Give More Tomorrow: Evidence from a randomized field experiment*

Anna Breman†

May 19, 2006

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.

*Acknowledgements: We thank Diakonia for excellent cooperation throughout this experiment. Comments from Tore Ellingsen, Sebastian Giwa, Magnus Johannesson, Elena Paltseva and Robert Östling and from seminar participants at the Stockholm School of Economics and the IIES, Stockholm University are gratefully acknowledged.

†Department of Economics, Stockholm School of Economics, P.O Box 6501, SE-11383 Stockholm, Sweden. E-mail: Anna.Breman@hhs.se

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 exhibit present-biased preferences.[1] 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)[2], 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.[3]

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,

[0] Acknowledgements: I would like to thank Diakonia for excellent cooperation throughout this experiment. Comments from Tore Ellingsen, Sebastian Giwa, Magnus Johannesson, Elena Paltseva, Jörgen Weibull, Niklas Zethreus and Robert Östling and from seminar participants at the Stockholm School of Economics and at the IIES, Stockholm University are gratefully acknowledged.

[1] 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.

[2] 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.

[3] 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.

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 countries.[4] 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

[4] 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.

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 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.[5] 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.[6]

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 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"?

[5] 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.

[6] For a more thorough discussion on this topic, see, e.g., Andreoni (2004) or Vesterlund (2006).

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 $U_i^t(u_{it}, u_{it+1}, ..., u_{iT})$ 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 $t, U_i^t(u_{it}, u_{it+1}, ..., u_{iT}) \equiv \Sigma_{\tau=t}^{T} \delta^{\tau} u_{i\tau}$,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,

$$U_i^t(u_{it}, u_{it+1}, ..., u_{iT}) \equiv u_{it} + \beta \Sigma_{\tau=1}^{T-t} \delta^{\tau} u_{i,t+\tau} \qquad (1)$$

where $0 < \beta, \delta \leq 1$. In this model, δ represents long-run, time-consistent discounting while β 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.[7]

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

[7] 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.

in period t be g_{it} and define $G_t = \sum_{i=1}^{n} g_{it}$. The feature that the individual does no 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:

$$\begin{gathered} \max_{x,g} u_{it} = u_{it}(x_{it}, G_t, g_{it}) \\ s.t.\ x_{it} + g_{it} = m_{it} \\ G_t = \textstyle\sum_{i=1}^{n} g_{it} \\ g_{it} \geq 0 \end{gathered} \tag{2}$$

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 $G_{-i} = \sum_{i \neq j} g_i = G - g_i$ 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}:

$$\begin{gathered} \max_{x,G} u_{it} = u_{it}(x_{it}, G_t, G_t - G_{-it}) \\ s.t.\ x_{it} + G_t = m_{it} + G_{-it} \\ G_t = \textstyle\sum_{i=1}^{n} g_{it} \\ G_t \geq G_{-it} \end{gathered} \tag{3}$$

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

$$u_{it} = \ln x_{it} + \alpha_1 \ln G_t + \alpha_2 \ln g_{it} \tag{4}$$

where α_1 is the pure altruism weight, i.e. how much the donor cares about the overall level of the public good, and α_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:

$$\max_{x,G} U^t(u_{i1}, u_{i2}, u_{i3}) \equiv \ln x_{i1} + \alpha_2 \ln g_{i1} + \beta\delta[\ln x_{i2}] + \beta\delta^2[\ln x_{i3} + \alpha_1 \ln G] \quad (5)$$

$$s.t. \; x_{it} + G - G_{-i} = m \quad t = 1$$
$$x_{it} = m \quad t = 2,3$$

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

$$-\frac{1}{m - G + G_{-i}} + \alpha_2 \frac{1}{G - G_{-i}} + \alpha_1 \frac{\beta\delta^2}{G} = 0 \quad (6)$$

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

$$g^*_{GMN} = \frac{\alpha_1 \beta \delta^2 m/n + \alpha_2 m}{1 + \alpha_1 \beta \delta^2/n + \alpha_2} \tag{7}$$

Taking first derivatives, we see that g^*_{GMN} is increasing in m, increasing in α_1 (the parameter of pure altruism), increasing in α_2 (the parameter indicating warm-glow), and decreasing in n (the number of donors). It is also increasing in $\boldsymbol{\beta}$ indicating that the more patient is the donor in the short run, the more she gives. Equally, it is increasing in δ 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:

$$\max_{x,G} U^t(u_{i1}, u_{i2}, u_{i3}) \equiv \ln x_{i1} + \alpha_2 \ln g_{i1} + \beta\delta[\ln x_{i2}] + \beta\delta^2[\ln x_{i3} + \alpha_1 \ln G] \tag{8}$$

$$s.t. \quad x_{it} + G - G_{-i} = m \qquad t = 2$$
$$x_{it} = m \qquad t = 1, 3$$

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

$$\alpha_2 \frac{1}{G - G_{-i}} - \frac{\beta\delta}{m - G + G_{-i}} + \alpha_1 \frac{\beta\delta^2}{G} = 0 \tag{9}$$

The Nash equilibrium contribution is:

$$g^*_{GMT} = \frac{\alpha_1 \beta \delta^2 m/n + \alpha_2 m}{\beta\delta + \alpha_1 \beta \delta^2/n + \alpha_2} \tag{10}$$

Once more, taking first derivatives, we see that g^*_{GMT} is increasing in m, increasing in α_1 (the parameter of pure altruism), increasing in α_2 (the parameter indicating warm-glow), and decreasing in n (the number of donors). However, it is now decreasing in $\boldsymbol{\beta}$, indicating that the less patient the donor is in the short run, the more she gives. The effect of δ, the long-run discounting, is ambiguous and depends on the relative strength of the warm-glow parameter α_2 as compared to the pure altruism parameter α_1.[8]

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 ($\beta = 1$).[9]

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.[10]

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,

[8] $\frac{\delta g_{GMT}}{\delta\delta} = \frac{\beta m n(\alpha_1\beta\delta^2 - \alpha_2 n)}{(\alpha_2 n + \beta\delta n + \beta\delta\alpha_1)^2}$.

[9] $g^*_{GMT} - g^*_{GMN} = \frac{(1-\beta\delta)[\alpha_2 m n^2 + \alpha_1 \beta\delta^2 m n]}{(\beta\delta n + \alpha_2 n + \alpha_1\beta\delta^2)(n + \alpha_2 n + \alpha_1 \beta\delta^2)}$

[10] 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 β. The smaller the β, the higher is the difference between the two treatment groups.

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".[11] 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.[12]

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.

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

[12] 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 β. The smaller the β, 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[13] 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

[13] 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.

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.

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[14] 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 Ahraf 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 em-

[14] 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.

phasize 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.

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[15]. The caller then thanked the donor for her support and wished the donor a pleasant evening/day.

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.[16] However, there seems to be a substantial status quo bias in donor behavior. The average monthly donor

[15] 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.

[16] There are some charities that demand a minimum monthly contribution, but many charities, including this one, do not.

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).[17]

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 ($j = 1, ..., n$) in treatment i ($i = 1, 2$), where treatment 1 is the "Give More Now" group and treatment 2 is the "Give More Tomorrow" group. Furthermore, let μ_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.

$\mathbf{H}_1$: 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 $H_1 : \mu_1 = \mu_2$.

$\mathbf{H}_2$: 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 $H_2 : (\mu_1 | x_{1j} > 0) = (\mu_2 | x_{2j} > 0)$.

$\mathbf{H}_3$: 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.

[17] 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.

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.

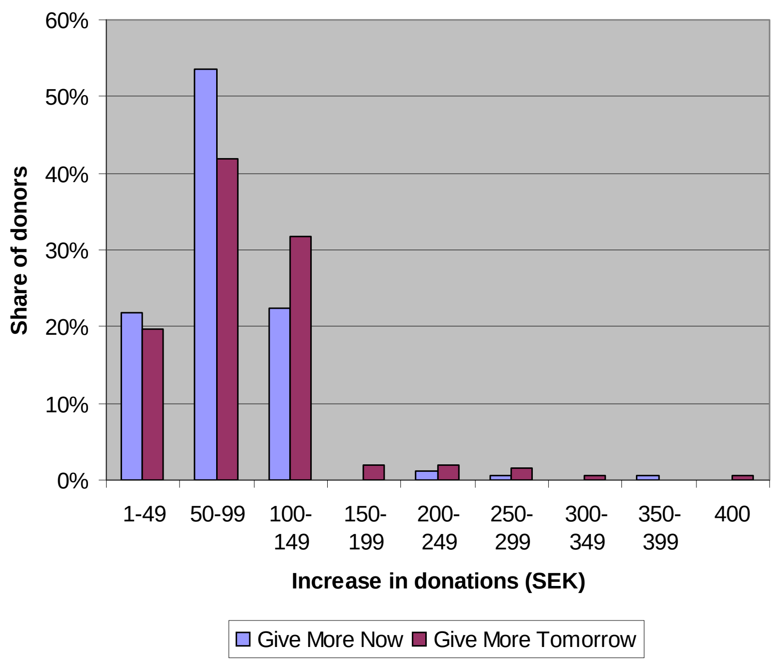
Table 1 gives the summary statistics for the experiment. Mean donations were 32% higher in the GMT group relative to the GMN group. This result is driven by the fact that both average donations and the frequency of donations were higher in the GMT treatment. Mean donations conditional on upgrading were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

Table 1: Summary Statistics

Treatment group	**GMN**	**GMT**	**Treatment effect**
Increase in mean donation (SEK)	18.6	24.64	32.4%
Standard Deviation	35.84	45.58	
Number of observations	553	581	
Increase in mean donations,			
conditional on upgrading (SEK)	60.53	72.30	19.4%
Standard deviation	40.54	51.52	
Number of observations	170	198	
Share of donors upgrading	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 fund-raising campaign took place was SEK 148 (100) and SEK

Figure 1
Distribution of donations, conditional on giving



133 (100) in the GMN and GMT groups, respectively[18]. 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.[19] 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.

[18] SEK 100 $\simeq$ USD 12.

[19] 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.

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.

Table 3: Bootstrapping, T-test and Pearson chi2

	Bootstrap	**T-test**	**Pearson chi2**
Null Hypothesis	$\mu_1 = \mu_2$	$\mu_1 = \mu_2$	$f_1 = f_2$
Full sample			
p-value	.0096	.013	.23
Number of observations	1134	1134	1134
Conditional on giving			
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.[20] Laboratory evidence on age is scarce.[21] 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.[22]

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.

[20] See, e.g., Camerer (2003) for an overview of this literature.

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

[22] 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

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

Note: Robust standard errors in parentheses.

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 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 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 5: Summary statistics, gender differences

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

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

Table 6: Bootstrapping, T-tests, Gender differences

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

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
Young, age <30				
Increase in mean donation (SEK)	15.9	22.2	39.7%	.63
Standard Deviation	50.3	56.9		
Number of observations	55	27		
Middle aged, 30≤age≤60				
Increase in mean donation (SEK)	22.1	29.4	32.8%	.06
Standard deviation	36.0	50.3		
Number of observations	261	256		
Old, age>60				
Increase in mean donation (SEK)	15.3	20.8	35.3%	.08
Standard Deviation	31.3	39.5		
Number of observations	237	298		
Very old, age>70				
Increase in mean donation (SEK)	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

($30 \leq$ 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.[23] These findings contradict learning. Older donors respond by an equal percentage increase in donations as younger donors. Moreover, it 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 (β) around 0.5-0.7 and long-run discount rates (δ) 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.

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

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.

Akerlof, G. A. (1991). Procrastination and Obedience. *American Economic Review,* 81(2):1-19.

Andreoni, J. (1989). Giving with Impure Altruism: Applications to Charity and Ricardian Equivalence. *Journal of Political Economy,* 97(6):1447-1458.

Andreoni, J. (1990). Impure Altruism and Donations to Public Goods: A Theory of Warm-Glow Giving. *The Economic Journal,* 100(401):464-477.

Andreoni, J. (2004). Philanthropy. In Gerard-Varet, L.-A., Kolm, S-C. and Ythier, J.M. (Eds.). *The Handbook of Giving, Reciprocity and Altruism.* In the series Handbooks in Economics, K. Arrow and M.D. Intriligator, General Editors.

Andreoni, J. and Payne, A.A. (2003). Do Government Grants to Private Charities Crowd Out Giving or Fund-raising? *American Economic Review,* 93(3):792-811.

Angeletos, G.-M., et al. (2001). The hyperbolic consumption model: calibration, simulation and empirical evaluation. *Journal of Economic Perspectives,* 15(3):47-68.

Ashraf, N., Karlan, D. and Yin, W. (2006). Tying Odysseus to the Mast: Evidence from a Commitment Savings Product in the Philippines. *Quarterly Journal of Economics,* Forthcoming

Camerer, C. F. (2003). *Behavioral Game Theory.* New Jersey: Princeton University Press.

DellaVigna, S. and Malmendier, U. (2005). Paying Not To go To The Gym. *American Economic Review*, Forthcoming.

Diakonia. (2006). *Diakonia's policy - adopted in 1998.* Available at: http:\\www.diakonia.se.

Efron, B. and Tibshirani, R.J. (1993). *An introduction to the bootstrap.* New York: Chapman and Hall.

Falk, A. (2004). Charitable Giving as a Gift Exchange: Evidence from a Field Experiment. IZA DP No. 1148.

Frederick, S., Loewenstein, G. and O'Donoghue, T. (2002). Time Discounting and Time Preference: A Critical Review. *Journal of Economic Literature,* 40(2): 351-401.

Harrison, G.W. and List, J.A. (2004). Field Experiments. *Journal of Economic Literature.* 42(4):1009–1055.

Hochman, H.M., and Rodgers, J.D. (1969). Pareto Optimal Redistribution. *American Economic Review,* 59:542-57.

Kolm, S. Ch. (1969). The Optimal Production of Social Justice. In J. Margolis and H. Guitton, (eds.), *Public Economics: An Analysis of Public Production and Consumption and their Relations to the Private Sectors,* London: McMillan Press, 145-200.

Krusell, P. and Smith, A.A. Jr. (2003). Consumption-Savings Decisions with Quasi-Geometric Discounting. *Econometrica,* 71:365-375.

Laibson, D. (1997). Golden Eggs and Hyperbolic Discounting. *Quarterly Journal of Economics,* 112 (2):443-77.

Landry et al. (2005). Towards an understanding of the economics of charity: Evidence from a field experiment. NBER Working Paper 11611.

List, J.A. and Lucking-Reiley, D. (2002). The Effects of Seed Money and Refunds on Charitable Giving: Experimental Evidence from a University Capital Campaign. *The Journal of Political Economy,* 110(1): 215-233.

O'Donoghue, T and Rabin, M. (1999). Doing It Now or Later. *American Economic Review,* 89(1): 103-124.

O'Donoghue, T. and Rabin, M. (2001). Choice and Procrastination. *Quarterly Journal of Economics,* 116(1):121-160.

Phelps, E.S. and Pollak, R.A. (1968). On Second-Best National Saving and Game-Equilibrium Growth. *Review of Economic Studies*, 35(2):185-99.

Riksförsäkringsverket. (2004). Medelpensionsålder. *RFV Redovisar. 2004:11.* Stockholm.

Saez-Marti, M. and Weibull, J. (2005). Discounting and altruism to future decision-makers. *Journal of Economic Theory,* 122:254-266.

Samuelson, W. and Zeckhauser, R.J. (1988). Status Quo Bias in Decision Making. *Journal of Risk and Uncertainty,* 1:7-59.

Thaler, R. H. and Benartzi, S. (2004). Save More Tomorrow: Using Behavioral Economics to Increase Employee Saving. *Journal of Political Economy,* 112:S164-S187.

Vesterlund, L. (2006). Why Do People Give? In Richard Steinberg and Walter W. Powell (eds.), *The Nonprofit Sector, 2nd edition*, New Haven: Yale University Press, Forthcoming.