Impact of Rebates and Refunds on Charitable Giving:
Evidence from a Field Experiment*

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Abstract

This paper investigates the impact of rebates and refunds on contributions to threshold public goods using evidence from a field experiment conducted in conjunction with an Australian charity, Life Goes On. Rebates and refunds are, respectively, commitments to return excess and insufficient funds. We find that both rebates and refunds have a significant impact on average donations. The impact tends to be stronger in the absence of seed money rather than in the presence of seed money. We conjecture that this may be due to the signaling role played by such commitments in the absence of seed money.

Keywords: Charitable giving; Threshold public goods; Rebates; Refunds; Field experiments

JEL Classification: C93; H41

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1. Introduction

Many public goods can be characterized as ‘threshold’ public goods, which can only be provided if their costs are covered. Examples include a bridge, a new university building, and a new playground at a public park. A particular fundraising approach that providers of such public goods can utilize is the provision point mechanism. A provision point mechanism includes a commitment to provide the public good if total contributions cover the cost of the public good, and a commitment to refund all contributions if the total amount collected falls short of the threshold.\(^1\) It may also include a commitment to rebate excess contributions.

In the theoretical literature, offering refunds has been shown to make it easier to achieve the efficient equilibria where the public good is provided (Bagnoli and Lipman, 1989; Menezes et al., 2001) and offering rebates has been shown not to interfere with the elimination of the inefficient equilibria (Bagnoli and Lipman, 1989). Using evidence from a field experiment involving a university capital campaign, List and Lucking-Reiley (2002) provide support for the theoretical predictions on refunds. They find that offering refunds has a significant positive impact on the average donation size in general and that the impact is stronger at lower seed amounts.\(^2\) However, there does not exist any field evidence on the effectiveness of offering rebates.\(^3\)

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\(^1\) For example, a provision point mechanism was used by the Niagara Mohawk Power Corporation of New York in its GreenChoice™ Program and the Australian Indigenous Touch Football Association in financing the participation of two teams in an international competition in New Zealand. For details, see Rose et al. (2002) and www.dreamtime.auz.net/default.asp?PageID=163, respectively.

\(^2\) Seed money refers to contributions raised and announced prior to a general public fundraising campaign. In addition to analyzing the impact of refunds, List and Lucking-Reiley (2002) investigate the impact of seed money on giving behavior.

\(^3\) List and Lucking-Reiley (2002) do not offer a rebate to donors. All donors are informed that any excess contributions will be used to fund the organization’s ‘other needs.’ The theoretical predictions regarding the effectiveness of refunds have also been shown to hold in laboratory experiments (see, e.g., Isaac, Schmidt and Walker, 1989; Rapoport and Eshed-Levy, 1989; Bagnoli and McKee, 1991; Cadsby and Maynes, 1999; Messer, Kaiser and Schulze, 2009). See Croson and Marks (2000) for a survey. None of these studies focus on the effectiveness of rebates. Rapoport and Eshed-Levy (1989), Bagnoli and
This paper fills this gap in the literature by investigating the impact of offering rebates in addition to refunds using experimental evidence from the field. Fundraisers frequently include a statement in their appeals about how excess contributions will be used. Given this, investigating the impact of rebates in the field has the benefit of helping fundraisers make more informed decisions as well as furthering economists’ understanding of this commitment mechanism.

Although the impact of rebates has not been explored in the field, Marks and Croson (1998) investigate the impact of rebates in the laboratory. They compare three different rebate policies: a no rebate policy, where excess contributions are discarded, a proportional rebate policy, where excess contributions are rebated proportionally to an individual’s contribution, and a utilization rebate policy, where excess contributions are used to provide more of a similar but continuous public good. They find that while rebates in general do not influence the proportion of successful provisions of threshold public goods, total contributions are significantly higher under a utilization rebate policy.

The benefit of laboratory experiments is that the researcher can test a theoretical model by imposing its underlying assumptions in the laboratory environment.

McKee (1991), and Cadsby and Maynes (1999) assume that excess contributions create no additional value. In Isaac et al. (1989) and Messer et al. (2009), excess contributions are assumed to increase the size of the public good.

See, for example, Compassion International’s appeal for income generating activities in Rwanda (www.compassion.com.au/cmspage.php?intid=445) and Australian Red Cross’ appeal for the Pacific Tsunami (www.redcross.org.au/ourservices_aroundtheworld_emergencyrelief_pacific-tsunami-samoa-tonga.htm). WideAwake.org makes a general statement about how all excess contributions will be handled: “In the rare event that a project happens to receive more money than was requested, any excess will transfer into the Affiliate General Fund. WideAwake.org periodically distributes these funds to the affiliates or projects that our Grant Committee has determined has a high level of immediate need. The Affiliate General Fund will always be distributed to WideAwake.org affiliates and never towards our own operations or administrative expenses.” For a list of the type of projects they fund with specific cost targets, see www.wideawake.org/projects&searchSortBy=amountToCompletion.

The authors’ parameter choices are such that the penalties for excess contributions are the lowest under a utilization rebate. Spencer et al. (2009) also study the impact of different rebate rules, but they do not compare them to the baseline case of no rebates.
However, it still remains to be seen whether the same theoretical predictions would hold in the field, where some of the assumptions may not hold. We report findings from a fundraising campaign conducted in conjunction with an Australian charity, Life Goes On. Life Goes On runs a 24-hour telephone counseling service for those affected by serious illness. All of its counselors are volunteers, who go through an extensive training program before they start working at the charity’s call centre. The goal of the fundraising campaign was to solicit donations to train new Life Goes On volunteers. The training program consisted of several modules of equal cost ($2000), which allowed us to break the fundraising campaign into smaller components. A total of 24,000 individuals in Victoria, Australia were contacted for the campaign. Half of the treatments had seed money and the rest were conducted without any seed money.

Our results show that both rebates and refunds significantly increase the average donation size although, in general, they do not have a significant impact on the participation rate of donors. The impact of offering rebates and refunds as opposed to only refunds or neither seems to be stronger in the treatments without seed money.\(^7\) We conjecture that this may be due to the signaling role played by such commitments in the absence of seed money.

The remainder of our paper proceeds as follows. Section 2 describes the experimental design and procedure. After stating our experimental hypotheses in Section 3, we present the results in Section 4. We discuss the implications of our results in Section 5, emphasizing how they can be used to extend the existing theories of charitable giving and how fundraising practitioners can benefit from our study.

2. Experimental design

\(^7\) Similarly, List and Lucking-Reiley (2002) find that offering refunds has a stronger impact at lower seed amounts.
As our study concerned donations to threshold public goods, we looked for a charity partner which wanted to raise funds for a number of identical public goods, all with a predetermined cost. We also wanted to have a partner which was financially constrained so that we could credibly communicate to the potential donors that unless sufficient funds were raised, the goods would not be provided. Life Goes On, being a small Australian charity, satisfied both of these criteria.

Life Goes On wanted to raise funds to train a new group of volunteers for its telephone counseling service with the intention of increasing the number of staff taking calls. Their training program consists of several modules with the same cost, which is spent on printed documents distributed to the volunteers and the expert speaker hired for the module. The modules focus on topics ranging from depression to multiple-sclerosis.

We received permission to design Life Goes On’s fundraising campaign, which was conducted in June 2009 and September 2009. These dates were chosen specifically to coincide with the end of the financial year in Australia and the pre-Christmas fundraising season.\textsuperscript{8} We ran a total of 12 separate fundraisers, each one corresponding to a single training module. Each fundraiser was allocated to one of the 6 treatments we have in our experimental design.

In all of the treatments, prospective donors were informed that the fundraiser sought to fund a training module, which could only be provided if at least $2000 were raised. In half of the treatments, $1000 of seed money (50\% of the total threshold amount) was raised prior to the fundraiser being conducted and, therefore, we required

\textsuperscript{8} We had to run the campaign at two different dates due to funding constraints.
the donors to provide us with the remaining $1000.⁹ We deliberately chose to have treatments with seed money for two reasons. First, we wanted to analyze how sensitive the impact of rebates and refunds were to the presence of seed money. Since List and Lucking-Reiley (2002) find that the impact of offering refunds is stronger at lower seed amounts, we wanted to test the robustness of our results by including treatments with seed money. Second, since we ran our fundraising campaign during the Global Financial Crisis, we were worried about the impact of the crisis on the response rate. There exists strong evidence on the positive impact of seed money on both average donation amounts and participation rates (see, e.g., List and Lucking-Reiley, 2002).

Table 1 shows the treatments included in the study. The first column shows the three-letter codes used to represent the different treatments. The first letter states whether a refund is offered (R for refund or N for no refund), the second letter states whether a rebate is offered (R for rebate or N for no rebate), and the third letter states whether seed money is offered (S for seed money or N for no seed money). For example, RNS stands for the treatment which contains a refund offer and seed money, but no rebate. As shown in the second column, for each treatment, we collected data from two different groups of 2000 potential donors each. Since our expected response rate prior to the study was 1-2%, we contacted a total of 4000 people for each treatment to make sure that we would have sufficient data for our statistical analysis.¹⁰ The remaining columns in Table 1 state the information summarized in the treatment codes and the date at which the different treatments were conducted.

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⁹ The seed money was raised from a few individuals who have close ties with Life Goes On and are among their frequent donors.

¹⁰ Both the list broker and the charities we consulted during the design stage of our study mentioned that we should not expect a response rate more than 1-2%.
In line with Life Goes On’s previous fundraising campaigns, we solicited donations via direct mail. We purchased the names and addresses of 24,000 households in Victoria, Australia from Prime Prospects, a list broker recommended by multiple charities. We deliberately did not include Life Goes On’s existing donor base in our sample since we did not want their repeat donors to bias our results.11 The names and addresses of the 24,000 Victorian households that we purchased were randomly assigned to the 6 treatments in our design.12

Each household in our database was mailed a solicitation pack. The pack contained an information brochure about the charity, a treatment-specific solicitation letter with a donation slip printed on the charity’s letterhead, and a reply-paid envelope that donors could use to make their donations. The information brochure introduced Life Goes On and outlined its activities and purpose. The aim of the information brochure was to highlight the importance of Life Goes On’s work and to emphasize the unique nature of the charity’s volunteer training program. A copy of this information brochure can be found in Appendix 1.

The solicitation letter reiterated the benefits of the charity and outlined the key points of the fundraiser. It was designed to be engaging and simple to understand. The text of the solicitation letter was identical across the different treatments, except for two paragraphs which gave information about the treatment conditions. In these two paragraphs, we explained how much the training module costs, what the seed, rebate

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11 The population of the state of Victoria in Australia is about 5.4 million. Of course, the mailing list we purchased may include individuals who are part of Life Goes On’s existing donor base, but since Life Goes On’s existing donor base has only 600-700 names in it, we were not too concerned with the potential overlap. After collecting our data, we were able to confirm that there was indeed no overlap between our list of donors and Life Goes On’s list.

12 The Salvation Army generously provided us with the response rates of the various mailing lists they have recently used. Using this information, we focused our attention to the lists with the highest response rates. We restricted our mail-out to households in the state of Victoria in Australia because Life Goes On is based in Melbourne, Victoria.
and refund conditions were, and how many households were being contacted. The most crucial sentences within these two paragraphs were underlined to ensure that they caught the attention of the reader. For example, for treatment RRS, these two paragraphs read:

“Currently, we end up turning away many callers every month because several volunteers are awaiting training. We are writing to ask for your help in training these volunteers by making a donation. Each training module costs $2000 to run. An anonymous donor has already agreed to cover 50% ($1000) of the cost of our next module if we raise the remaining $1000.

You are one of 2000 households we are contacting. If we fail to raise the $1000 from these 2000 households we will not be able to run the module and will refund your money to you. If we raise at least $1000 we will run the module. Any additional money we raise above $1000 will be refunded to you. Your refund will be proportional to your contribution."

A full copy of the solicitation letter for treatment RRS can be found in Appendix 2.

These two paragraphs were modified for each treatment. For example, in treatment RNS, which included a refund but no rebate, the relevant sentences read: “If we fail to raise the $1000 from these 2000 households, we will not be able to run the module and will refund your money to you. If we raise at least $1000, we will run the module. Any additional money we raise above $1000 will be used for ongoing expenses at Life Goes On.”

A donation slip was placed at the bottom of the letter, which allowed donors to fill in their donation amounts, payment methods, and contact details. We had two

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13 In Marks and Croson (1989), a no rebate policy means that excess contributions are discarded. The authors suggest that in the field, a ‘no rebate’ can be interpreted as a literal wastage of excess contributions by the charity, or it can be interpreted as the charity spending the funds on goods which provide the charity itself with utility but the donors with no utility (such as decorating the charity’s office) (pp. 196-197). Hence, we implemented a no rebate policy by informing the donors that their money will be channelled to the charity’s ongoing expenses. All of the charities we talked to indicated that donors have a strong preference for contributing to specific projects and that they are in general unwilling to make donations to fund ongoing expenses. We interpret these comments to mean that donors extract close to zero utility from funding ongoing expenses.
methods for identifying which treatment each donor was assigned to. First, the donation slip had the treatment code printed on it in small letters. Second, the reply-paid envelope for each treatment was addressed to a different post office box, which meant that even if the donation slip was not used, we could identify the treatment group the donation belonged to.

All of the solicitation packs were prepared and mailed by a mail house we hired, ‘Direct Mail Corporation.’ The first mail-out took place between June 17, 2009 and June 22, 2009. In these letters, we requested that all donations be returned to us by July 15, 2009. The second mail-out took place between September 15, 2009 and September 21, 2009, with a request for donations to be made by October 20, 2009.

At the end of the mail-outs, all donors were sent a letter thanking them for their donation and notifying them of the total amount raised. In addition, if the donor was receiving a refund or a rebate, we stated the amount in the letter.14

3. Hypotheses

The theoretical literature (Bagnoli and Lipman, 1989 and Menezes et al., 2001) predicts that offering refunds makes it easier to achieve the efficient equilibria where the public good is provided. This prediction is confirmed by the evidence from the laboratory (e.g., Isaac et al., 1989; Rapoport and Eshed-Levy, 1989; Bagnoli and McKee, 1991; Cadsby and Maynes, 1999; Messer et al., 2009). However, there are no clear theoretical predictions in the literature on how refunds should affect the average donation size and the participation rate separately. Using evidence from the field, List and Lucking-Reiley (2002) find that offering refunds increases the average donation size, but it has no impact on the participation rate. Hence, we test the null hypothesis

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14 In case of a refund, if an individual donated by check, this was returned to them in the same letter. If an individual donated by a credit card, they were informed that their donation was simply not processed. In case of rebates, individuals were sent a check for their specific rebate amount.
that refunds have no impact on giving behavior (average donations or participation rates) against the alternative hypothesis that they have a significant positive impact on giving behavior.

In the case of rebates, the null hypothesis that rebates in addition to refunds have no impact on giving behavior is in line with the theoretical prediction of Bagnoli and Lipman (1989) and the laboratory study of Marks and Croson (1998).\textsuperscript{15} However, both of these papers rely on assumptions which are stronger than the ones we can impose in the field. In our discussions with our charity partner, Life Goes On, and other charities such as the Salvation Army during the design stage of our study, they indicated a clear expectation that rebates in addition to refunds would increase giving. Hence, we test the null hypothesis against the alternative hypothesis that rebates have a significant positive impact on the average donation size and participation rate.

4. Experimental results

Tables 2 and 3 show the participation rates, total donations collected, and the average donation size (conditional on giving) for the different treatments. Table 2 pools the data from the groups with and without seed money to consider the overall impact of rebates and refunds. For example, the data from the treatment RRS (groups RRS1 and RRS2) and RRN (groups RRN1 and RRN2) are pooled and labelled as RR. Table 3 shows the data in detail at the treatment and group level.

Across the 6 treatments, we received a total of 150 donations. This represents an overall participation rate of 0.63\%, significantly lower than the expected rate of 1\%-2\%. The lower-than-expected response rate may be due to at least two factors. First, as mentioned before, we ran our campaign during the Global Financial Crisis. Second, our

\textsuperscript{15} Although Marks and Croson (1998) mainly focus on aggregate contributions in their analysis, it seems logical to assume as a result of their study that rebates would not have an impact on the average donation amount or the participation rate either.
campaign dates were close to the 2009 Victorian bushfires, which were one of the most
devastating in history. Since many people donated to help the survivors of the
bushfires, our response rate may reflect donor exhaustion.16

As can be seen in Tables 2 and 3, the participation rate varied considerably
among the different treatments. The participation rate was the lowest (0.20%) in NNN1
and the highest (1.00%) in RRS1 and RNS2. As expected, the participation rates were
higher in the treatments with seed money than they were in the treatments without seed
money. In the absence of seed money, rebates and refunds seem to have an important
impact on the participation rate.

The total amount of donations was the highest in treatments RRS and RRN, and
the lowest in treatments NNS and NNN. Overall, the total amount collected was the
highest in the two groups for treatment RRN ($950.00 and $900.00). Offering a refund
increased total donations by 46.65% from $1200.50 in NN to $1760.55 in RN. Offering
a rebate increased total donations by an additional 75.29% from $1760.55 in RN to
$3086.00 in RR. Table 3 implies that the increases in total donations were greater in
percentage terms in the treatments without seed money. In the presence of seed money,
total contributions increased by 35.15% when a refund was offered and by another
4.70% when both a refund and a rebate were offered. In the absence of seed money, the
increase was 77.37% with a refund and an additional 218.97% with a refund and a
rebate.

It should be mentioned that the tables show the data that were collected under the
conditions and during the duration of the experiment. According to these data, the

16 See, for example, www.abc.net.au/news/stories/2009/02/08/2485648.htm. For evidence on donor
exhaustion, see Cairns and Slonim (2008), who find that when a second collection is present at Catholic
Masses, the first collection (which typically has a different destination) totals a significantly lower
amount.
threshold was not reached in any of the groups. One possible explanation for this is that the number of people we chose to contact for each group (2000) was insufficient since the response rate we expected to have when we designed the experiment was almost twice the actual response rate.\textsuperscript{17} However, a couple of the donors approached Life Goes On to make donations equal to the threshold amount after they learned that the threshold was not reached.\textsuperscript{18} Since these donors made additional donations after they learned how much the other donors contributed in total, we included only their original donations in our analysis. However, their donations meant that the threshold was reached in two of the groups.\textsuperscript{19}

Histograms of the distribution of donation amounts can be found in Figures 1 and 2. There were 5 donations in treatment RRN which were greater than $100 (in the amounts of $150, $200, $300, $400, and $500). In the rest of the treatments, the highest donation received was $100. As shown in Tables 2 and 3, the average donation sizes in the treatments with rebates and refunds were higher than the average donation sizes in the treatments with refunds only, which were higher than the average donation sizes in the treatments without any rebates or refunds. The average donation was the highest in group RRN1 ($95.00) and the lowest in group NNN1 ($14.25).

\subsection{Statistical analysis}

\textsuperscript{17} The challenges fundraisers face if they use provision point mechanisms, in terms of higher informational requirements, are further discussed in Section 5.

\textsuperscript{18} Both of these donors were in treatment RRS. There were a few other donors who sent more money when we notified them of the outcome of the campaign, but their contributions were smaller and not as critical.

\textsuperscript{19} See Vesterlund (2003) and Bag and Roy (2008) for theoretical models related to the impact of contribution announcements on repeated donations and total donations collected. Vesterlund (2003) assumes that donors have imperfect information about the quality of the charity while Bag and Roy (2008) assume that there is incomplete information about donor valuations. As the Salvation Army informed us, such repeated donations are expected in the industry. In fact, without such repeated donations, direct-mail fundraising campaigns would not be a reasonable option for charities. Charities expect to cover the costs of the mail lists purchased and postage paid in the long run, once they take into account the repeated donations made by the new donors they gain.
Tables 4 and 5 show the statistical measures of the impact of rebates and refunds. We report p-values for z-tests of differences in participation rates and t-tests of differences in means. Table 4 pools the data across the groups with and without seed money. Table 5 presents the results separately for the treatments with and without seed money by pooling the data across the two groups for each treatment before comparing the results across the different treatments. We focus on the 1-tailed p-values given our hypotheses in Section 3.

We first discuss the results for offering a refund.

**Result 1:** Overall, offering a refund has a significant positive effect on average donation size. However, it does not have a significant impact on the participation rate.

The top half of Table 4 shows that offering a refund increases the average donation size by 29.07%, from $27.28 in NN to $35.21 in RN. This increase is significant at the 10% level (1-tailed p = 0.065). Table 5 reveals that refunds have a positive impact on average donations in both the treatments with and without seed money. In the presence of seed money, a refund leads to a 23.88% increase in the average donation size, from $26.47 in NNS to $32.79 in RNS. In the absence of seed money, there is a larger increase of 39.35% from $29.73 in NNN to $41.43 in RNN. However, neither increase is statistically significant at the conventional levels (1-tailed p = 0.145 and 0.150, respectively).

A refund offer does not seem to significantly increase donor participation rate. As reported in the bottom half of Table 4, offering a refund increases the participation rate

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20 We present the pooled data in Table 4 in order to analyze the overall impact of rebates and refunds on giving behavior. Alternatively, we could have considered the aggregate t-statistics. See footnote 15 in List and Lucking-Reiley 2001. Doing so yields the same results qualitatively.

21 As shown in Table 1, some of the groups in the treatments with seed money were conducted in July 2009. There are no statistically significant differences in the giving behavior between the data collected in July 2009 and those collected in September 2009.
in the pooled data from 0.55% in NN to 0.63% in RN. Table 5 reports that offering a refund in the presence of seed money increases participation from 0.83% in NNS to 0.90% in RNS. In the absence of seed money, a refund increases participation from 0.28% in NNN to 0.35% in RNN. None of these increases are statistically significant.

Our second result states how offering a rebate in addition to a refund affects giving behavior.

**Result 2:** Overall, offering a rebate in addition to a refund has a significant positive impact on the average donation size. At the treatment level, the increase is statistically significant in the absence of seed money, but not in the presence of seed money.

From Table 4, we see that offering a rebate to donors in addition to a refund increases the average donation size by 56.52%, from $35.21 in RN to $55.11 in RR. This increase is significant at the 10% level (1-tailed $p = 0.067$). Table 5 shows that the impact of rebates depends on whether seed money is present. Both with and without seed money, rebates have a positive effect on average donations, but the effect is only statistically significant in the absence of seed money. With seed money, the average donation size increases by 7.66% from $32.79 in RNS to $35.31 in RRS (1-tailed $p = 0.364$). Without seed money, a rebate leads to a 112.65% increase in the average donation size, from $41.43 in RNN to $88.10 in RRN (1-tailed $p = 0.080$).

Similar to a refund, a rebate does not seem to have a significant impact on the participation rate. The participation rate increases from 0.63% in RN to 0.70% in RR according to Table 4 (1-tailed $p = 0.279$). This increase is mainly driven by the treatments without seed money. Table 5 shows that although the participation rate
increases from 0.35% in RNN to 0.53% in RRN, the difference is marginally insignificant (1-tailed p = 0.118).

Finally, we consider how offering both a rebate and a refund improves giving behavior as compared to offering neither.

Result 3: Offering a refund and rebate together significantly increases the average donation size compared to the case when neither is offered. At the treatment level, offering both versus neither significantly increases both the participation rate and the average donation size when seed money is absent. When seed money is present, only the impact on the average donation size is statistically significant.

Table 4 reveals that offering a refund and a rebate jointly as compared to neither increases the average donation size by 102.02% ($27.28 in NN vs. $55.11 in RR). This increase is significant at the 5% level (1-tailed p = 0.017). At the treatment level, we note a similar impact in both the seed and no-seed treatments. With seed money, offering a refund and a rebate increases the average donation size by 33.40% from $26.47 (NNS) to $35.31 (RRS). As shown in Table 5, this is a significant increase at the 10% level (1-tailed p = 0.071). Without seed money, the average donation size increases by 196.33% from $29.73 in NNN to $88.10 in RRN. The difference is significant at the 5% level (1-tailed p = 0.041).

Turning to the participation rate, Table 4 shows that offering a refund and a rebate increases participation from 0.55% in NN to 0.70% in RR. This increase is marginally insignificant (1-tailed p = 0.114). Looking at the data from the seed and no-seed treatments reveals that the impact is significant without seed money, but insignificant with seed money. Specifically, in the seed treatments, offering a refund and rebate barely increases the participation rate from 0.83% in NNS to 0.88% in RRS.
However, in the no-seed treatments, the participation rate increases from 0.28% in NNN to 0.53% in RRN. As Table 5 shows, this increase is significant at the 5% level (1-tailed p = 0.038).

5. Discussion and concluding remarks

We find that both rebates and refunds have a significant positive impact on the average donation size. However, in general, they do not seem to affect the participation rates. In this section, we discuss the implications of our results for future research on charitable giving and for fundraising practitioners.

Our findings regarding the impact of rebates and refunds on the average donation size provide support for the alternative hypotheses (that rebates and refunds affect giving behavior positively) stated in Section 3 while the results regarding the impact of rebates and refunds on the participation rates provide support for the null hypotheses. These conclusions imply that we find support for the theoretical predictions of Bagnoli and Lipman (1989) and Menezes et al. (2001) on refunds while we fail to find any support for the theoretical predictions of Bagnoli and Lipman (1989) on rebates.

Our results on the impact of refunds are in line with the results of List and Lucking-Reiley (2002) from the field. They also find that although refunds have a significant positive impact on the average donation size, they do not have a significant impact on the participation rate.

In the theoretical literature on charitable giving, little consideration has been given to the impact of rebates. Our results on rebates can shed light on some of the gaps in the theoretical literature. One reason for the difference between our results on rebates and the theoretical predictions of Bagnoli and Lipman (1989) may be that the strong
informational assumptions of their model do not hold in our field setting. Hence, it would be good to extend the model of Bagnoli and Lipman (1989) to analyze the impact of rebates in settings with incomplete information about donor valuations. In such a model, it would also be worthwhile to consider the impact of rebates (as well as refunds) on the average donation size and the participation rate separately. Our findings in combination with those of List and Lucking-Reiley (2002) suggest that rebates and refunds have a significant impact on the average donation size, but not on the participation rates. Hence, it would be good to explore why neither rebates nor refunds have an impact on the participation rate. Our results also suggest that the impact of rebates on giving behavior may depend on the presence of seed money. Since Bagnoli and Lipman’s (1989) modeling approach does not consider the interaction between rebates and seed money, it would also be good to explore how the existence of seed money can potentially affect the impact of rebates on giving behavior (and vice versa).

Another possible explanation for the difference between our results and the predictions of Bagnoli and Lipman (1989) is that rebates (and refunds) in the field serve an alternative purpose from the one considered in their model. Evidence suggests that potential donors face uncertainty regarding the quality and credibility of the charities they deal with. For example, Trussel and Parsons (2007) identify four factors which affect the donations received by charities: reputation, information provided to potential donors, efficiency, and financial stability. Our charity partner, Life Goes On,
and the Salvation Army also indicated that uncertainty regarding charity quality is an important determinant of willingness to donate.

In light of this evidence, we conjecture that charities can use rebates and refunds to communicate to their potential donors that they are reliable and efficient. This is especially important for relatively small and unknown charities, such as Life Goes On. Other kinds of signals which may be used by charities have been considered in Vesterlund (2003), Ortmann, Svitkova and Krnacova (2005), and Andreoni (2006). Both Vesterlund (2003) and Andreoni (2006) show that the announcement of past contributions may act as a signal of high quality while Ortmann et al. (2005) suggest that charity certification programs may be used to signal quality.

Further research to understand the role of rebates and refunds as potential signals of high quality would be valuable. If our conjecture is true, then it would also explain the differences we observe between the treatments with and without seed money. If seed money acts as an alternative signal of high quality, then rebates and refunds may lose their potency as a signal in the presence of seed money. In that case, one would expect the impact of rebates and refunds on giving behavior to be higher in the absence of seed money.24 In fact, this is exactly what we find. As Result 2 in Section 4 reveals, although rebates in general are found to have a statistically significant and positive impact on the average donation size, this effect is mainly driven by the treatments without seed money. Moreover, as our discussion of Result 3 shows, the combined

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24 The existence of seed money does not have to mean that rebates and refunds become completely irrelevant. Their impact may depend on the amount of seed money provided since they may act as additional signals of quality. The interaction between the presence of seed money and the impact of rebates and refunds may also depend on how uncertain potential donors are about the quality of the charity.
impact of rebates and refunds on giving behavior is stronger in the absence of seed money.\textsuperscript{25}

Our results on the treatments with and without seed money also suggest that it would be good to analyze whether the impact of rebates on giving is threshold-dependent. The presence of seed money lowers the effective threshold amount and it has been suggested in both the experimental and theoretical literature that refunds affect giving positively at high threshold levels only (Cadsby and Maynes, 1999; Menezes et al., 2001). It would be worthwhile in future research to study the impact of rebates at different threshold levels and to isolate the effect of seed money on giving from the effect of rebates and refunds by controlling for the threshold level.

In addition to suggesting directions for improving existing theoretical models, field experiments reveal valuable information to practitioners about the effectiveness of different mechanisms proposed in the economics literature. Our results imply that using rebates in conjunction with refunds can have a significant impact on giving behavior in the field. Especially those charities which do not have access to seed money may want to consider using rebates and refunds to increase contributions. However, it is important to note that using provision point mechanisms has higher informational requirements than using voluntary contributions mechanisms. Fundraisers may have little information about how donors value the specific public goods under consideration, which may make it challenging to determine the magnitudes that donors are likely to give and, hence, the number of potential donors to contact. In addition, potential donors themselves usually have incomplete information about the valuations

\textsuperscript{25} As mentioned in Section 1, these results are in line with those of List and Lucking-Reiley (2002), who find that the impact of refunds on giving depends on the amount of seed money provided. They consider three different seed money amounts (10\%, 33\% and 67\%) and find that refunds have the strongest impact on giving at the lowest seed money amount.
of others, which makes it hard for them to determine how critical a role they play in the provision of the public good. These uncertainties may play a determining role in the provision of the public goods and the success of the fundraising campaigns which use a provision point mechanism. Hence, from the perspective of fundraisers, gathering as much information as possible on donor valuations through pre-campaign research and revealing this information to donors prior to actual fundraising may be important.

To reduce the uncertainty faced by potential donors, fundraisers may also want to consider implementing the use of rebates and refunds in a set-up that allows for sequential donations (either by the same donor or by new donors) following announcement of previous donations. As mentioned above, Bag and Roy (2008) show such announcements to be effective in reducing uncertainties regarding valuations.26 The fact that we received repeated donations in our campaign gives support to this consideration. This suggests that further field research on the effectiveness of rebates and refunds in settings which allow for announcement of previous donations and repeated or sequential donations would be worthwhile.27

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26 Interestingly, they show that the strategic advantage of announcements continues to hold when the fundraiser has the option of mitigating the extent of incomplete information prior to the actual fundraising.

27 Note that such announcements may be beneficial even in the presence of seed money, which may serve a similar purpose. They provide donors with additional information.
References


<table>
<thead>
<tr>
<th>Treatment</th>
<th>Group</th>
<th># mailed</th>
<th>Refund offer</th>
<th>Rebate offer</th>
<th>Seed money</th>
<th>Time period</th>
</tr>
</thead>
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<td>RRS1</td>
<td>2000</td>
<td>Refund</td>
<td>Rebate</td>
<td>Seed</td>
<td>June 2009</td>
</tr>
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<td>RRS2</td>
<td>2000</td>
<td>Refund</td>
<td>Rebate</td>
<td>Seed</td>
<td>Sept 2009</td>
</tr>
<tr>
<td>RNS</td>
<td>RNS1</td>
<td>2000</td>
<td>Refund</td>
<td>No rebate</td>
<td>Seed</td>
<td>June 2009</td>
</tr>
<tr>
<td></td>
<td>RNS2</td>
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<td>Refund</td>
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<td>Seed</td>
<td>Sept 2009</td>
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<td>No rebate</td>
<td>Seed</td>
<td>June 2009</td>
</tr>
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<td>No rebate</td>
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<td>Sept 2009</td>
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<td>Refund</td>
<td>Rebate</td>
<td>No seed</td>
<td>Sept 2009</td>
</tr>
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<td>Rebate</td>
<td>No seed</td>
<td>Sept 2009</td>
</tr>
<tr>
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<td>2000</td>
<td>Refund</td>
<td>No rebate</td>
<td>No seed</td>
<td>Sept 2009</td>
</tr>
<tr>
<td></td>
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<td>Refund</td>
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<td>No seed</td>
<td>Sept 2009</td>
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<td>Sept 2009</td>
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<td>No rebate</td>
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</table>
Table 2 – Results of the field experiment (pooled)

<table>
<thead>
<tr>
<th>Group</th>
<th># mailed</th>
<th># of donations</th>
<th>Participation rate (%)</th>
<th>Total donations ($)</th>
<th>Average donation size ($)</th>
<th>Std error of mean amount ($)</th>
</tr>
</thead>
<tbody>
<tr>
<td>RR</td>
<td>8000</td>
<td>56</td>
<td>0.70%</td>
<td>$3086.00</td>
<td>$55.11</td>
<td>$12.41</td>
</tr>
<tr>
<td>RN</td>
<td>8000</td>
<td>50</td>
<td>0.63%</td>
<td>$1760.55</td>
<td>$35.21</td>
<td>$4.24</td>
</tr>
<tr>
<td>NN</td>
<td>8000</td>
<td>44</td>
<td>0.55%</td>
<td>$1200.50</td>
<td>$27.28</td>
<td>$2.98</td>
</tr>
</tbody>
</table>

Table 3: Results of the field experiment (detailed)

<table>
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<tr>
<th>Group</th>
<th># mailed</th>
<th># of donations</th>
<th>Participation rate (%)</th>
<th>Total donations ($)</th>
<th>Average donation size ($)</th>
<th>Std error of mean amount ($)</th>
</tr>
</thead>
<tbody>
<tr>
<td>RRS1</td>
<td>2000</td>
<td>20</td>
<td>1.00%</td>
<td>$680.00</td>
<td>$34.00</td>
<td>$6.08</td>
</tr>
<tr>
<td>RRS2</td>
<td>2000</td>
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<td>0.75%</td>
<td>$556.00</td>
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<td>$1236.00</td>
<td>$35.31</td>
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<td>RNS1</td>
<td>2000</td>
<td>16</td>
<td>0.80%</td>
<td>$530.00</td>
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<td>$7.66</td>
</tr>
<tr>
<td>RNS2</td>
<td>2000</td>
<td>20</td>
<td>1.00%</td>
<td>$650.55</td>
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<tr>
<td>RNS</td>
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<td>36</td>
<td>0.90%</td>
<td>$1180.55</td>
<td>$32.79</td>
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<td>NNS1</td>
<td>2000</td>
<td>14</td>
<td>0.70%</td>
<td>$350.50</td>
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<td>NNS</td>
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<td>33</td>
<td>0.83%</td>
<td>$873.50</td>
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<td>RRS1</td>
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<td>10</td>
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</tr>
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<td>RRS</td>
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<td>$31.13</td>
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<td>$170.00</td>
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<td>$7.03</td>
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<td>0.40%</td>
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<td>RNN</td>
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<td>$250.00</td>
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<tr>
<td>NNN</td>
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<td>11</td>
<td>0.28%</td>
<td>$327.00</td>
<td>$29.73</td>
<td>$7.98</td>
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</tbody>
</table>

For one of the donations we received for NNN, we could not identify which group it belongs to, so it is included in the overall data for treatment NNN, but not in the data for NNN1 or NNN2.
### Table 4: Statistical analysis of pooled results

<table>
<thead>
<tr>
<th></th>
<th>NN vs. RN</th>
<th>RN vs. RR</th>
<th>NN vs. RR</th>
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</thead>
<tbody>
<tr>
<td>Average donation size</td>
<td>$27.28</td>
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<td>$35.21</td>
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<tr>
<td>t-stat</td>
<td>1.531</td>
<td>1.517</td>
<td>2.180</td>
</tr>
<tr>
<td>p-value (1 tailed)</td>
<td>0.065</td>
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<td>0.017</td>
</tr>
<tr>
<td>Participation rate</td>
<td>0.55%</td>
<td>0.63%</td>
<td>0.63%</td>
</tr>
<tr>
<td>z-stat</td>
<td>0.621</td>
<td>0.585</td>
<td>1.204</td>
</tr>
<tr>
<td>p-value (1 tailed)</td>
<td>0.267</td>
<td>0.279</td>
<td>0.114</td>
</tr>
</tbody>
</table>
Table 5: Statistical analysis of results with and without seed money

<table>
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<tr>
<th></th>
<th>NNS vs. RNS</th>
<th>RNS vs. RRS</th>
<th>NNS vs. RRS</th>
<th>NNN vs. RNN</th>
<th>RNN vs. RRN</th>
<th>NNN vs. RRN</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average donation size</td>
<td>$26.47</td>
<td>$32.79</td>
<td>$32.79</td>
<td>$35.31</td>
<td>$29.73</td>
<td>$41.43</td>
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<td>$29.73</td>
<td>$35.31</td>
<td>$35.31</td>
<td>$41.43</td>
<td>$41.43</td>
<td>$88.10</td>
</tr>
<tr>
<td></td>
<td>$29.73</td>
<td>$88.10</td>
<td>$88.10</td>
<td>$29.73</td>
<td>$88.10</td>
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</tr>
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<td>t-stat</td>
<td>1.067</td>
<td>0.350</td>
<td>1.492</td>
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<td>1.456</td>
<td>1.816</td>
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<td>p-value (1 tailed)</td>
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<td>0.071</td>
<td>0.150</td>
<td>0.080</td>
<td>0.041</td>
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<tr>
<td>Participation rate</td>
<td>0.83%</td>
<td>0.90%</td>
<td>0.90%</td>
<td>0.88%</td>
<td>0.88%</td>
<td>0.28%</td>
</tr>
<tr>
<td></td>
<td>0.35%</td>
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<td>0.53%</td>
<td></td>
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<tr>
<td></td>
<td>0.28%</td>
<td>0.53%</td>
<td></td>
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<tr>
<td>z-stat</td>
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<td>0.601</td>
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<tr>
<td>p-value (1 tailed)</td>
<td>0.358</td>
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<td>0.404</td>
<td>0.274</td>
<td>0.118</td>
<td>0.038</td>
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</table>
Figure 1 – Contributions by treatment with seed money

**RRS**

![Bar chart showing contributions by donation amount for RRS](image)

**RNS**

![Bar chart showing contributions by donation amount for RNS](image)

**NNS**

![Bar chart showing contributions by donation amount for NNS](image)
In RRN, donations greater than $100 were in the amounts of $150, $200, $300, $400 and $500.
Appendix 1 – Information brochure

Strategies and choices for the seriously ill and those who care for them

Life Goes On was founded in December 2000 by author and cancer survivor Joel Nathan. Since then, Life Goes On has helped more than 27,000 people struggling with a life-threatening illness.

“When you have a serious illness, you are so vulnerable. It’s just you and the illness.”
- Judith (a caller)

Life Goes On helps those struggling with serious illness

- We understand the hopes, needs, and fears of the seriously ill and those close to them.
- We give people hope and help them regain a sense of control.

Our Service: Telephone counselling, 24 hours a day, 7 days a week

- Our Hopeline® offers immediate assistance to those facing serious illness and death.
- Sufferers of life-threatening illnesses are given the opportunity to talk anonymously to someone who understands them.

“When I answer the phone, I feel deeply honoured by the trust the caller has in me to assist them in their darkest time.”
- David (a volunteer)

A 100% Volunteer service staffed by those who have lived through illness

- Our phones are answered by kind, selfless volunteers who give their time to help those in need.
- Our volunteers have lived through the trauma of serious illness and understand the needs of callers.

Comprehensive training to ensure that every caller is given the best care

- All our volunteers go through extensive training before they are given a phone.
- Training involves undertaking many modules on specific issues such as cancer, grief, and depression.
- Each module is presented by an expert in that specific field.
- This training makes Life Goes On Hopeline® the absolute best service for those in need.

Life Goes On
24 hrs counselling: 1300 364 673 Office: 03 8629 1125
Web: www.lifegoeson.org.au Email: info@lifegoeson.com.au
Appendix 2 – Solicitation letter for treatment RRS

Dear ..., 

My name is Joel Nathan. I am a cancer survivor and the founder of a not-for-profit organisation called Life Goes On. I know how important it is to have someone to talk to when you are struggling with a life-threatening illness. Life Goes On can be that someone.

We provide counselling support to those diagnosed with serious disease. We offer our service completely free. All our counsellors are volunteers who have been diagnosed with a life-threatening illness or have cared for a loved one who has.

Our volunteers undergo comprehensive training with multiple modules. Each module trains volunteers on a different issue, ranging from depression to grief. Unfortunately, we can only offer each module as we raise the money for it. If we cannot run a module, our volunteers cannot take calls on that topic.

Currently, we end up turning away many callers every month because several volunteers are awaiting training. We are writing to ask for your help in training these volunteers by making a donation. Each training module costs $2000 to run. An anonymous donor has already agreed to cover 50% ($1000) of the cost of our next module if we raise the remaining $1000.

You are one of 2000 households that we are contacting to raise the $1000. If we fail to raise the $1000 from these 2000 households, we will not be able to run the module and will refund your money to you. If we raise at least $1000, we will run the module. Any additional money we raise above $1000 will be refunded to you. Your refund will be proportional to your contribution.

Please complete the donation form below and send it to us by 20 October 2009 using the reply-paid return envelope provided. All donations are tax-deductible. We thank you for your kindness and generosity. Your donation will make a difference to the lives of our callers.

Yours sincerely,

Joel Nathan OAM
Founder, Life Goes On

"Talking to Life Goes On made all the difference ... and helped me cope in a way I never thought possible."

- Peter (a caller)

Please give now to fund one training module. We need to raise $1000. If the full $1000 is not raised, we will refund your money. The money we collect above $1000 will also be refunded.

My Generous Gift: $__________________________

I am giving by: Visa [ ] MasterCard [ ] AMEX [ ]

Cheque [ ](please make payable to ‘Life Goes On’)

Card Number:__________________________ Phone:__________________________

Cardholder Name:_________________________________________________________ Email:__________________________

Signature:__________________________ Exp/Inv Date:__________________________ Opt out of our mail list: [ ]