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Armin Falk

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Armin Falk, Universität Bonn

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Centre for Economic Policy Research
90–98 Goswell Rd, London EC1V 7RR, UK
Tel: (44 20) 7878 2900, Fax: (44 20) 7878 2999
Email: cepr@cepr.org, Website: www.cepr.org

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ABSTRACT

Charitable Giving as a Gift Exchange: Evidence From a Field Experiment

This study reports data from a field experiment that was conducted to investigate the relevance of gift-exchange for charitable giving. Roughly 10,000 solicitation letters were sent to potential donors in the experiment. One third of the letters contained no gift, one third contained a small gift and one third contained a large gift. Whether a potential donor received a letter with or without a gift was randomly determined. We observe strong and systematic effects from including gifts. Compared to the no gift condition, the relative frequency of donations increased by 17% if a small gift was included and by 75% for a large gift. Consequently, including gifts was highly profitable for the charitable organization. The contribution of this Paper is two-fold: first, it shows that reciprocity is an important motive for charitable giving, in addition to the warm-glow motive. Second, the Paper confirms the economic relevance of reciprocity by using field data. This extends the current body of research on reciprocity, which is almost exclusively confined to laboratory studies.

JEL Classification: C93, D63 and H41
Keywords: charitable giving, field experiments, reciprocity and warm glow

Armin Falk
Universität Bonn
Institute for the Study of Labor (IZA)
PO Box 72 40
D - 53072 Bonn
GERMANY
Tel: (49 228) 3894 112
Email: falk@iza.org

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1. INTRODUCTION

This study reports data from a field experiment that investigates the relevance of gift-exchange for charitable giving. In our study, roughly 10,000 solicitation letters were sent to potential donors. One third of the recipients received the letter without a gift, one third received a small gift and one third received a large gift. This completely exogenous treatment variation created strong and systematic effects: 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 one. Similarly the absolute amount of money donated increased substantially if a gift, in particular a large gift, was included. Thus our data provide clear and unambiguous evidence for the relevance of gift-exchange for charitable giving. Initiating such a gift exchange was highly profitable for the organization. Since we have individual donation data covering previous as well as subsequent solicitations, we can further show that the additional donations given in the experimental conditions are not intertemporally substituted. Put differently, the observed increase in donations is not followed by lower donations in the subsequent mailing. Moreover we find that the treatment effects are not systematically different for those donors who usually donate compared with those who usually do not donate.

The contribution of this paper is twofold: *first* it adds to the understanding of the motives behind charitable giving. The economic importance of investigating theses motives derives from the fact that the amount of donated money is quite substantial in many nations. In the US, for example, almost 70 percent of all households make charitable contributions, exceeding 1 percent of GDP (Andreoni et al. 1996). The motive that has attracted the most attention in both theoretical and empirical literature is (impure) altruism or "warm glow", i.e., the internal satisfaction that arises from helping others. Several empirical studies have provided evidence that feelings of warm glow are important determinants in the decision to donate (Andreoni 1995). While the present study confirms the relevance of this motive, it also shows that in addition to warm glow, donors are significantly affected by gift exchange considerations. *Second* the paper extends the research on reciprocal motivation. Reciprocity means that people reward kind actions and sanction unkind actions even if this is costly to them (for an overview on the empirical literature see Fehr and Gächter 2000). While numerous laboratory studies have confirmed the importance of this motive for human

decision making, there is little field evidence for the relevance of reciprocity. Our study provides a step in filling this gap.

Field experiments offer a particularly well suited research tool for investigating the motives behind charitable giving. In contrast with traditional field studies, it is possible to create an exogenous variation in the variables of interest in a field experiment. While this can also be realized in laboratory experiments, the latter face the disadvantage that actions do not take place in a natural setting. In another field experiment on charitable giving, List and Lucking-Reiley (2001) demonstrate the behavioral importance of seed money and refund policies. Increasing seed money from 10 percent to 67 percent produced an almost sixfold increase in donations. Likewise, the introduction of a refund policy increased donations by roughly 20 percent. Frey and Meier (2003) study charitable giving to a social fund administered by the University of Zurich. They systematically vary the information about other students' contributions and show that students increase their donations if they believe that others have also donated more.

The remainder of the paper is organized as follows. In the next section we present the details of the field experiment. Section 3 presents the behavioral predictions. Our results are contained in section 4, and section 5 concludes.

2. DESIGN OF THE FIELD EXPERIMENT

The study was performed in collaboration with a well-known, large charitable organization operating internationally. 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 whom letters are addressed. This list is a so-called "warm" list, i.e., the general response rate to solicitation letters is relatively high.

A total of 9,846 solicitation letters were sent out in the "2001 Christmas mailing", almost all to private households[1]. The purpose of this mailing was to collect money for funding schools for street children in Dhaka (Bangladesh). The potential donors were

[1] Only 22 of the 9.846 addresses belong to organizations and only one of these organizations actually donated (50 CHF).

informed about the details of the Dhaka project in the letters and asked to donate in its support. In addition to this letter, some people received 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 the Appendix. Those who received a gift (either small or large) were informed in a short remark at the very end of the letter that the postcards included are a "gift from the children from Dhaka", which "can be kept or given to others". The purpose of this sentence was (i) to assure people that the postcards are a gift for which nothing has to be paid, and (ii) 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 or not. All letters were sent out on December 5, 2001.

Random selection determined whether a donor received a letter without a gift, with a small gift, or with a large one. Each address in the data base was randomly allocated a zero, a one or a two (with a random number generator). Those who had a zero were sent the letter without a gift, those with a one received a small gift and those with a two received a large gift. Our dependent variable is simply the donation decisions by the potential donors. These were routinely recorded by the organization.

3. BEHAVIORAL HYPOTHESES

The design presented allows us to study the behavioral relevance of reciprocity or gift-exchange for charitable giving. Reciprocity means that we provide others the type of behaviors they have provided to us, i.e., reciprocally motivated people reward kind behavior and sanction unkind behavior, even if this is costly to them. The behavioral importance of reciprocity is well documented in many laboratory experiments (see, e.g., Fehr and Gächter 2000). A typical example is the study by Fehr, Kirchsteiger and Riedl (1993), which shows how trading partners in a market environment can successfully establish a gift-exchange relation. By paying generous prices, buyers can induce sellers to provide quality levels above

the enforceable level. In particular, the higher the price (the gift), the higher the average quality level.[2]

Applying the notion of reciprocity to the present study yields the following behavioral predictions. Obviously, no gift-exchange relation exists in the no gift condition because none was included in the solicitation letter. The most likely reason why people would donate in this condition is warm glow, i.e., the internal satisfaction that arises from helping people in need (Andreoni 1989, 1995). Under the small gift and the large gift conditions, gift-exchange is possible. In addition to feelings of warm glow, reciprocally motivated donors may feel obligated to repay the gift under these conditions. This feeling of obligation should increase as the value of the included gift rises. Based on this gift-exchange hypothesis, we should therefore see that donations are lowest in the no gift condition, higher in the small gift condition and highest in the large gift condition. In the results section we test this hypothesis by comparing both the relative frequency of people who donate and the amount that is donated in the three treatment conditions.

4. RESULTS

In discussing our results we address the following four main questions. First, does including a gift increase the probability of donations? Second, are different donors affected differently, i.e., are the treatment effects stronger or weaker for those donors who usually donate compared to those who usually do not donate? Third, does gift-exchange crowd in higher or lower gifts, compared to gifts given for reasons of warm glow? Fourth, is the initiation of a gift-exchange relation profitable for the organization?

4.1 Does including a gift increase the frequency of donations?

Table 1 presents the main results. 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 1 shows the absolute numbers of letters sent

[2] These findings, which have recently been replicated in a "real" effort experiment (Gneezy 2003) support the corresponding efficiency wage argument put forward by Akerlof (1982).
[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 4.4).

out for the three conditions. Rows two and three report the absolute and the relative number of people who donated under the three conditions. The results are striking. While the absolute number of people who donate 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 percentage of donors by 17 percent and including the large gift even increases the percentage of donors by as much as 75 percent.

TABLE 1: 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

Table 2 shows that the observed treatment effects are highly significant. We report two Probit regressions in this table where the dependent variable is a dummy, which takes the value 1 if a person donated and zero otherwise[4]. In Model 1 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 positive and significant at the 1-percent level. Further analysis also reveals that the increase in donations between the small gift and the large gift condition is also significant at the 1-percent level (Prob>χ^2=.0000). This shows that including a gift in our set-up significantly increases the frequency of donations and that the more generous the gift, the higher the frequency.

[4] All results are essentially the same robust if we use linear probability models instead of probit models.

TABLE 2: TREATMENT DIFFERENCES OF DONATION PROBABILITY

	Dependent variable: Donation dummy	
	Model 1	Model 2
Small gift dummy	0.102***	0.115***
	(0.039)	(0.045)
Large gift dummy	0.348***	0.387***
	(0.037)	(0.042)
Donation in previous year		0.902***
		(0.073)
Small gift∗donation in previous year		0.065
		(0.104)
Large gift∗donation in previous year		-0.053
		(0.101)
Constant	-1.167***	-1.328***
	(0.028)	(0.033)
Number of observations	9,846	9,846
Prob>χ^2	0.000	0.000
Pseudo R^2	0.011	0.064

Note: Probit regressions with standard errors in parentheses. *** indicates significance at the 1-percent level. "Small gift" is a dummy variable taking the value 1 if the observation comes from the small gift condition and zero otherwise. Likewise, "Large gift" is a dummy variable, which takes the value 1 if the observation comes from the large gift condition and zero otherwise. The variable "Donations in previous year" is a dummy variable taking the value 1 if the respective person donated in 2000 and 0 otherwise.

4.2 Are different types of donors affected differently by the treatments?

It is interesting to know whether the treatments affect different types of donors in a different way. In particular, it is of interest whether the effects of including a gift are stronger or weaker for those donors who donate anyway compared to those who usually do not donate. The answer to this question is interesting from a psychological point of view as well as from a revenue-maximizing perspective: Knowing the potentially different reactions to gift receipt would allow precise targeting, i.e., it would allow sending gifts only to those who react positively and most strongly.

To investigate this question, we compare the behavior of the 9,846 persons who received the solicitation letter in the 2001 Christmas mailing with that of the exact same

persons in the 2000 Christmas mailing. No one received a gift in the 2000 mailing. The percentage of donors in that year was 11 percent, almost exactly the same number as in 2001 for the no gift condition (see Table 1). In Model 2 in Table 2 we add the variable "Donation in previous year". This is a dummy variable which takes the value 1 if the respective person donated in 2000 and zero otherwise. This variable is also interacted with the treatment dummies. Model 2 shows the following: the treatment effects remain robust and significant. The dummy variable "Donation in previous year" is also positive and significant, which indicates that the likelihood of a person donating in 2001 is significantly higher if this person also donated in 2000. The variables "Small gift∗donation in previous year" and "Large gift∗donation in previous year" are interaction terms, which measure whether people who donated in 2000 show a different treatment effect than those who did not. Both coefficients are clearly insignificant. Thus the treatments had no significantly different effect on those donors who donated in 2000. Put differently, no matter whether a person usually donates or not, the increase in the donation probability after receiving a gift is similar.

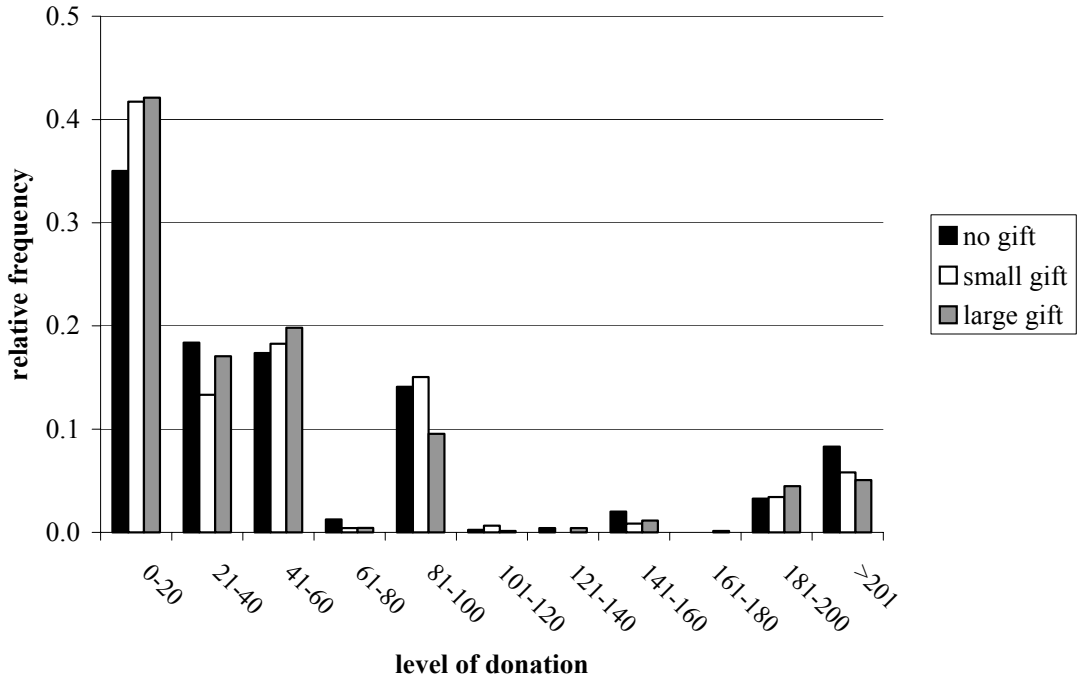
4.3 Does gift-exchange crowd in higher or lower gifts?

The results shown in Tables 1 and 2 unambiguously support the gift-exchange hypothesis. An intuitive interpretation of the results is that the inclusion of gifts triggers feelings of obligation to repay the gift, which in turn crowd in donations that would otherwise not have been given. It is interesting to know whether these additional donations are qualitatively similar to those given under the no gift condition. Under the latter condition, feelings of warm glow are most likely the dominant motive for donating. Since the two motives, warm glow and feelings of obligation, are psychologically different, it might well be that they trigger different donation patterns as well. In particular, one might hypothesize that feelings of obligation crowd in rather low donations: If the only reason to donate is to get rid of a "bad conscience" a donor might choose a donation level which just compensates the organization for its expenditures. Since the material value of the postcards is rather low, donations might be low as well.

To address this issue Figure 1 shows a histogram of donations for all treatment conditions. The figure reveals that overall the distributions are similar. In all conditions 86 to 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

subtle 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 the no gift condition (72 percent). Put differently, relatively low donations are more frequent under the large gift condition than the no gift condition. The opposite holds true for very high donations. This suggests that feelings of obligation may in fact crowd in relatively more low gifts. To test this claim more directly, we performed two different distribution tests. The Kolmogorov-Smirnov test rejects that the donation distributions of the no gift and the large gift conditions are the same (p=.049). Comparing the other distributions yields no significant differences (no gift/small gift p=.262; small gift/large gift p=.184). These results are supported by the non-parametric 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=.031) while the other distributions are not significantly different (no gift/small gift p=.532; small gift/large gift p=.122). Taken together the data suggests that donations given for feelings of warm glow are somewhat higher in comparison with those for feelings of obligation. These differences are not overwhelmingly strong, however.

FIGURE 1: HISTOGRAMS OF DONATIONS FOR EACH TREATMENT



4.4 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, we now examine the absolute amounts donated under each condition. In doing so, we restrict our analysis to all donations equal or below CHF 500. This excludes 2.5 percent (or 39 donations) 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 very high donations are affected by the treatment variations[5].

Table 3 (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 under the large gift condition. Thus as it holds for the relative frequency of donations (see Table 1), 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.

TABLE 3: ANALYSIS OF ABSOLUTE AMOUNTS OF DONATION AND POSSIBLE SUBSTITUTION EFFECTS

	No gift	Small gift	Large gift
Sum of donations *Christmas 2001 mailing* in CHF	24,673	27,106	40,877
Mean donation *Christmas 2001 mailing* in CHF	7.56	8.37	12.21
Sum of donations *February 2002 mailing* in CHF	14,023	13,206	13,165
Sum of *Christmas* and *February mailing* in CHF	38,696	40,312	54,042

Note: All donations smaller or equal 500 CHF

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 92,655 CHF. Simple

[5] Please note that there is nothing special about the cut off value of 500 CHF. All results reported in this section are qualitatively the same if we consider a different cut off value, e.g., donations below 600 CHF, 400 CHF, 300 CHF etc.

extrapolation suggests that if no one had received a gift, revenue would have been much lower. If we take the average donation under the no gift condition (see Table 3, second row) and multiply it by the total number of letters sent out, we get a hypothetical amount of CHF 74,473. Since the cost of the postcards was roughly CHF 2,000 [6], the net gain of the manipulation amounts to CHF 16,183, 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 120,249 (average donation under the large gift condition as shown in the second row of Table 3, 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 40,977 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. However, they indicate the potential benefits of establishing gift-exchange relationships.

From the organization's point of view, one important question remains to be answered. So far we have shown that including gifts substantially increased donations in the Christmas 2001 mailing. However, it could be that the two gift treatments have an *adverse* effect on subsequent mailings. This would occur if donors intertemporally substitute their donations, i.e., if those donors who donated more in the Christmas 2001 mailing donate less in the next mailing. Intertemporally the organization would not necessarily benefit from sending out gifts in this case. To address this question we briefly discuss the donation behavior that followed a solicitation letter, which was sent out by the organization at the end of February 2002. This was the first mailing after the Christmas 2001 mailing. The purpose of the February 2002 mailing was to collect money for poor mothers with little children.

Intertemporal substitution predicts that the probability of donating in the February 2002 mailing should be highest for the group of donors who did not receive a gift in the Christmas 2001 mailing, second highest in the small gift condition and lowest in the large gift condition. In fact the donation probability is 9.6 percent under the no gift condition, 8.9 percent in the small gift and 8.6 percent in the large gift condition. 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. Moreover

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

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 Model 1 in Table 1). 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>χ^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 3). Again, these differences are relatively small and insignificant. This is revealed by an OLS-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 3 (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. Taken together, it is possible that some intertemporal substitution occurs. However, if anything this effect is quantitatively small and insignificant.

5. CONCLUSION

This paper has reported data from a field experiment on charitable giving. We studied three treatments, which were exogenous to the roughly 10,000 potential donors. In the first treatment the solicitation letter included no gift, in the second it included a small gift, and in the third it included a large gift. Our results speak a clear language. Including gifts gives rise to substantially different donation patterns. In the small gift condition the percentage of donations is 17 percent higher than in the no gift condition. In the large gift condition it is even 75 percent higher. Numbers are similar if we look at the absolute amounts that were donated. Importantly, the additional donations do not give rise to lower donations in the subsequent solicitation, i.e., we find no significant intertemporal substitution pattern. We also find no evidence that those donors who donated before react differently to the treatments than the group of donors that usually do not donate.

Our results may also shed light on the findings of List and Lucking-Reiley (2001). In their experiment, including seed money significantly raised donation rates. A possible explanation for this result is that subjects perceive seed money as a *gift*, which is

reciprocated with higher donations, just as in our field experiment. This explanation is consistent in particular with the fact that donations in List and Lucking-Reiley (2001) seem to increase continuously in the level of seed money, a finding which is hard to reconcile with existing theories on charitable giving.

Given our results, it is tempting to conclude that the inclusion of gifts is a simple strategy for charitable organizations for collecting additional money. This conclusion, however, may be too optimistic. It is likely that the successful initiation of a gift-exchange relation depends on various and interacting factors. One important aspect concerns the nature of the gift and the message conveyed with it. If we had included gifts which were completely unrelated to the purpose of the solicitation (helping street children) or which were considered inappropriate, the response might have been weaker or even negative. Another question is whether a gift-exchange relation can be repeatedly initiated. Surprise may be a key factor. Once donors get used to getting gifts, they might not feel obliged to their repayment anymore. More field experiments are needed to answer these questions.

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Appendix: An example of the included postcards