nets were not associated with positive externalities. As shown in Table 5, no subjects stated this as the reason for donating only mosquito nets. The remaining results are somewhat difficult to interpret due to mutually exclusive response alternatives. Nevertheless, 11 subjects (69% of the strong paternalists) state that they want to contribute to something useful at the same time as they ensure that the money is not used for something harmful (such as tobacco or alcohol), while two (12.5%) state that they care more about health than other aspects of the recipient's welfare and four (25%) state other reasons.

How do purely altruistic donors motivate giving money only? A majority thinks it is important as a principle that households are free to choose how to use the donation (71% or 5 subjects), which can be seen as anti-paternalistic. Surprisingly, no one says that it is more efficient if the households can choose for themselves how to use the money, which is economists' main argument against paternalism. Finally, among those donors who both give away money and a mosquito net, the preferred explanation is

<sup>21</sup> Across several specifications, average donations increase by fully SEK 2 per year of age ( $p < 0.01$ ). This result should be interpreted with caution, since we do not control for income (although in the population of Swedish students, it is reasonable to assume a fairly compressed income distribution). Nevertheless, altruism has been found to increase with age in other studies (see Camerer, 2003).

TABLE 4. Summary of questionnaire data

Variable	Outcomes			
	Women	Men	Total	
Gender				
% of sample	68%	32%	100%	
Mean donation	69%	59%	66%	
Age	19-29	30-39	40-45	
% of sample	66%	20%	14%	
Mean donation	58%	70%	100%	
Frequency giving	Never	Sometimes	Regularly	
% of sample	28%	46%	26%	
Estimated aid share*	Mean	Median	Mode	True value
Percent of GDI	5.8%	3.0%	5.0%	0.88%
Most important factor for aid	Effective	Influence	Recipient Known	Proximity
% of sample	74%	24%	2%	2%

Base sample: n=50, (\*n=48)

TABLE 5. Self-reported motives for observed behavior

Donor Type	Questionnaire answer			
	<i>Freedom</i>	<i>Efficiency</i>	<i>Other Priorities</i>	<i>Other</i>
<i>Pure Altruist</i>				
% of category	71%	0%	29%	0%
<i>Strong paternalist</i>	<i>Health</i>	<i>Avoid harmful goods</i>	<i>Positive Externalities</i>	<i>Other</i>
% of category <sup>22</sup>	13%	69%	0%	25%
<i>Weak paternalist</i>	<i>No information</i>	<i>Equal importance</i>	<i>Other</i>	
% of category	6%	71%	24%	
<i>Selfish</i>	<i>Foreign aid skepticism</i>	<i>Need money themselves</i>	<i>Regular donor</i>	<i>Other</i>
% of category	13%	38%	25%	25%

NB: Percentages may not sum to 100 due to approximation error.

that the households need both money and mosquito nets (71% or 12 subjects). Only

one person (6%) states that he/she did not have enough information to choose between the two alternatives.

## 6. Concluding Remarks

The experiment shows that paternalistic rather than purely altruistic preferences dominate foreign aid giving of individuals. While purely altruistic donors only care about recipients' utility and respect their preferences, paternalistic donors prefer recipients to consume a particular good, such as health care. Health-focused paternalism is sufficiently strong for many donors to ignore the revealed preferences of recipients. The average tied donation (35.4%) differs significantly from zero. Paternalistic altruists constitute 65 percent of the total sample, whereas purely altruistic donors only constitute 15 percent.

Our results are in line with Jacobsson et al. (2005) who find strong evidence of health-focused paternalism in within-country giving. One difference is that the fraction of paternalistic donations is higher in their experiment (between 82% and 91%). There are two plausible reasons for this. In our experiment, the very low incomes of recipients made it reasonable to assume that cash transfers would be used to buy subsistence goods, i.e., goods that almost certainly have a positive impact on health. Second, many donors may have chosen not to donate two mosquito nets, since they believed the marginal utility of a second net to be low.

What do our results suggest for future research? The questionnaire gives some insights into what drives paternalistic behavior and future research could deepen our understanding of this phenomenon. Furthermore, this paper is limited to health-focused paternalistic altruism, and it would therefore be valuable to see if the results hold for other types of foreign aid such as education or food support.

What are the policy implications of paternalistic preferences in the context of foreign aid? First, they help explain the history of paternalistic policies, such as conditional aid and tied transfers, observed in foreign development assistance. Second, they suggest that some donors will only contribute to foreign aid conditional on being able to influence how donations are used. This may, in turn, affect the overall level of foreign aid in two opposing directions.

On the one hand, it may threaten public support for foreign aid and risk reducing its overall level as several countries are in the process of substituting project aid, which is driven by donor preferences, with program aid (e.g., general budget support), which gives the recipients more freedom to decide on resource allocation (Sida, 2006). This is a move away from traditional paternalistic policies towards more purely altruistic foreign-aid policies.

On the other hand, health-focused paternalism can facilitate the raising of funds for health-related aid projects.<sup>23</sup> A growing number of global initiatives in health, such as the Global Alliance for Vaccines and Immunization, the Global Fund to Fight AIDS, Tuberculosis and Malaria, and the Medicines for Malaria Venture, are already taking advantage of the high willingness to contribute to this type of foreign aid.

It has recently been argued that health improvements give rise to important positive externalities and, therefore, spur economic growth in developing countries (Arrow, 2004; Bloom et al., 2004; UN Millennium Project, 2005). If donors have paternalistic preferences for health, as suggested by our results, the case for health-related foreign aid is even stronger. Health-focused paternalism may hence justify public sector investment in research and the development of drugs targeting the diseases of the poor,<sup>24</sup> such as malaria.

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<sup>23</sup> Arrow (2004, p.21) notes that donors "...are clearly more willing to give to overcome disease than for other reasons."

<sup>24</sup> Such initiatives are advocated by Arrow (2004). Alternative related solutions, e.g., drug purchase commitments (see Kremer, 2002), may be justified on the same grounds.

## Appendix A

### EXPERIMENT INSTRUCTIONS

#### To the participants in an economics experiment:

You have agreed to participate in this study which will take approximately 45 minutes to carry out. For your participation, you are paid SEK 50. You may also earn some additional money (at the maximum, another SEK 100).

Each and everyone in the room (except the monitor and one additional person, see below) will have to decide how to allocate SEK 100 between him/herself and an anonymous household in Zambia. The donation to the recipient household may either be given as money (which the recipient household may use for whatever it prefers) or as insecticide treated nets (against malaria mosquitoes). The total amount of money and/or mosquito bednets that you give away, will be given to a single household in Zambia which has agreed to participate in this study. Which of the anonymous households that will receive your possible donation will be randomly decided after the experiment. There is no possibility to trace a donation given to one of the participating households back to you.

In Zambia, gross domestic income (GDI) is \$380 per person and year (in Sweden, GDI/person is \$28 840 per year). The public health budget in Zambia corresponds to \$10 per person and year. Life expectancy is 37 years. Infant mortality is 102 per 1000 live births. The most common infectious diseases are malaria, typhoid fever and HIV.

The recipient households have been recruited by Jesper Sundewall (bilateral deputy expert at the SIDA<sup>25</sup> in Zambia) and Felix Masiye (researcher at University of Zambia). The households consist of at least four individuals and they live in an area where malaria is common. These households have chosen not to buy malaria bed nets since they consider bed nets too expensive. They have agreed to use the mosquito nets donated to them in this study.

Malaria is a life threatening parasitical disease transmitted by the Anopheles mosquito. Insecticide treated mosquito nets are proven effective in preventing people from getting malaria. For example, a WHO study shows that insecticide treated mosquito nets reduce child mortality by 20%. Mosquito nets are purchasable in ordinary shops and pharmacies in Zambia. A mosquito net costs approximately 30,000 kwacha (Zambian currency) which is equivalent to SEK 44 according to the exchange rate as of January 10th, 2005. A donation of SEK 50 covers the cost of a mosquito net including

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<sup>25</sup> The Swedish International Development Agency.

the exchange rate fee. Similarly, each household receives 30 000 kwacha for each SEK 50 bill that is donated in the form of money.

One of you will be chosen to monitor the experiment. The monitor will be paid SEK 100 in addition to the SEK 50 he or she has already received. The monitor will be in charge of the envelopes mentioned below. In addition to that, the monitor shall verify that the instructions have been followed as they appear here.

The experiment is conducted as follows. Unmarked envelopes corresponding to the number of participants have been placed in a box. All of these except one contain two SEK 50 bills and four blank slips of paper of the same size. The remaining envelope contains six blank slips of paper. Moreover, all envelopes contain two smaller envelopes marked "money" and "mosquito nets", respectively. The monitor will call one person at a time and hand over an envelope from the box. The person will take the envelope and go behind screen number one. The envelope will then be opened behind the screen where no one else can see what happens.

When you have opened the envelope you have to decide how many bills and how many slips of paper to put in the two smaller envelopes marked "money" and "mosquito nets". The number of bills and slips of paper that are put into each of the two smaller envelopes must add up to two. You then pocket the remaining slips of paper and bills (they should total two). Example: (1) Put SEK 50 and one slip of paper in the envelope marked "money", put two slips of paper in the envelope marked "mosquito nets" and pocket SEK 50 and one slip of paper. (2) Put SEK 0 and two slips of paper in the envelope marked "money", put SEK 0 and two slips of paper in the envelope marked "mosquito nets" and pocket SEK 100 and zero slips of paper. These were nothing more than examples. The actual decision is up to you. No one else will know your decision.

Once you have made your decision, you shall seal the two small envelopes marked "money" and "mosquito bed nets" and put these two envelopes in the larger envelope which you also seal. Then, place this envelope in the box marked "returned envelopes". You then proceed to screen number two where you anonymously fill out a questionnaire with questions concerning the experiment. You then place the questionnaire in the box marked "questionnaires". The experiment is then over for you and you may leave the room.

After all envelopes have been returned, the monitor will open the envelopes in a random order and record the content of each envelope. Each household is only identified by a number from 1 and onwards. The donation in the first envelope to be opened is matched with household number one, the donation in the second envelope to be opened is matched with household number two, and so on, until all envelopes have been opened and each donation has been noted and matched with each and everyone

of the participating households. The donations are recorded on two identical lists. The monitor will keep one of the lists. The aim is to allow the monitor to verify that the total donated amount in form of mosquito nets and money to the respective households equals the amount stated in the certificate that will be sent out by Jesper Sundewall at SIDA as soon as the donations have been transferred to the households.

The total donated amount in the experiment will be transferred to Jesper Sundewall in Zambia, who will change the money to Zambian kwacha. For each SEK 50 put in the envelope marked "mosquito nets" he will buy one mosquito net. Each SEK 50 put in the envelope marked "money" is transformed into 30 000 kwacha. Jesper Sundewall and Felix Masiye (University of Zambia) will then distribute the mosquito nets and the money to the respective households in the experiment. The amount of money that is given to the households from the envelopes marked "money", the households are free to use as they want. After the delivery (of money and mosquito nets), Jesper Sundewall will send a certificate via e-mail to the monitor where he accounts for how much money and how many mosquito nets that have been delivered to each household. The experiment is then over.

## Appendix B

### QUESTIONNAIRE

#### Some questions to you who participate in this experiment

We kindly ask you to answer some short questions regarding the experiment that you are participating in. As you have probably already understood, your answers are impossible to track. We therefore ask you kindly to answer the questions below truthfully. Thank you in advance.

1. First, state whether you are a man or a woman
  - Woman
  - Man
  
2. State your age:
  
3. Circle the sum of money you donated to the recipient in the preceding experiment
  - a) in the form of money
 

0 SEK	50 SEK	100 SEK
-------	--------	---------
  - b) in the form of malaria mosquito nets
 

0 SEK	50 SEK	100 SEK
-------	--------	---------
  
4. How often do you donate money to a charitable organization?
  - Never       A few times per year       Regularly every month
  
5. Please estimate the share of the Swedish gross domestic income (GDI) that goes to foreign aid each year.
  
6. What is your opinion on the share of the Swedish GDI that goes to foreign aid each year?
  - too small                      about right                        too large
  
7. Which single factor do you consider to be the most important for Swedish foreign aid to fulfill? (Choose one alternative)
  - that the aid is effective
  - that the aid goes to people that are geographically close to us
  - that the donor can influence what the money is used for (e.g., education, health care)
  - that the recipient's identity is known to the donor

Finally, if you have chosen to donate money and/or mosquito nets to the recipient in the experiment, we want you to answer question 8. If you have chosen not to give anything, we want you to instead answer question 9 below.

8. (Only to be answered if you did donate money and/or mosquito nets.)

If you only donated money you answer question a) below, if you only donated mosquito nets you answer question b), and if you donated both money and mosquito nets you answer question c). Each question contains a number of suggested motivations for your choice. Choose one alternative. If there are several alternatives that are in line with your motivation, pick the alternative that best describes how you were thinking at the time of your choice.

a) I donated only money because

I believe it gives the household the greatest possible freedom to use the donation the way it considers the best, which is principally important

I believe that it is more efficient if the household decides for itself how to use the money

It gives the household the possibility to prioritize other things that I consider to be more important than fighting malaria

None of the above is consistent with my reasons for donating money only. Instead I motivate my choice in the following way:

b) I donated only mosquito nets because

I care more about the health of the household members than about other aspects of their situation

By giving mosquito nets, the household receives a good it needs at the same time as I make sure that the money is not used to buy goods I believe might be harmful (such as tobacco and alcohol)

I believe that the mosquito nets can have positive effects for other persons than the ones using the nets

None of the above is consistent with my reasons for only donating money. Instead I motivate my choice in the following way:

c) I donated both money and mosquito nets because

I consider I have too little information to be able to choose between the two alternatives

I find that money and bed nets are equally important and I want to contribute in both cases

None of the above is consistent with my reasons for only donating money. Instead I motivate my choice in the following way:

9. I donated nothing because

I did not receive any money, only blank slips of paper (double-blind treatment)

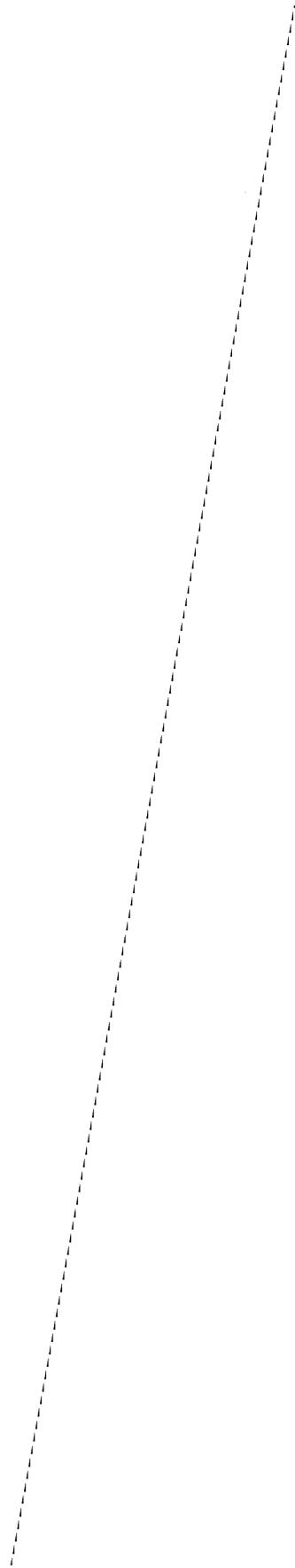
I do not believe in foreign aid

I need the money myself

I give regularly through other organizations

None of the above is consistent with my reasons for not donating money. Instead I motivate my choice in the following way:

The experiment is now over. Thank you for participating.



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## Altruism without Borders?

Anna Breman and Ola Granström

**ABSTRACT.** Why do individuals contribute to foreign aid? Does the willingness to give increase the more we know about the recipients? This paper experimentally tests altruism over borders. We design a cross-country dictator game where the degree of identification of the recipient is varied in four treatments: (1) anonymity, (2) photo, (3) information and (4) photo and information. In addition, questionnaire data on donor characteristics is gathered. The mean donation is 55%, which is considerably higher than in standard dictator games. In contrast to previous within-country experiments, we find no significant effect of identification on donations. Furthermore, we find that women donate significantly more than men (64 compared to 50 percent) and that those who state that aid is too large donate significantly less than those who state that aid is too small (24 compared to 67 percent).

Keywords: Dictator Game, Foreign Aid, Altruism, Identifiable Victim Effect  
JEL: A13, C72, C91 and F35

*“... Bono’s next target is the American people: he expects to have an army of 10 million activists signed up for the One Campaign by 2008. He believes – he knows – that the American people would demand action on Africa if only someone would tell them the facts.”*

(New York Times, September 18, 2005)

### 1. Introduction

Calls for increased foreign aid to developing countries have been legion in recent years. Such calls have come from celebrities like Bono the rock star, actress Angelina Jolie (O’Brian, 2005), Prime Minister Tony Blair and Professor Jeffrey Sachs (2002).

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Eleven of America's most well-known non-profit organizations have founded the campaign "ONE". Inspired by The United Nations' Millennium Development Goals, it demands that the U.S. devote an additional one percent of the federal budget to foreign aid. Despite the inefficiency of foreign aid being high on the agenda, private donations to foreign aid seem to be on the rise. In Sweden, forty percent of all registered charities now target foreign recipients (Breman, 2006). In the U.S., private contributions to international development have increased by two-digit numbers in 2001, 2002 and 2003 (Giving USA, 2005).<sup>1</sup>

Why do individuals contribute to private charities that help people in poor countries? Why would voters support government levying taxes for foreign aid? While there is a vast literature on foreign aid effectiveness<sup>2</sup>, and some literature on government incentives behind foreign aid (see Alesina and Dollar 2000 for an overview)<sup>3</sup>, we have found no literature on individual donors' motives for giving aid. Whether foreign aid is believed to be too high or too small, effective or detrimental, the question still remains as to what induces people to contribute to foreign aid.

This is the first paper, to our knowledge, to experimentally test cross-country altruism. First, we test the *identification effect*; whether the willingness to give increases with the information given about the recipients.<sup>4</sup> Experimental studies of within-country altruism using dictator games have shown that such identification increases donations (Bohnet and Frey, 1999; Burnham, 2003; Charness and Gneezy, 2003). We design a double-blind dictator game in line with this literature. The key difference from previous studies is that our recipient is a poor person in a developing country. To keep the experiment as close as possible to the real world features of charitable giving, the recipient was recruited in collaboration with SOS Children's Villages. The subjects were divided into four treatments where the degree of anonymity of the recipient varied.

Second, exit surveys were conducted to obtain characteristics of the individual donors and their motives for giving or not giving foreign aid. Donor characteristics are correlated with altruistic behavior in dictator games (see Camerer, 2003, for an overview). Testing donor characteristics may therefore give important insights into what affects the level of foreign aid.

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<sup>1</sup> The exact numbers are 13%, 11.6% and 14.8% for 2001, 2002, and 2003, respectively.

<sup>2</sup> For an introduction to this literature, see World Bank (1998)

<sup>3</sup> See also Lumsdaine (1993), Maizels and Nissanke (1984), Schreder, Hook and Taylor (1998) and Boschini and Olofsgård (2006).

<sup>4</sup> A related concept is the identifiable victim effect, which is discussed in e.g., Schelling (1968), Jenni and Loewenstein (1997), Small and Loewenstein (2003), and Small, Loewenstein and Slovic (2005).

It has been argued that cross-country altruism is weaker than within-country altruism. Kopczuk et al. (2005) compute the level of U.S. foreign aid to be consistent with Americans valuing the welfare of citizens of the poorest countries at 1/2000 the welfare of fellow Americans, or with an overwhelming part of foreign aid actually being wasted. In another U.S. study, Americans consider the level of foreign aid to be too high and want to see it reduced. It turns out, however, that they greatly overestimate the amount of money given to foreign aid. The amount considered to be reasonable is much higher than the actual U.S. foreign aid budget (PIPA, 2001).

The experiment finds strong evidence of cross-border altruism. The mean donation for the entire sample was 55 percent. Not only is this level considerably higher than what has been observed in ordinary dictator games where both dictators and recipients are students (Johannesson and Persson, 2000; Mohlin and Johannesson, 2005), it also exceeds the levels obtained in previous within-country dictator games conducted with deserving recipients (Eckel and Grossman, 1996; Fong, 2004).<sup>5</sup>

We show that there is no identification effect in cross-border giving. Mean donations do not differ significantly between the four treatment groups. This result is robust to testing levels as well as frequencies of donations. The results in Bohnet and Frey (1999), Burnham (2003) and Charness and Gneezy (2003) do not carry over to a cross-country setting. The reasons for this result are discussed in the concluding remarks.

Furthermore, the survey questions give us important information about the key determinants in giving aid. Regardless of the characteristics of the dictators, the majority (63 percent) consider effectiveness to be the decisive factor in giving aid while a mere nine percent say that knowing the identity of the recipient is important. We also show that the amount donated in the experiment is highly determined by donor characteristics and the attitude towards foreign aid. Women donate significantly more than men (64 as compared to 50 percent). Answering that foreign aid is “too small” is significantly associated with an increase in donation from 24 to 76 percent, as compared to answering that foreign aid is “too large”.

Based on the results, we can thus identify two main criteria that influence the public’s support for foreign aid. First, the effectiveness is singled out as the most important factor in giving aid by the majority of subjects in the experiment. When aid is guaranteed to reach the recipients, as in this experiment, mean donations are high. Second, donations are directly related to the attitude to foreign aid. The negative attitude in countries like the U.S. is associated with grossly overestimating the amount of money devoted to development assistance. Increasing the knowledge about the

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<sup>5</sup> Note that Johannesson and Persson (2000) and Johannesson and Mohlin (2005) were conducted on the same population of students. Both experiments yield average donations of 13 percent. Eckel and Grossman (1996) and Fong (2004) both yield average donations of 30 percent.

actual level of aid could therefore positively influence the willingness to contribute to foreign aid.

The paper proceeds as follows. The subsequent section presents the design of the experiment while the third gives the results and presents several robustness tests. The fourth section discusses the results and concludes.

## 2. Experimental Design

The experiment was a double-blind n-donor dictator game with four separate treatments. Each treatment was carried out in two separate sessions. In each of the eight sessions, about 20 donors were matched with a single real-life recipient in the SOS Children's Village in Port Elizabeth, South Africa. The dictators, recruited among the undergraduate students at Stockholm School of Economics and Stockholm University, were randomly selected into the four treatments. The recipient, a 12-year old boy, was recruited through the Swedish branch of SOS Children's Villages. As stated in the instructions (see the appendix), the agreement was that any money donated to the child should go to everyday expenses for food, clothes, education and health care minus an administrative fee of eight percent taken by the charitable organization.

When subjects arrived at the experiment, they were given the SEK 50 show-up fee<sup>6</sup> and were asked to sit and read the instructions quietly without interacting with any of the other subjects. When all subjects had arrived, the instructions were read out by the experiment leader and one student was chosen to be the monitor. The monitor handed out opaque envelopes which, in all but one case, contained six SEK 20 bills<sup>7</sup>, i.e. SEK 120, as well as six pieces of paper (of equal size as the money bills). The last envelope contained no money bills, only twelve pieces of paper as is customary in double-blind dictator games. One subject at a time went behind a screen<sup>8</sup> to make his/her choice on how to divide the money between himself/herself and the recipient child. The subject then moved to a second screen behind which he/she anonymously filled out a questionnaire about the experiment. After that the subject was free to leave.

When all subjects had made their decisions and filled out the questionnaire, the monitor opened each envelope together with the instructor and took note of the results. All the money together with a follow-up note from the session was then put in a brown envelope addressed to the local office of SOS Children's Villages. The envelope was

<sup>6</sup> 1 USD  $\simeq$  SEK 7.

<sup>7</sup> The sum SEK 120 was chosen so as to allow for the equal division of SEK 60 – SEK 60 (note that SEK 10 bills do not exist).

<sup>8</sup> The screens were the same as those used during elections in Sweden and borrowed from the local government.

sealed and the supervisor and the instructor went together to the closest mail box and mailed the envelope. The SOS Children's Villages is a well known charitable organization in Sweden and it was clear from the instructions that the money would be sent directly there. The subjects could therefore not doubt the accuracy of the experiment.

**2.1. Treatment groups and hypotheses.** The subjects were randomly selected into one of four treatments. The degree of recipient identification, i.e., the amount of information about the recipient that was provided to the participants, was varied between the treatments in the following way:<sup>9</sup>

**Treatment 1: Recipient anonymous.** The recipient is an anonymous child in the SOS Children's village Port Elizabeth in South Africa.

**Treatment 2: One-way visual identification (photo).** The recipient is a child in the SOS Children's village Port Elizabeth in South Africa. A photo of the child is included at the end of the instructions.

**Treatment 3: One-way written identification (written information).** The recipient is a child in the SOS Children's village Port Elizabeth in South Africa. Some information about the child is included at the end of the instructions.

**Treatment 4: One-way visual identification and one-way written identification (photo and written information):** The recipient is a child in the SOS Children's village Port Elizabeth in South Africa. A photo and some information about the child are included at the end of the instructions.

In the experiment, the true identity of the child was revealed, but in this paper the name and the date of birth are concealed from the reader. The information given about the child in treatments 3 and 4 was the following:

*Name: XXXX*

*Born: YYYY, 19ZZ*

*XXXX, or "XX" as he is mostly called, came to our children's village in October 2002 where he now attends third grade in school. In his spare time, XX prefers playing cricket or pool. The boy is described as very civil and shy and to begin with, it was difficult for him to get to know the other children. Nowadays, he gets along very well with his SOS brothers and sisters, and even though he is somewhat introvert, he is well*

<sup>9</sup> The complete instructions for the four treatment groups can be found in the appendix.

*settled in his new environment. The boy is trustworthy and responsible and helps with the household work.*

*Since XX was a street child, we have no information about his family background. XX was homeless when a social worker noticed him on a street in Motherwell. At that time, the boy was already ten years old and without any adult supervision. The police tried without any success to identify the parents and thereafter, the authorities chose to place him in our Children's Village. Here, XX can grow up in a safe, stable and caring environment and he has the possibility to go to school and get an education.*

We test the general assumption that identification increases offers against the alternative that there is no identification effect. Let  $D_i$  denote the distribution of offers in treatment  $i$  ( $i = 1, \dots, 4$ ). Then, we test the following three main hypotheses about dictator behavior.

$H_1$  : The willingness to give is higher in the case of one-way visual identification, i.e. when the donor sees a photo of the recipient, than otherwise. In other words, the average offer should be higher in treatment 2 (photo) than in treatment 1 (anonymous), and higher in treatment 4 (photo and written information) than in treatment 3 (written information). Hence, we get the following two null hypotheses:  $D_2 = D_1$  and that  $D_4 = D_3$ .

$H_2$  : The willingness to give is higher in the case of one-way written identification, i.e. when the donor is provided with written information about the recipient, than otherwise. That is, the average offer should be higher in treatment 3 (written information) than in treatment 1 (anonymous), and higher in treatment 4 (photo and written information) than in treatment 2 (photo). In this case, our two null hypotheses are:  $D_3 = D_1$  and that  $D_4 = D_2$ .

$H_3$  : The willingness to give is higher in the case with both one-way visual and one-way written identification, i.e., when the donor is provided with a recipient photo and written information, than when the recipient remains anonymous. Our final null is therefore:  $D_4 = D_1$ .

If, as hypothesized above, mean offers are higher when the recipient is identified – i.e., if we can reject the null that the underlying distribution of offers is independent of the treatment – we may conclude that there is such a thing as an identification effect

increasing the willingness to give. Before turning to the results, however, we discuss some design concerns related to the experiment as well as the exit surveys.

**2.2. Design Concerns.** Three considerations were of particular importance to us when designing this experiment; the connection to previous experiments, the mimicking of real-world framing, and fairness.

First, we aimed at using the design in previous literature focusing on within-country altruism. This experiment therefore closely follows the design in Hoffman et al. (1996), Bohnet and Frey (1999) and Burnham (2003) with separate treatment groups for each step of identification. We had to forego one of the standard designs used in dictator games, namely that each dictator makes an offer to one recipient. Here, the dictators were informed that everyone participating in one session was giving to the same child. This design has been used in previous dictator games when the recipient is not a student (see Eckel and Grossman, 1996; Fong, 2004; Jacobsson et al., 2005).

Second, we aimed at mimicking the real-life behavior of charitable organizations as closely as possible (cf. Andreoni and Petrie, 2004). Charitable organizations often use photos and written information about the recipients to induce altruistic behavior among donors. The photo and the description of the child are therefore identical to the information ordinarily given to foster families supporting a child in an SOS Children's Village.

Third, fairness has been shown to play a crucial role in ultimatum and dictator games (see Camerer, 2003). Therefore, we wanted to allow for an equal distribution between dictators and recipients. Since there are no SEK 10 bills in Sweden – only coins – we were left with SEK 20 bills and the total sum was therefore SEK 120, allowing for a 60-60 split.

**2.3. Questionnaire design and measurements.** Since this is the first experimental study of micro-level donor preferences over foreign aid, we were interested in donors' characteristics and their motives for giving foreign aid or not providing aid. Dictators therefore had to fill out an anonymous questionnaire after having chosen how to divide the money but before leaving the room. In particular, we wanted to test if there were any differences in behavior between women and men and whether the attitude to foreign aid influenced donor behavior.

There is evidence that women and men behave differently in dictator and ultimatum games (see Camerer, 2003, for an overview). Andreoni and Vesterlund (2001) find no clear evidence that women should generally be more generous than men in dictator games. Instead, gender seems to interact with many other variables (e.g., prices, beliefs

about the recipient). Eckel and Grossman (1998) test gender differences in a double-blind dictator game controlling for risk, gender-related subject interactions, and the experimenter effect. They find a significant gender difference; women, on average, donate twice as much as men. Therefore, it was important to keep the share between men and women approximately equal in the treatment groups, but also to follow up in the questionnaire to see whether we could identify a difference between the sexes.

In studies on attitudes to foreign aid, the American public tends to overestimate the amount of money devoted to foreign aid (see e.g., PIPA, 2001). The level it finds acceptable is noticeably higher than the actual budget for foreign aid. For that reason, the subjects were asked to estimate the size of the Swedish budget for foreign aid (as a percentage of GDI). It has been a well known target by Swedish governments that the foreign aid budget should be 1.0 percent of GDI. The UN recommended level is 0.7 percent and the present actual budget in Sweden at the time of the experiment was 0.87 percent. Answers around one percent were therefore expected. The subsequent question in the survey asked the subjects to state whether they believed the current level of foreign aid to be too small, about right, or too large.

We also asked the subjects to choose which of the following four alternatives they considered the most important for foreign aid to fulfill in general:

- (1) that the aid is effective (efficiency)
- (2) that the aid reaches people that are geographically close to us (proximity)
- (3) that the donor can influence what the money is used for (for example education, health care), (influence)
- (4) that the recipient identity is known to the donor (recipient known)

Finally, we invited the subjects to motivate why they had given/not given any money in the experiment. Those who did not donate were asked to provide their reasons, but we did not suggest any answers. Those who did donate were given the following five options (not mutually exclusive): (1) empathy, (2) fairness, (3) warm-glow, (4) reciprocity, and (5) other (open-ended).<sup>10</sup>

### 3. Results

We conducted the experiment in September 2004 at the Stockholm School of Economics. 181 subjects participated in the eight sessions (two sessions per treatment) eight of which received blank notes of paper and eight were chosen to be monitors.

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<sup>10</sup> See the appendix for the exact formulation of the questionnaire.

The total number of observations was thus 165 subjects, 46 of which were in the first treatment, 40 in the second, 38 in the third and 41 in the fourth treatment.<sup>11</sup>

**3.1. Treatment effects.** Table 1 presents summary statistics for the four treatment groups. The first thing to observe is the high mean offers in all four treatments groups; 58, 46, 55 and 61 percent, respectively. This is considerably higher than in previous double-blind dictator games using the same student population, but where both dictators and recipients are students within the same country. Both in studies by Johannesson and Persson (2000) and Mohlin and Johannesson (2005), the experiments yield average donations of 13%. It is also noticeably higher than previous double-blind experiments in the US, where the average donation has ranged from 8 to 16 percent of the endowment (Hoffman et al., 1996; Eckel and Grossman, 1996, 1998; Burnham 2003). Clearly, foreigners are not valued at 1/2000 as compared to fellow citizens as suggested in Kopczuk et al. (2005).

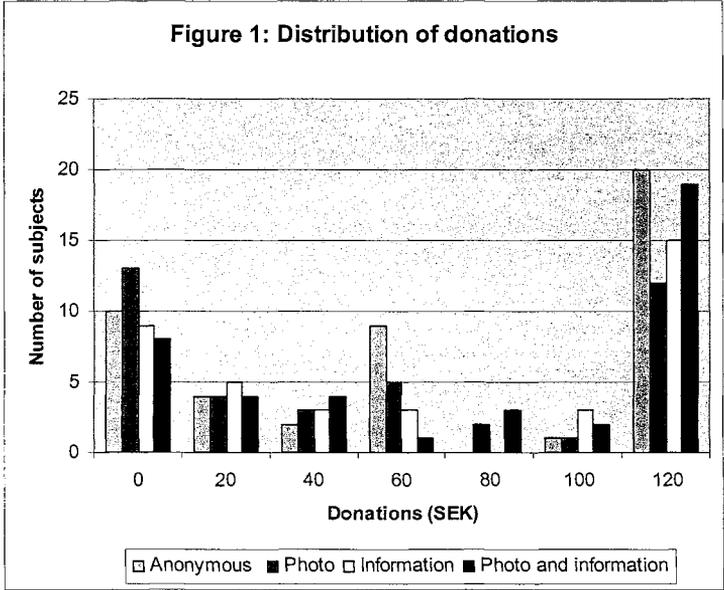
TABLE 1. Summary Statistics

	<b>Treatment 1</b>	<b>Treatment 2</b>	<b>Treatment 3</b>	<b>Treatment 4</b>
<b>Degree of identification</b>	Anonymous child	Photo	Written information	Photo and written information
Mean donations, SEK (percentage)	69.57 (58%)	55 (46%)	65.79 (55%)	73.66 (61%)
Standard deviation	50.02	50.38	51.76	50.49
Number of observations	46	40	38	41
Mean donations conditional on giving, SEK (percentage)	88.89 (74%)	81.48 (68%)	86.21 (72%)	91.52 (76%)
Standard deviation	38.18	39.59	41.44	38.74
Number of observations	36	27	29	33

The second thing to note is the high standard deviations, which reflect the broad distribution of offers (as shown in Figure 1). The offers have peaks on SEK 0 and SEK 120 and the share of offers in between the minimum and maximum are highly similar between the four treatments (see Table 2). The offers do not seem to be normally

<sup>11</sup> The reason why the sessions were of unequal size is that some students did not show up at their designated session.

distributed. Using the Kolmogorov-Smirnov test for normality, we can reject the null hypothesis that offers are normally distributed with  $p$ -values  $< 0.05$  for treatments 1, 3 and 4. In the second treatment, the corresponding  $p$ -value is 0.078.



Since the offers are not normally distributed, a standard  $t$ -test to compare average offers across the four treatment groups is not appropriate. Instead, we use the non-parametric Wilcoxon rank test for non-paired data (also known as the Mann-Whitney test).<sup>12</sup> The Mann-Whitney tests the null that the distributions are equal between two treatments. The results are reported in Table 3 (all  $p$ -values are double-sided). Our three main hypotheses are discussed in detail in section 3.1.

Hypothesis 1 that the distribution of offers is unaffected by photo identification cannot be rejected in a Mann-Whitney test, both comparing treatment 1 (anonymity) with treatment 2 (photo) ( $p=0.17$ ) and comparing treatment 3 (information) with treatment 4 (photo and information) ( $p=0.50$ ).

Neither can we reject the second hypothesis that the distribution of offers should be unaffected by written information. The Mann-Whitney test is not significant at the five-percent level for treatment 1 (anonymity) compared with treatment 3 (information)

<sup>12</sup> However, all results presented here also hold under a two-sample  $t$ -test with unequal variances.

TABLE 2. Distribution of donations

	Offers X=0	Offers 0<X<120	Offers X=120
Treatment 1 (anonymous)	22%	35%	43%
Treatment 2 (photo)	33%	37%	30%
Treatment 3 (information)	24%	37%	39%
Treatment 4 (photo and information)	20%	34%	46%

( $p=0.67$ ) nor comparing treatment 2 (photo) with treatment 4 (photo and information) ( $p=0.0998$ ).<sup>13</sup>

Finally, hypothesis 3 that the distribution of offers is the same for treatment 1 (anonymity) and treatment 4 (photo and written information) is also rejected by a Mann-Whitney test ( $p=0.75$ ).

Furthermore, we perform an additional Mann-Whitney test for mean donations, conditional on giving and a Pearson's chi-squared test for the share of positive donations. The results are reported in Table 3.

The Mann-Whitney conditional on giving tests our three hypotheses that the distribution of positive donations is the same in the four treatments. As shown in Table 3, we cannot reject that the distributions of donations are the same. This strengthens the result that identification has no effect on donations.

The Pearson's chi-squared tests the null that the fraction of positive donations is the same across treatments.<sup>14</sup> Once more, the null cannot be rejected. The fraction of positive donations is unaffected by (1) identification by photo, (2) identification by written information, and (3) identification by photo and written information.

Hence, the evidence indicates that identification is not equally important in cross-country altruism as in within-country altruism. The next section shows some results from the exit surveys that move us closer to an explanation for this result.

<sup>13</sup> The  $p$ -value is significant at the ten-percent level. This could be a weak sign of information having an effect on donations. However, average donations in treatment 3 (information) are lower than in treatment 1 (anonymity) and the difference is not significant. This is inconsistent with the comparison of treatments 2 and 4.

<sup>14</sup> See D'Agostino (1988) for a motivation as to why Pearson's chi-squared test is to be preferred to e.g., Fischer's exact test, when testing the equality of two population fractions.

TABLE 3. Mann-Whitney and Pearson's chi2 Tests

Null hypothesis	Identification by photo		Identification by information		Identification by photo and information
	$D_1 = D_2$	$D_3 = D_4$	$D_1 = D_3$	$D_2 = D_4$	$D_1 = D_4$
<i>Mann Whitney, mean donations</i>					
z-scores	1.37	-0.68	0.433	-1.65	-0.32
(p-value)	(0.17)	(0.50)	(0.67)	(0.0998)	(0.75)
Number of observations	86	79	84	81	87
<i>Mann Whitney, mean donations conditional on giving</i>					
z-scores	0.80	-0.52	0.42	-0.98	-0.19
(p-value)	(0.43)	(0.60)	(0.68)	(0.33)	(0.85)
Number of observations	63	62	65	60	69
<i>Pearson's chi2 test, the fraction of positive donations</i>					
Chi2(1)	1.26	0.20	0.05	1.78	0.066
(p-value)	(0.26)	(0.65)	(0.83)	(0.18)	(0.80)
Number of observations	86	79	84	81	87

Note: All p-values are two-sided

**3.2. Overview of questionnaire results.** Table 4 depicts summary statistics over the questions in the questionnaire. We first discuss the results related to the attitude to foreign aid, and second the characteristics of the donors and how that, in turn, is related to the attitudes and motives for giving.

Several questions in the questionnaire are related to the subjects' attitude towards foreign aid. In line with surveys in the U.S., the subjects in the experiment overestimate the share of GDI devoted to foreign aid. The sample mean is 3.5 percent and the median is 2.0 percent. The one-percent government target is not as widely known as expected. When asked about the magnitude of aid, 45 percent think it is too small, 46 percent find it about right and merely 9 percent state that it is too large. Hence, the subjects overstate the magnitude of foreign aid, but the vast majority (91 percent) finds it about right or too small.

To further test for the identification effect, we asked what the subjects considered to be (1) the most important factor for foreign aid in general and (2), their motives for giving in this particular case. On general foreign aid, 63 percent state effectiveness

TABLE 4. Summary of Questionnaire Data

Question variable	Outcomes					
	Women	Men	Total			
<b>Gender</b>						
Number of observations (percentage)	74 (45%)	91 (55%)	165 (100%)			
Mean donations conditional on gender	64%	50%	55%			
<b>Estimated aid share</b> (percent of GDI)	Mean 3.5%	Median 2.0%	Mode 1.0%			
<b>Opinion on current level of aid</b>	Too small	About right	Too large			
Fraction of sample	45%	46%	9%			
Mean donation conditional on opinion	67%	50%	24%			
<b>Most important factor for foreign aid</b>	Efficiency	Influence	Recipient known	Proximity		
Fraction of sample	63%	25%	9%	2%		
Mean donation conditional on factor	60%	50%	50%	50%		
<b>Motive for giving (non exclusive)</b>	Empathy	Fairness	Warm-glow	Reciprocity	Proximity	Other
Fraction of sample	34%	15%	13%	5%	2%	36%
Mean donations conditional on motive	71%	64%	71%	44%	83%	83%

as the key determinant and 25 percent value the possibility of influencing what the aid is used for (e.g. health care, education). Knowing the identity of the recipient finds very small support (nine percent), and proximity to the recipient even less (two percent). Hence, being able to identify the recipient is not listed as a key decisive factor for giving foreign aid in general. This is further strengthened by the motives for giving in this particular case. A mere six percent state reciprocity<sup>15</sup> as the cause. This seems reasonable, considering that the donor is completely anonymous to the recipient.

<sup>15</sup> Hoffman et al. (1996) argued that reciprocity and identification are “inextricably intertwined” as explanations for pro-social behavior in dictator games.

Instead, feeling empathy for the child (43%), fairness (19%), and warm-glow<sup>16</sup> (17%) are the self-reported motives for giving in this particular experiment.

Regarding individual donor characteristics, we see that mean donations by women (64 percent) are considerably higher than mean donations by men (50 percent). This result is in line with some previous experimental evidence, which shows that women are more generous than men in dictator and ultimatum games (see Camerer, 2003).

We test whether donor characteristics and/or attitudes to foreign aid have any significant effect on mean donations. This is done by regressing the actual donations on dummy variables for women/men, the attitude to aid, and motives for giving. Table 5 (see the Appendix) presents the results.

In all regressions, treatment dummies are included and treatment 1 (anonymity) is the baseline. As shown in Table 5, and in line with the Mann-Whitney test, the treatment dummies are never significant. In other words, none of the treatments significantly affects average donations compared to the baseline.

In OLS(2), we see that women give significantly more than men controlling for the treatments. The average woman gives 13.4 percentage units more than the average man. Another significant effect is the attitude to foreign aid. Stating that foreign aid is "too small" compared to stating that it is "too large" is significantly associated with a 44 percentage unit difference in average donation (OLS(3)). However, when we control for attitude to aid (OLS(4)), the higher donation by women is no longer significant. Being a woman therefore seems to be highly correlated with finding foreign aid to be "too small".

OLS(5) shows that the variable "most important factor when giving aid" divided into efficiency, influence and recipient known, does not have any significant impact on average donations. As we have seen, 63 percent stated that effectiveness was the most important factor for foreign aid, which seems to be true, regardless of the amount donated.

OLS (6) shows the individual motives for giving aid in this particular experiment. The regression is based on positive donations ( $N = 129$ ). Reciprocity is significant at the five-percent level ( $p=0.037$ ). The coefficient is negative, indicating that those who stated reciprocity as a motive for giving, on average offer less than the mean donations among positive donations. "Other" is positive and significant and it is an open-ended question used by most subjects to clarify their motivations. Since the alternatives were not mutually exclusive, many of those who chose "other" also chose one of the other alternatives. Therefore, there is no conclusion to be drawn about that variable.

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<sup>16</sup> See Andreoni (1990) for a longer discussion on warm-glow as a motive for altruistic behavior.

Furthermore, we run double-sided Tobit regressions since the data is censored from below at zero and from above at 120. The Tobit regressions are presented in Table 6 (see the Appendix). The results from this robustness test are essentially the same as those in the OLS regressions. The minor differences are that the variable "sex" is significant at  $p=0.053$  in Tobit(2), "aidlarge" is significant at  $p=0.057$  in Tobit(4), and "reciprocity" is significant at  $p=0.094$  in Tobit(6).

The questionnaire data reinforces the experimental evidence that identification does not significantly increase mean donations. Few people state that it is important to know the identity of the recipient (9 percent). Instead, the questionnaire points to effectiveness as the most important factor for foreign aid (63 percent). Effectiveness is chosen by donors regardless of gender and the amount donated. The second most important factor in giving aid is to be able to influence the use of the donations (25 percent), which can be seen as a sign of paternalistic altruism.

#### 4. Concluding Remarks

Altruism does not stop at the border. On the contrary, this first experiment to investigate donor behavior in a foreign-aid setting indicates that cross-country altruism exists. Donors in our experiment displayed a considerable willingness to give. The mean donation for the entire sample was surprisingly high at 55 percent.

However, in this cross-country dictator game, we cannot replicate the result of Bohnet and Frey (1999), Burnham (2003), and Charness and Gneezy (2003) that donations increase with recipient identification.<sup>17</sup> How can we explain the discrepancy in results between those studies and ours? Is there some unexpected difference in our experimental design or is the identification effect not robust between experiments? Several facts point to the latter explanation.

First, our experiment is close in design to those of Bruno and Frey (1999), and Burnham (2003). The two key differences are that our recipient is (1) poor and (2) living in a developing country. The poverty aspect, "the perceived need" may certainly explain the observed higher mean donations in all our treatment groups. The difference in mean donations between treatment groups, however, should only be affected by the degree of identification.

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<sup>17</sup> Bohnet and Frey (1999) found a significant identification effect from one-way visual identification with information about the recipient, but no significant effect from one-way visual identification without information. Burnham (2003) did find a significant effect from one-way visual identification using photos (no information). Charness and Gneezy (2003) found a significant effect of revealing the family names of the recipients to subjects in a dictator game.

Second, even though a large share of donors offers the maximum amount already in the anonymous treatment, sixty percent of the dictators can still raise their donations as the amount of information about the recipient increases.<sup>18</sup> No such increase occurs. The fraction of positive donations does not differ significantly between treatments.

Third, in Bohnet and Frey (1999), Burnham (2003), and Charness and Gneezy (2003), the identification effect can be seen as minimizing the social distance between donors and recipients, thus increasing pro-social behavior. While increasing identification in a dictator game between students might trigger reciprocity concerns (see Hoffman et al., 1996, 1999), our cross-country setting enabled us to isolate the potential identification effect and thus, to eliminate any reciprocity concerns. Instead, our experiment triggered – according to the questionnaire – empathy and fairness as the key reasons for giving.

Moreover, our results are in line with experimental evidence on identifiable versus statistical victims. While Jenni and Loewenstein (1997) show that an emotional description of the victim does not increase the willingness to help, Small and Loewenstein (2003) demonstrate that determining the victim without providing particulars about him suffices to increase the willingness to help. Both these features are captured in our experiment.

On a general level, aid efficiency seems crucial for the willingness to give.<sup>19</sup> In a world with considerable uncertainty concerning the efficiency of foreign aid, earmarking aid for identified recipients presumably complicates the embezzlement of funds and hence, a way of alleviating donor concerns with foreign aid waste. Recipient identification may also be a way for a charity of signalling that aid allocation is based on the perceived need of recipients.

Furthermore, identifying the recipient may be a means for a charitable organization of raising donor commitment. It is emotionally more challenging to cut off funding for a recipient whom you "know" than for one who has remained anonymous to you, since personal information creates emotional ties. Having an identified recipient for each donor might be a way for the charitable organization of engaging its donors in repeated funding. If charitable organizations face credit market restrictions, such long-term commitment may provide a means of smoothing fluctuations in private donations, reducing risk and thereby increasing the efficiency of charitable funding.

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<sup>18</sup> The experiment has an in-between subject design and it is not the same donors in the treatments following the anonymous treatment.

<sup>19</sup> 63 percent of the participants in the experiment stated "efficiency" as the decisive factor for giving foreign aid. Moreover, efficiency ranked as the most important factor, regardless of donor characteristics and the amount donated.

Relating back to the Kopczuk et al. (2005) study, we can conclude that it is not likely that a foreigner is valued at  $1/2000$  as compared to a person within the same country. As shown by this study, their alternative explanation, i.e., the perceived effectiveness hypothesis, seems more plausible. The low level of cross-country income redistribution compared to within-country redistribution, may be explained by the fact that donors expect a significant fraction of cross-border transfers to be wasted. In a recent experiment, Breman and Granström (2006) show that fears of aid diversion significantly reduce donations as compared to the case where aid reaches the targeted recipients with certainty.

This paper offers a first glance at the behavioral foundations for foreign aid related altruism. What induces cross-border donations? We have shown that it is not recipient identification. Instead, donor characteristics such as gender and beliefs and attitudes to foreign aid are important predictors of the willingness to give. The key determinant, however, seems to be perceived effectiveness. When aid is guaranteed to reach recipients in need, as in this experiment, the willingness to give is remarkably high.

## Appendix A

### EXPERIMENT INSTRUCTIONS

The original instructions were in Swedish. This appendix reprints a translation of the instructions used in the four experimental treatments. The instructions below are those of the baseline group, i.e. the anonymous treatment group. The second section (in italics) is the only one changed in between the four treatments. Therefore, we only provide section 2 of the instructions for treatments two, three and four.

### INSTRUCTIONS IN THE ANONYMOUS TREATMENT

#### To the participants in an economics experiment

You have agreed to participate in this study which will take about half an hour to carry out. You have been paid SEK 50 for your participation. You may also earn an additional amount of money (at most SEK 120).

*Everyone in the room (except the monitor and one more person, see below) will decide how to allocate SEK 120 between himself/herself and an anonymous child in the SOS Children's Village Port Elizabeth in South Africa. The total sum of money that is given away by all in this room will be given to a the child in the Village mentioned above, except for an administrative fee of 8 percent that is taken by SOS Children's Villages. The donated money to the child will go to everyday expenses for food, clothes, education and health care.*

SOS Children's Villages is an organization founded in 1949 in Austria and it aims at giving orphaned and abandoned children a home, a family and education. SOS Children's Villages belongs to SFI, the Swedish Foundation for Fundraising Control.<sup>20</sup> SFI regularly monitors the organization and controls that the money is used in the appropriate way, which gives SOS Children's Villages Sweden the right to use a so-called 90-account.

One of you will be chosen to be the monitor for the experiment. The monitor will be paid SEK 120 in addition to the SEK 50 already paid. The monitor will be in charge of the envelopes as explained below. In addition, the monitor will verify that the instructions have been followed as they appear here.

<sup>20</sup> See <http://www.insamlingskontroll.a.se/>. The Swedish name is "Stiftelsen för Insamlingskontroll". This non-profit organisation is financed by contributions from the charitable organisations that are entitled to use a 90-account. A 90-account is a special bank account only to be used by officially monitored charitable organizations.

The experiment is conducted as follows: unmarked envelopes corresponding to the number of participants have been placed in a box. All these except one contain six SEK 20 bills and six blank slips of paper of the same size. The remaining envelope contains twelve blank slips of paper. The monitor will call one person at a time and hand each person an envelope from the box. The person will take the envelope and go behind screen number one. The envelope will then be opened privately behind the screen.

When you have opened the envelope you have to decide how many bills and how many slips of paper to leave in the envelope. The number of bills and the number of slips of paper must add up to six. You then pocket the remaining SEK bills and slips of paper. Example: (1) Leave SEK 20 and five slips of paper in the envelope and pocket SEK 100 and one slip of paper. (2) Leave SEK 80 and two slips of paper in the envelope and pocket SEK 40 and four slips of paper. These are examples only. The actual decision is up to you. No one else will know your decision.

Once you have made your decision, you will seal the envelope and then place it in the box marked "returned envelopes". You then proceed to screen number two where you anonymously fill out a questionnaire with questions concerning the experiment. You then place the questionnaire in the box marked "questionnaires". The experiment is then over for you and you may leave the room.

After all envelopes have been returned, the monitor opens the envelopes and records the content of each envelope. The monitor then puts all SEK 20 bills in a stamped envelope addressed to the SOS Children's Villages, Sweden (the envelope also contains a letter that refers to the experiment, which the monitor reads through). When the money has been put in the envelope, the envelope is sealed and the monitor and the experimenter go to the closest mailbox and mail the envelope. SOS Children's Villages will transfer the total sum minus the administrative fee of eight percent to the child in the village in Port Elizabeth, and a certificate that this has happened will be sent by e-mail to the monitor. The experiment is then over.

## **INSTRUCTIONS IN THE PHOTO TREATMENT (Section 2)**

*Everyone in the room (except the monitor and one more person, see below) will decide how to allocate SEK 120 between himself/herself and an anonymous child in the SOS Children's Village Port Elizabeth in South Africa. A photo of the child is attached at the end of these instructions. The total sum of money that is given away by all in this room will be given to a the child in the Village mentioned above, except for an administrative fee of 8 percent that is taken by SOS Children's Villages. The donated*

*money to the child will go to everyday expenses for food, clothes, education and health care.*

**INSTRUCTIONS IN THE WRITTEN INFORMATION TREATMENT  
(Section 2)**

*Everyone in the room (except the monitor and one more person, see below) will decide how to allocate SEK 120 between himself/herself and an anonymous child in the SOS Children's Village Port Elizabeth in South Africa. Some information about the child is attached at the end of these instructions. The total sum of money that is given away by all in this room will be given to a the child in the Village mentioned above, except for an administrative fee of 8 percent that is taken by SOS Children's Villages. The donated money to the child will go to everyday expenses for food, clothes, education and health care.*

**INSTRUCTIONS IN THE PHOTO AND WRITTEN INFORMATION  
TREATMENT (Section 2)**

*Everyone in the room (except the monitor and one more person, see below) will decide how to allocate SEK 120 between himself/herself and an anonymous child in the SOS Children's Village Port Elizabeth in South Africa. A photo and some information about the child are attached at the end of these instructions. The total sum of money that is given away by all in this room will be given to a the child in the Village mentioned above, except for an administrative fee of 8 percent that is taken by SOS Children's Villages. The donated money to the child will go to everyday expenses for food, clothes, education and health care.*

## Appendix B

### QUESTIONNAIRE

#### Some questions to you who participate in this experiment

We kindly ask you to answer some short questions regarding the experiment you are participating in. As you have probably already understood, your answers are impossible to track. We therefore ask you kindly to answer the questions below truthfully. Thank you in advance.

1. First, state whether you are a man or a woman
  - Woman
  - Man
  
2. Below circle the sum of money you donated to the child in the preceding experiment
 

**0 SEK   20 SEK   40 SEK   60 SEK   80 SEK   100 SEK   120 SEK**
  
3. Please estimate the share of Swedish gross domestic income (GDI) that goes to foreign aid each year: \_\_\_\_\_
  
4. What is your opinion on the share of Swedish GDI that goes to foreign aid each year?
  - too small     about right     too large
  
5. What agent in the recipient country do you think should be the principal recipient of Swedish foreign aid?
  - the State     private agents
  
6. Which **single** factor do you consider to be the most important for Swedish foreign aid to fulfill? (Choose one alternative)
  - that the aid is effective (efficiency)
  - that the aid goes to people that are geographically close to us (proximity)
  - that the donor can influence what the money is used for (e.g., education, health care), (influence)

that the recipient's identity is known to the donor (recipient known)

Finally, if you have chosen to donate money to the child in the experiment, we want you to answer question 7 below. If you have chosen not to give anything, we want you to instead answer question 8, also below.

7. We are interested in why you chose to donate money, when you could have kept the money yourself without losing anything from it. Below, you find a couple of suggested alternatives on what made you donate money and how you may have reasoned when you took this decision. Mark the alternative/alternatives that **best** corresponds/correspond to how you were reasoning when you made the decision to donate money.

I feel empathy/compassion with the child and therefore I want to give up money to the child.

I chose to give up the money to the child in the experiment for reasons of fairness since the allocation of the SEK 120 becomes fairer if I give up part to the child.

I chose to give up the money to the child in the experiment since the act of giving in itself makes me feel good. What is most important to me is that I have made a gift.

I chose to give up the money to the child in the experiment, since I hope that this means that I can get help myself if I get in trouble in the future.

none of the above alternatives is consistent with my thoughts and feelings when I chose to donate money. Instead I motivate my choice in the following way:

-----  
 -----  
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8. In the case you did not donate any money, tell us why you made that decision:

-----  
 -----  
 -----

The experiment is now over. Thank you for participating.

TABLE 5. Relationship between donations and survey answers, OLS

<b>All treatments</b>						
	OLS(1)	OLS(2)	OLS(3)	OLS(4)	OLS(5)	OLS(6)
<i>Dependent variable:</i>						
<i>Share donated out of SEK 120</i>						
Constant	<b>.587</b> (.060)	<b>.532</b> (.068)	<b>.522</b> (.073)	<b>.500</b> (.078)	<b>.554</b> (.227)	<b>.608</b> (.094)
Treatment dummy (treatment 2)	-0.099 (.089)	-0.094 (.089)	-0.084 (.088)	-0.083 (.088)	-0.108 (.090)	-0.037 (.080)
Treatment dummy (treatment 3)	-0.043 (.093)	-0.055 (.091)	-0.001 (.087)	-0.008 (.086)	-0.055 (.092)	-0.009 (.083)
Treatment dummy (treatment 4)	.031 (.089)	.018 (.088)	.020 (.087)	.086 (.087)	.021 (.087)	.042 (.078)
Sex (d=1 if woman, 0 otherwise)		<b>.134</b> (.065)		.068 (.066)		
Aid too small			<b>.435</b> (.094)	<b>.152</b> (.068)		
Aid too large			<b>-.271</b> (.096)	<b>-.253</b> (.096)		
Effectiveness					.078 (.225)	
Influence					-.020 (2.30)	
Recipient known					-.042 (.246)	
Empathy						.082 (.072)
Warm-glow						.079 (.078)
Fairness						-.016 (.079)
Reciprocity						<b>-.211</b> (.100)
Other						<b>.212</b> (.078)
R <sup>2</sup>	0.014	0.039	0.103	0.109	0.028	0.119
F-test (p-value)	0.77 (0.515)	1.81 (0.130)	5.26 (0.000)	4.95 (0.000)	0.72 (0.635)	2.65 (0.010)
Number of observations	165	165	164	164	165	129

Note: Robust standard errors are reported in parentheses.

A bold coefficient is significant at  $p < 0.05$ .

TABLE 6. Relationship between donations and survey answers, Tobit

<b>All treatments</b>						
	TOB(1)	TOB(2)	TOB(3)	TOB(4)	TOB(5)	TOB(6)
<i>Dependent variable:</i>						
<i>Share donated out of SEK 120</i>						
Constant	<b>.783</b> (.159)	<b>.645</b> (.170)	<b>.589</b> (.174)	<b>.535</b> (.181)	.678 (.529)	<b>.689</b> (.255)
Treatment dummy (treatment 2)	-.279 (.229)	-.260 (.226)	-.232 (.216)	-.225 (.215)	-.309 (.231)	-.120 (.219)
Treatment dummy (treatment 3)	-.113 (.233)	-.135 (.230)	-.000 (.223)	-.018 (.223)	-.158 (.234)	-.055 (.217)
Treatment dummy (treatment 4)	.079 (.229)	.047 (.226)	.059 (.218)	.046 (.217)	.052 (.230)	.081 (.211)
Sex (d=1 if woman, 0 otherwise)		.325* (.167)*		.157 (.163)		
Aid too small			<b>.445</b> (.169)	<b>.415</b> (.170)		
Aid too large			<b>-.597</b> (.292)	<b>-.562*</b> (.293)*		
Effectiveness					.244 (.530)	
Influence					-.059 (.543)	
Recipient known					-.096 (.585)	
Empathy						.251 (.207)
Warm-glow						.083 (.225)
Fairness						-.010 (.208)
Reciprocity						<b>-.533*</b> (.316)*
Other						<b>.593</b> (.239)
Pseudo-R <sup>2</sup>	0.008	0.018	0.051	0.054	0.017	0.064
LR chi2(m) (Prob>chi2)	2.65 (.449)	6.50 (.165)	17.93 (.003)	18.87 (.004)	5.98 (.426)	15.32 (.053)
Number of observations	165	165	164	164	165	129

Note: Robust standard errors are reported in parentheses. A bold coefficient is significant at  $p < 0.05$ , while a coefficient followed by an asterisk (\*) is significant at  $p < 0.10$ . m=number of explanatory variables.

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