NOTES AND COMMENTS

GIFT EXCHANGE IN THE FIELD

BY ARMIN FALK

This study reports evidence from a field experiment that was conducted to investigate the relevance of gift exchange in a natural setting. In collaboration with a charitable organization, we sent roughly 10,000 solicitation letters to potential donors. One-third of the letters contained no gift, one-third contained a small gift, and one-third contained a large gift. Treatment assignment was random. The results confirm the economic importance of gift exchange. Compared to the no gift condition, the relative frequency of donations increased by 17 percent if a small gift was included and by 75 percent for a large gift. The study extends the current body of research on gift exchange, which is almost exclusively confined to laboratory studies.

KEYWORDS: Gift exchange, reciprocity.

1. INTRODUCTION

RECIPROCITY OFTEN TAKES THE FORM of a gift exchange, that is, the repayment of gifts (see, e.g., Fehr and Gächter (2000)).[1] In this paper we test this notion of reciprocity with the help of a field experiment, which we conducted in collaboration with a charitable organization. As part of their regular activities, the organization sent out roughly 10,000 solicitation letters to potential donors. To study gift exchange, we systematically manipulated the solicitation letters such that one-third of the donors received the letter without a gift (no gift condition), one-third received the letter together with a small gift (small gift condition), and one-third received the letter together with a large gift (large gift condition). Treatment conditions were assigned randomly.

Our main results are consistent with the gift-exchange hypothesis: Compared to the no gift condition, the relative frequency of donations increased by 17 percent if a small gift was included and by as much as 75 percent for a large gift. These differences are highly significant. From the charitable organization's perspective, the initiation of a gift-exchange relation turns out to be profitable. To show this, we compare donations in the three treatment conditions with the cost of providing the gifts. Since we have donation data that cover the solicitation subsequent to the solicitation under study, we can further

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[1]According to social psychologist Robert Cialdini (1992, p. 21) *reciprocity* means that "we are *obligated* to the future repayment of favors, gifts, invitations, and the like" (emphasis in the original). The *Edda*, a 13th century collection of Norse epic verses, describes reciprocity in the following terms: "A man ought to be a friend to his friend and *repay gift with gift*. People should meet smiles with smiles and lies with treachery" (cited from Fehr and Gächter (2000, p. 159); emphasis added). The economic importance of gift exchange has been discussed in various fields, such as labor relations (Akerlof (1982), Bewley (1999)), customer relations (Kahneman, Knetsch and Thaler (1986)), bargaining (Camerer and Thaler (1995)), and price setting behavior (Huck and Wallace (2002)).

check whether the observed increase in donations in the gift conditions is followed by lower donations in the subsequent mailing. This would be the case if donors intertemporally substitute. This intertemporal substitution effect, however, turns out to be insignificant.

The repayment or reciprocation of a gift observed in our field experiment is consistent with findings from numerous laboratory experiments on gift exchange and reciprocity. In the so-called gift-exchange game, it has been shown that by paying relatively high prices, buyers induce sellers to provide (costly) quality levels above the contractually enforceable level. In particular, the higher the prices (the gift), the higher are the average quality levels (Fehr, Kirchsteiger, and Riedl (1993), Fehr, Gächter, and Kirchsteiger (1997), Gneezy (2003)). Similar results have been obtained from the investment game (Berg, Dickhaut, and McCabe (1995)) and games that study conditional cooperation (Fischbacher, Gächter, and Fehr (2001)). The advantage of our field experiment in comparison to this laboratory evidence is that people make their decisions in their natural environment. In contrast to most laboratory experiments, we observe behavior of a nonstudent subject pool, where subjects do not know that they are acting in an experiment, where the size of the stakes is not predetermined by an experimenter, and where gift exchange involves "real" gifts and not the choice of abstract numbers. In this sense, our data complement previous laboratory evidence in an important and informative way.

The remainder of the paper is organized as follows. In the next section, we present the details of the field experiment. Our results are contained in Section 3, and Section 4 concludes.

2. DESIGN OF THE FIELD EXPERIMENT AND BEHAVIORAL PREDICTIONS

The study was performed in collaboration with a well known, large, internationally operating charitable organization. The aim of this organization is the support of children in need. Currently the organization is active in 38 countries and engaged in long-term development projects as well as in short-term emergency projects. A branch of this organization regularly sends out solicitation letters in the canton of Zurich (Switzerland). The organization has a list of roughly 10,000 addresses (mainly in the city of Zurich), to which letters are addressed. This list is a so-called warm list, that is, the general response rate to solicitations is relatively high.

A total of 9,846 solicitation letters were sent out in the "2001 Christmas mailing," almost all to private households.[2] The purpose of this mailing was to collect money for funding schools for street children in Dhaka (Bangladesh). The potential donors were informed about the details of the Dhaka project in the letters and asked to donate. In addition to this letter, some people received

[2]Only 22 of the 9,846 addresses belong to organizations and only one of these organizations actually donated (CHF 50 ~ US 41 ~ Euro 34).

either a "small" or a "large" gift. The small gift was one postcard plus envelope, while the large gift consisted of a set of four postcards with four envelopes. The postcards showed colored paintings drawn by children; an example is displayed in Figure 1. Those who received a gift (either small or large) were informed in a short remark at the very end of the letter that the included postcards are a "gift from the children from Dhaka," which "can be kept or given to others." The purpose of this sentence was to assure people that the postcards are a gift for which nothing has to be paid and to create a gift-exchange relation between the children (the potential receivers of the donation) and the donors. With the exception of this additional sentence, all solicitation letters were completely identical regardless of whether a gift was included. All letters were sent out on December 5, 2001.

Treatment assignment was random: with the help of a random number generator we assigned each potential donor listed in the organization's data base to the no gift, the small gift, or the large gift condition. Our dependent variable is simply the donation decision of the potential donors. Donations were routinely recorded by the organization.

The implications of the gift-exchange hypothesis for predicted behavior in our study are straightforward: if gift-exchange matters, the donation probability should be lowest in the no gift condition, higher in the small gift condition, and highest in the large gift condition. This follows from the fact that the larger the gift, the stronger is the obligation of repayment and reciprocation, similar to higher effort levels as a response to higher wages (e.g., Fehr, Kirchsteiger, and Riedl (1993), Gneezy (2003)).

3. RESULTS

In this section we first test whether including gifts increases the probability of donations. We then study whether gift-exchange considerations crowd in higher or lower donations, compared to the donations in the no gift condition. Third, we address the question of whether the initiation of a gift-exchange relation is profitable for the organization.

3.1. *Does Including a Gift Increase the Frequency of Donations?*

Table I presents the main result. It reports the donations that were given in the time period between December 5, 2001 and the end of February 2002[3] under all three conditions (no gift, small gift, and large gift). The first row of Table I shows the absolute numbers of letters sent out in the three conditions. Rows two and three report the absolute and the relative number of people who

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[3]We stopped collecting data at the end of February because, first, there were essentially no further donations after the end of January and, second, the next solicitation letter was sent out at the end of February (see Section 3.3).
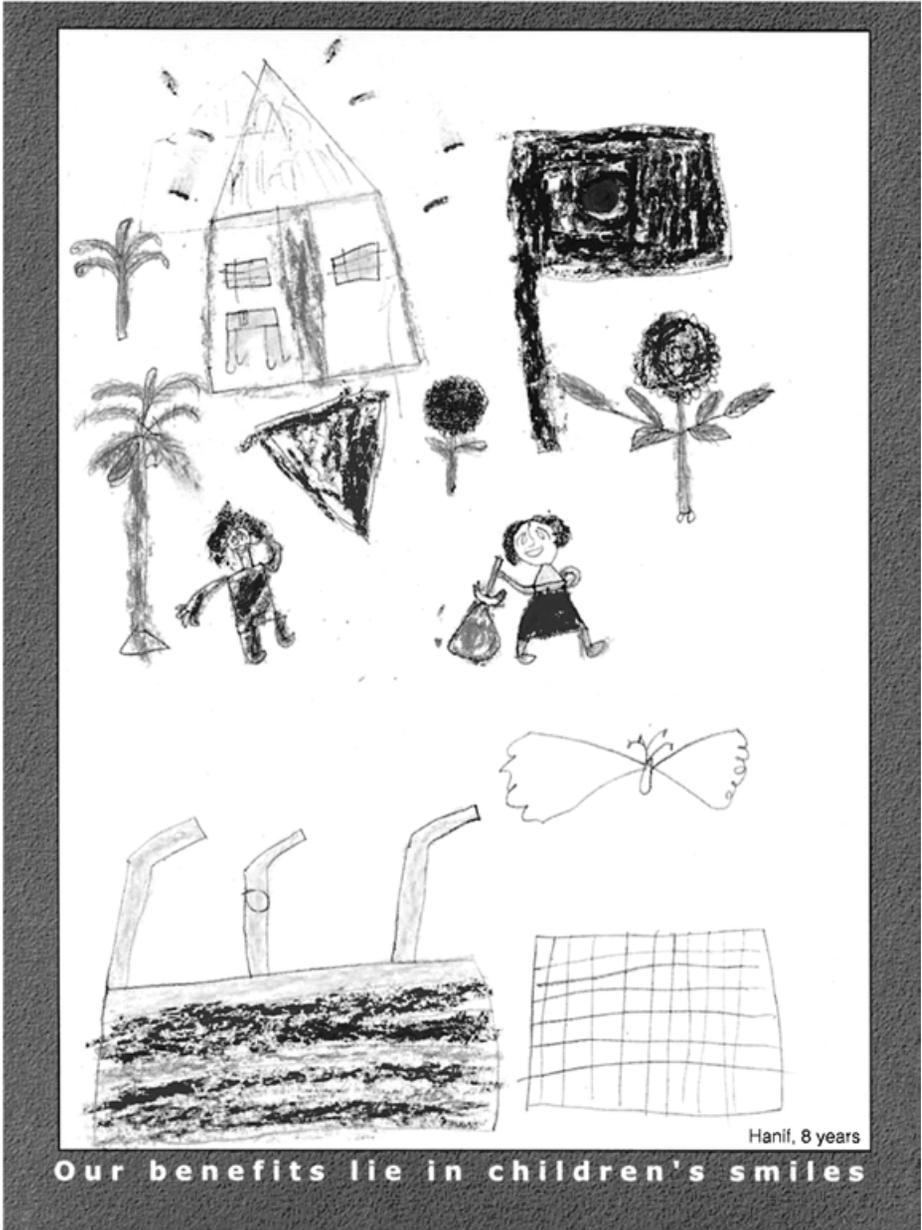
FIGURE 1.—An example of the included postcards.

TABLE I

DONATION PATTERNS IN ALL TREATMENT CONDITIONS

	No Gift	Small Gift	Large Gift
Number of solicitation letters	3,262	3,237	3,347
Number of donations	397	465	691
Relative frequency of donations	0.12	0.14	0.21

donated under the three conditions. While the absolute number of people who donated under the no gift condition is 397, this number increases to 465 in the small gift condition and to 691 in the large gift condition. In relative terms, the corresponding numbers are 12, 14, and 21 percent, respectively. Thus including a small gift increases the number of donors by 17 percent and including the large gift increases the number of donors by as much as 75 percent.

Table II shows that the observed treatment effects are statistically significant. We report a Probit regression in this table, where the dependent variable is a dummy that takes value 1 if a person donated and zero otherwise.[4] This donation dummy is regressed on our treatment dummies. The variable "small gift" is a dummy variable for the small gift condition, while "large gift" is a dummy variable for the large gift condition. Both coefficients are

TABLE II

TREATMENT DIFFERENCES OF DONATION PROBABILITY[a]

Dependent Variable	Donation Dummy
Small gift dummy	0.102***
	(0.039)
	[0.025]
Large gift dummy	0.348***
	(0.037)
	[0.088]
Constant	−1.167***
	(0.028)
Number of observations	9,846
Prob > χ^2	0.000
Pseudo R^2	0.011

[a]Probit regression with standard errors in parentheses and marginal effects estimates in brackets. *** indicates significance at the 1-percent level. "Small gift" is a dummy variable that takes the value 1 if the observation comes from the small gift condition and 0 otherwise. Likewise, "large gift" is a dummy variable that takes the value 1 if the observation comes from the large gift condition and 0 otherwise.

[4]All results are essentially the same if we use a linear probability model instead of a Probit model.

positive and significant at the 1-percent level; marginal effects are shown in brackets. Further analysis reveals that the increase in donations between the small gift and the large gift condition is also significant at the 1-percent level (Prob $> \chi^2 = 0.0000$). This shows that including a gift in our setup significantly increases the frequency of donations and that the larger the gift, the higher the frequency.

3.2. *Does Gift Exchange Crowd in Relatively High or Low Donations?*

The results shown in Tables I and II support the gift-exchange hypothesis, that is, gifts crowd in additional donations, which would not have been given in the absence of these gifts. It is interesting to study whether these additional donations are different from those given in the no gift condition. This would be in line with the fact that in the gift conditions, a different motive is operative in addition to the motives that are present in the no gift condition. To address this issue, Figure 2 shows a histogram of donations for all treatment conditions. The figure suggests that overall the distributions are quite similar. In all conditions 86–89 percent of the donations are below CHF 100 with peaks at values such as CHF 10, 20, 30, 50, or 100. A closer inspection of the donation patterns shows, however, that there are some small differences. For low donations up to CHF 60, the cumulative frequency of donations is highest in the large gift condition (79 percent), followed by the small gift condition (74 percent), and
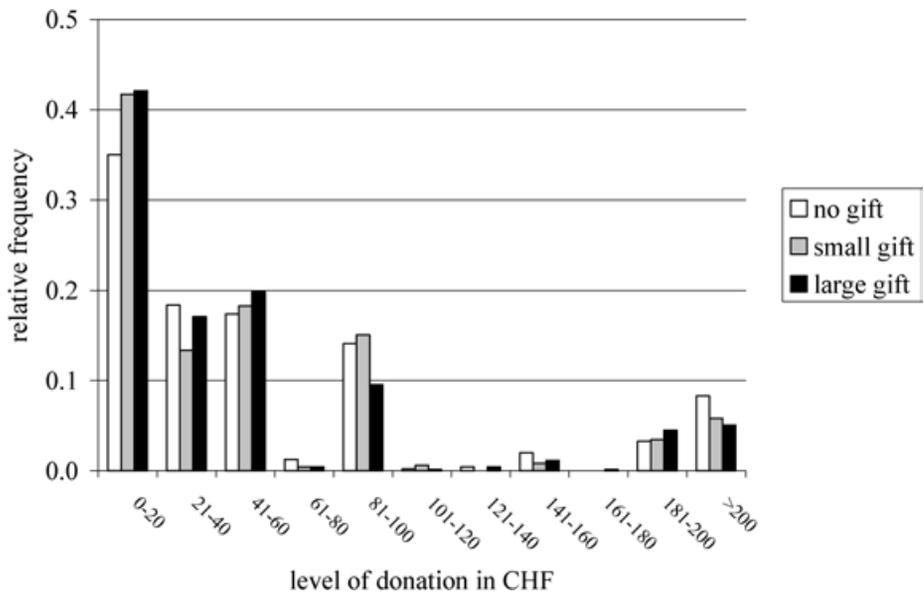

FIGURE 2.—Histograms of donations for each treatment.

the no gift condition (72 percent). Put differently, relatively low donations are more frequent under the large gift condition than the no gift condition. Likewise, relatively large gifts (>CHF 200) are more frequent under the no gift condition compared to the gift conditions. In fact, a Kruskall–Wallis test rejects that the three donation distributions are the same ($p < 0.001$). In a pairwise comparison, the differences are most pronounced between the donation distributions of the no gift and the large gift conditions (Kolmogorov–Smirnov test, $p = 0.049$). Comparing the other distributions yields no significant differences (no gift/small gift $p = 0.262$; small gift/large gift $p = 0.184$). These results are supported by a nonparametric median test, which tests the null hypothesis that two samples are drawn from populations with the same median. Again, there is a significant difference between the no gift and the large gift condition ($p = 0.031$) while the other distributions are not significantly different (no gift/small gift $p = 0.532$; small gift/large gift $p = 0.122$).

3.3. *Is the Initiation of a Gift Exchange Profitable for the Organization?*

From the charitable organization's perspective, the relevant question is whether including gifts is a profitable strategy. To answer this question, we now examine the absolute amounts donated under each condition. In doing so, we restrict our analysis to all donations equal to or below CHF 500. This excludes 39 donations (2.5 percent of all donations). These observations are excluded for two reasons. First, they completely blur the analysis of the absolute donation levels. To illustrate this, note that there was an extremely high donation of CHF 20,000 in the small gift condition, for example. Second, it seems rather unlikely that such very high donations are affected by our treatment variations.[5]

TABLE III

ANALYSIS OF ABSOLUTE AMOUNTS OF DONATION AND POSSIBLE SUBSTITUTION EFFECTS[a]

Donation (in CHF)	No Gift	Small Gift	Large Gift
Sum of Christmas 2001 mailing	24,673	27,106	40,877
Mean of Christmas 2001 mailing	7.56	8.37	12.21
Sum of February 2002 mailing	14,023	13,206	13,065
Sum of Christmas and February mailings	38,696	40,312	53,942

[a]All donations are smaller than or equal to CHF 500 ($\sim$ \$US 410 $\sim$ Euro 350).

[5]Note that there is nothing special about a cutoff value of CHF 500. All results reported in this section are qualitatively similar if we use different cutoff values such as donations below CHF 1,000, CHF 400, or CHF 300. The respective sums of donations for these cutoff values in the no gift, small gift, and large gift conditions are below CHF 1,000: 25,423, 27,756, 42,777; below CHF 400: 19,273, 23,006, 31,477; below CHF 300: 18,073, 20,906, 30,277.

Table III (first row) shows the absolute amount of money collected in the three treatment conditions. It amounts to CHF 24,673 in the no gift condition, CHF 27,106 in the small gift condition, and CHF 40,877 in the large gift condition. Thus as it holds for the relative frequency of donations (see Table I), the sum of donations is lowest in the no gift condition, higher in the low gift condition, and highest in the large gift condition. The quantitative differences are quite substantial. There is a 66 percent increase from the no gift condition to the large gift condition, for example.

It is possible to calculate the organization's (potential) net benefits given these absolute numbers. Note first that total revenue across all three conditions was CHF 92,656. Simple extrapolation suggests that if no one had received a gift, the revenue would have been much lower. If we take the average donation under the no gift condition (see Table III, second row) and multiply it by the total number of letters sent out, we get a hypothetical amount of CHF 74,472. Since the cost of the postcards was roughly CHF 2,000,[6] the net gain of the manipulation amounts to CHF 16,184, an increase of about 22 percent. Of course revenues could have been even higher if everyone had received the large gift. In this case, gross revenues would have been CHF 120,248 (average donation under the large gift condition, as shown in the second row of Table III, multiplied by the total number of letters). Subtracting CHF 4,800, which would have been the cost of sending a large gift (four postcards) to all potential donors, yields a net gain of CHF 40,976 or 55 percent when compared to the situation where no one receives a gift. Of course these numbers are hypothetical and should not be taken at face value. They indicate, however, the large economic potential of establishing gift-exchange relationships.

From the organization's perspective, one important question that remains to be answered, however, is whether the two gift treatments had an adverse effect on *subsequent* mailings. This would occur if donors intertemporally substitute their donations, that is, if those donors who donated more in the Christmas 2001 mailing would donate less in the next mailing. In this case, the organization would not necessarily benefit from sending out gifts. We can address this question because we have the donation data of the solicitation that followed the Christmas 2001 mailing. It took place at the end of February 2002. Its purpose was to collect money in support of needy mothers with little children. In this solicitation, no gifts were sent to potential donors. The list of addresses was the same as for the Christmas mailing.

If there is intertemporal substitution, one would expect that the donation probability following the February 2002 mailing should be highest for the group of donors who had not received a gift in the Christmas 2001 mailing, second highest for those who had been in the small gift condition, and lowest for those who had received the large gift. In fact, the donation probabilities are 9.6, 8.9, and 8.6 percent for the group of donors who had been in the no gift, the small

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[6]This amount was actually donated by the University of Zurich.

gift, and the large gift condition, respectively. Thus, the donation probabilities do vary in line with the intertemporal substitution argument. However, the differences are rather small, in particular if one compares these differences with the differences that occurred in the different treatments of the Christmas mailing (see Table I). Moreover, these differences are insignificant. This is shown by a simple Probit regression where we regress a donation dummy for the February 2002 mailing on our treatment dummies (exactly as in Table II). The coefficients as well as the whole model are insignificant ($p = 0.353$ for the small gift coefficient and $p = 0.126$ for the large gift coefficient; for the whole model, Prob $> \chi^2 = 0.3034$).

As it holds with the donation probabilities, the absolute amount of money donated in the February 2002 mailing was highest in the no gift condition, followed by the small and the large gift conditions (see the third row of Table III). Again, these differences are relatively small and insignificant. This is revealed by an ordinary least squares regression, which regresses all donations of the February 2001 mailing on our treatment dummies ($p = 0.467$ for the small gift coefficient and $p = 0.846$ for the large gift coefficient; again the whole model is insignificant, Prob $> F = 0.7563$). Table III (fourth row) also shows that if one adds the donations of the Christmas 2001 and the February 2002 mailings, the strong treatment effects of including gifts in the Christmas mailing persist.

Another potentially negative intertemporal effect of including gifts could occur if gifts lead to the crowding out of the intrinsic motivation of donors who typically donate. This could be the case if donors perceive the gift as an extrinsic reward and no longer donate once the organization ceases to pay the reward. Such a crowding out of intrinsic motivation by extrinsic incentives has been extensively discussed in social psychology (e.g., Deci (1971), Deci, Koestner, and Ryan (1999)) and economics (e.g., Frey and Jegen (2001)). Applied to our context, a crowding out effect would lead to a lower donation probability in the February mailing of those donors who donated in the Christmas mailing. In fact, these conditional probabilities are 25 percent in the no gift condition, 21 percent in the small gift condition, and only 16 percent in the large gift condition. Thus the likelihood that someone who donated in the Christmas mailing will also donate in the February mailing is substantially lower in the gift conditions compared to the no gift condition. Note, however, that this is only seemingly a crowding out effect, because the donation probability in the Christmas mailing is much higher in the gift conditions than in the no gift condition (see Table I). The actual number of donors who donate in both mailings is strikingly similar across treatments. It is 2.9 percent in the no gift condition, and 2.9 and 3.2 percent in the small and the large gift condition, respectively. This suggests that there is a given fraction of donors who frequently donate, irrespective of whether they receive a gift or not. These donors are not negatively affected by receiving gifts, which suggests that no crowding out of intrinsic motivation occurs in our context. The lower conditional probability of donation in the February mailing among those who received a gift in the Christmas mailing

simply reflects the donation pattern of those donors who were *crowded in* as a response to receiving gifts: they donate only if they receive a gift.

4. CONCLUDING REMARKS

In this paper we have reported data from a field experiment designed to test the behavioral significance of gift exchange in a natural environment. In the experiment, potential donors are randomly assigned to receiving no gift, a small gift, or a large gift. In support of the gift-exchange hypothesis, donations vary systematically and significantly with the size of the gift.[7]

Although our study shows that gift exchange is relevant and important not only in the laboratory, but also in the field, it does not claim that gift exchange works under all possible circumstances. In fact, it is likely that the successful initiation of a gift-exchange relation depends on various and interacting factors. One important question, for example, is whether a gift-exchange relation can be repeatedly initiated. Surprise may be a key factor. Once donors get used to getting gifts, they may no longer feel obliged to repay them. This is, in fact, a possible conclusion from a recent field experiment by Gneezy and List (2006). They studied gift exchange at the workplace wherein the "gift-condition" wages were higher than previously announced. They reported that initially output is higher in the gift condition than in the no gift condition, but that over the work period of six hours the gift exchange relation eventually breaks down. Another limiting factor for gift exchange may be competitive pressure, which plays no role in our donation study but was investigated by List (2006). He studied social preferences in actual market transactions and reported that behavior is similar to that predicted by the standard self-interest model. The evidence shows that the importance of gift exchange is not a question of field versus laboratory evidence, but rather about the exact circumstances that prevail in the situation at hand. Ultimately the successful initiation of a gift-exchange relation depends on *attribution*, that is, how kind, generous, or fair a particular action or gift is perceived by the recipient. In many laboratory experiments, as well as in the present study, the signal sent by high wages or gifts is quite unambiguous. In contrast, in some naturally occurring environments, and perhaps also in the conditions studied by Gneezy and List (2006) and List (2006), the signal and perception of gifts is more ambiguous, which renders the establishment of a gift-exchange relationship difficult.

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[7]Motives other than gift exchange have recently been shown to crowd in additional donations as well, such as "seed money" or refund policies (List and Lucking-Reiley (2002)) and beliefs about the contribution behavior of other donors (Frey and Meier (2004)).

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