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FAVOURING FRIENDS

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ABSTRACT

This paper focuses on the friendship effect on donations in a dictator game. Our results indicate that the taste for altruism is substantially increased when friends play the role of recipients. Controlling for reciprocity there is still a significant friendship effect on donations.

Keywords: altruism, dictator game, fairness, friendship effect

JEL classification numbers: C99, D63, D64

I. INTRODUCTION

This paper deals with the effects of between-subjects social distance in dictator games (DG hereafter). We check for the presence of a friendship effect on giving and separate this effect from that of reciprocity.

The study of this effect continues the path opened by previous work showing that reducing the dictator–recipient social distance in DG increases offers (see Hoffman *et al.*, 1994, 1996). Eckel and Grossman (1996) informed the dictator that the recipient was the local Red Cross whereas Brañas-Garza (2006) used (poor) recipients living in Africa. Bohnet and Frey (1999) had (among other treatments) dictators who could identify their recipients. In Charness and Gneezy (2008) subjects knew the family name of their counterparts. In the same vein, Burnham (2003) gave dictators recipients photographs. Frohlich *et al.* (2001) conducted a DG in just one room[1] – but under double-blind conditions – as a way to reduce dictators–recipients social distance. These experiments showed that the smaller the social distance the larger giving. Johannesson and Persson (2000) study the opposite effect using as recipients randomly selected Swedish citizens who did not know they were participating in an economics experiment; they show that this larger social distance did

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[1] Instead of a room A for dictators and a room B for recipients, they placed all of them within the same room.

not have a significant effect on the results. Moreover, Dufwenberg and Muren (2006) find the opposite result.

In this paper social distance is reduced further by making dictators play with a friend. Leider *et al.* (2009) analyse a DG within a social network: dictators know they are matched with a particular friend and, as a consequence, giving increases. In Goeree *et al.* (2010) donations are related to distance in the social network. Our paper continues this line of research.[2]

We run a two stage experiment. First, subjects' network of friends is elicited. Second, subjects play a DG either with friends or strangers. Although they know whether the recipient is a friend or not, they ignore the identity, so between-subjects anonymity is preserved. We find that, even under double-blind procedures, subjects give more to their friends. In fact, they donate 48 percent more to friends than to strangers, which cannot be explained by simple reciprocity: if dictators do not know who the recipient is, they cannot ask for reciprocation. A more detailed analysis of the data shows that the amount of money donated is higher for subjects with only one friend than for subjects with more friends. Since in the first case the identity of the recipient can be inferred, the difference in donations can be attributed to direct reciprocity. When the effect of reciprocity is controlled, donations to friends are still 35 percent higher.

The paper is organized as follows. Section II describes the design and procedures. In Section III, we analyse the strength of the friendship effect. Section IV concludes.

II. DESIGN AND PROCEDURES

The experiment was conducted at the University of Granada (Spain) in January 2006. Subjects were first-year undergraduate economics students. The possibility to participate in an experiment was announced in class to first-year students. Since we needed a list of friends for each subject, it was more likely to find it within the same class. However, participation was voluntary. Students wishing to participate were invited to go to a nearby room.

We were extremely careful in preserving subjects-experimenter distance (see Bolton *et al.*, 1998). To do so the experiment: (i) was conducted by assistants who did not have any contact with the students before or after the experiment, (ii) instructions indicated that the experiment was coordinated by a professor of the Universidad del País Vasco (1000 kms. from Granada) and (iii) we used double-blind procedures.

To analyse the strength of the friendship effect we use two treatments of a DG: dictators played either with a friend (T_f hereafter) or with a classmate who had not been included in their list of friends (T_s hereafter). To obtain the list of friends for each participant in the experiment, subjects were asked to write down the name of classmate friends on the answer sheet see http://www.ugr.es/~pbg/material/instructions_friends.pdf.

During the elicitation phase, no information was provided about the decisions they would take afterwards. However, since we were interested in subjects revealing close friends, the instructions stated that they might have the chance[3] to benefit one of the friends in their list, and that the more friends were listed, the lower the chances of helping a particular individual would be.

We use this *benefit-your-friend* incentive device (see Brañas-Garza *et al.*, 2010) in order to get a true mapping of personal relationships. We get a 50.1 percent of correspondence[4] (between

[2] See Brañas-Garza and Espinosa (2006) for a more detailed survey.

[3] Subjects were informed that they *could* benefit their friends. We never said that they *would benefit them for sure*.

[4] Part of the non-corresponded links were due to the fact that some students in the class list were absent and could not correspond.

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links). The elicitation device should provide incentives for subjects to reveal the true network; when no incentive is provided subjects either do not participate or they may mention friends with weak links (see the *pioneer* work by Leider *et al.* (2009) and Brañas-Garza *et al.* (2007) for a discussion on incentive mechanisms for network elicitation).

Instructions stated:

> We need you to give us a list of classmate friends. There is a chance that if you list them here they will participate in the experiment with you and could benefit from your decisions. 'Your list' will be the basis to randomly select those individuals.

All the participants were assigned the role of dictators, either in T_f or in T_s and were placed in the same room. In T_f subjects were informed that the recipient would be randomly chosen from their list of friends. In T_s they were informed that they would be matched to a recipient randomly selected from the entire class list, excluding the friends that they had named.[5] All dictators were also potential recipients.

During the experiment, instructions were read aloud. Subjects were not allowed to communicate between each other.

At the beginning subjects received two 11.5 × 22.3 cm (4.5 × 8.8 inch) envelopes included within the hand-out package. One of them was empty and the other contained ten 50 eurocents coins.[6] Subjects were informed that their decision task was to divide the whole endowment of ten coins between them and another subject in whatever way they wished. Then, they read on the instruction sheet whether their recipient would be a friend in their list (T_f) or someone from the friend-free class list (T_s).

To avoid any doubts about recipients getting the money (see Frohlich *et al.*, 2001), the commitment to pay recipients in private the day after and the place were announced publicly.

Subjects were asked to put the money they wished to donate in the empty envelope, seal it, leave it on the table and leave the room. The rest of the money was for them to keep. Participants were able to take their decision confidentially given the space left between subjects. Donations were given to the recipients the day after the experiment, once all the random-matching process was over.

The sample comprises 53 subjects: 27 participated in treatment T_s and 26 in T_f. On average, dictators earned 5.45 euros[7] (including 2 euros show-up fee) for a 20 minute session. Recipients, without any task or effort received 1.5 euros on average.

To simplify the exposition and the comparison with other related papers our results are presented in terms of the number of coins.

III. THE FRIENDSHIP EFFECT

III.1 The elicited social network

Table 1 shows the number of friends listed by subjects. Decision makers listed 2.79 friends on average; almost half of the subjects included two or three (the modal value) friends in their list, and about 6 percent listed six friends or more. The maximum number of friends was seven.

The 53 participants were randomly assigned between treatments: 26 to T_f and 27 to T_s. Four of the five subjects who did not list any friend had been initially assigned to treatment T_f, but obviously they played with a recipient not in their list so they have been excluded.[8]

[5] Note that instructions used the term chance in order to avoid deception.
[6] The smallest bill in euros is a 5 euros bill, so we used coins to allow for a wider range of allocations.
[7] US$ 7.
[8] Two of these subjects gave one coin; one of them gave three; and the last one gave four coins.

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TABLE 1
Number of friends

		Frequency						
n	*Mean*	*0*	*1*	*2*	*3*	*4*	*5*	*6+*
53	2.79	5 (9%)	8 (15%)	11 (21%)	13 (25%)	5 (9%)	8 (15%)	3 (6%)

TABLE 2
Giving in T_f and T_s

			Frequency						
T	*n*	*Mean*	*0*	*1*	*2*	*3*	*4*	*5*	*6*
T_f	22	3.68	3 (14%)	0 (0%)	2 (9%)	2 (9%)	5 (23%)	9 (41%)	1 (4%)
T_s	27	2.48	5 (19%)	2 (7%)	6 (22%)	6 (22%)	5 (19%)	3 (11%)	0 (0%)

III.2 The friendship effect

Now we focus on dictator's donations. The distributions of subjects' offers are shown in Table 2. On average, dictators offered 2.48 when the recipient was a classmate, whereas they gave 3.68 when the recipient was a listed friend. Thus, *reducing between-subjects social distance by matching friends yields an increase of 48 percent in the amount given*.

Furthermore, the frequency distributions are inverted, in the sense that 68 percent of the subjects offered four or more in T_f, whereas 70 percent gave three or less in T_s.

Hence, giving in DG is definitely sensitive to the friendship effect.

Figure 1 shows that the cumulative distribution function of giving in T_s stochastically dominates that in T_f.

Both the Mann–Whitney ($Z = -2.590$; $p = 0.01$) and the Kolmogorov–Smirnov ($Z = 1.342$; $p = 0.05$) tests reject the null hypothesis that the distributions of dictators' giving in T_f and T_s are drawn from the same population.

Therefore,

Result 1. In a DG, the friendship effect is significant: it increases mean offers by 48 percent.

III.3 Removing reciprocal behaviour

It is worth noting that subjects were informed whether they would be matched to a friend but not to whom. Thus we eliminate the chance of reciprocation after the experiment. With this procedure we also remove the effect of knowing the recipient's personal characteristics.

Nevertheless, for those subjects who named only one friend direct reciprocity was present since the identity of the recipient was known (as in Leider *et al.*, 2009).

Now we classify subjects according to the probability of knowing who the recipient is; this probability may be

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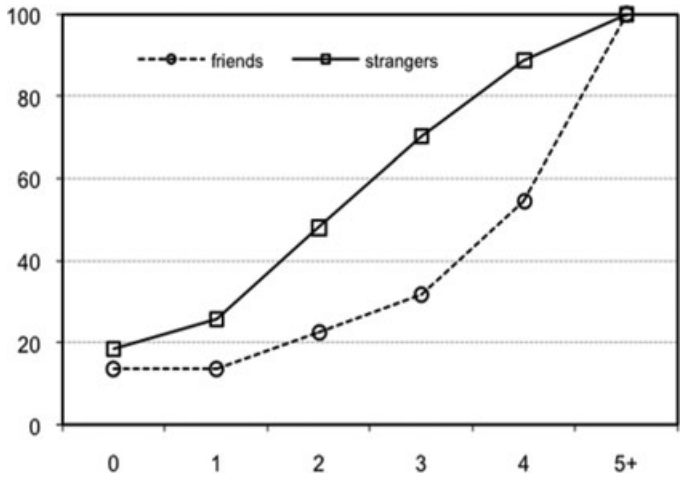


Fig. 1. Friendship and giving.

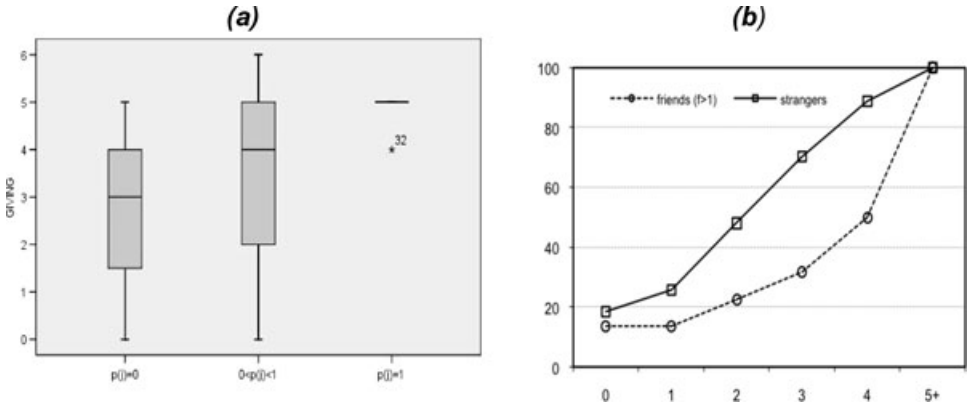


Fig. 2. Giving with uncertainty.

- $p = 1$ for subjects with only one friend ($n = 5$),
- $p = \frac{1}{f}$ for subjects with f friends ($n = 17$) or
- $p = 0$ for subjects in the treatment with strangers ($n = 27$).

The distribution of giving for each sub-sample is as follows:

In Figure 2(a), we present the results for these three groups. The comparison between the central box ($p = \frac{1}{f}$) and the right box ($p = 1$) yields a measure of the effects of direct reciprocity. Observe that the median giving goes from four to five coins.

In contrast, the comparison between the central box ($p = \frac{1}{f}$) and the left box ($p = 0$) captures the friendship effect excluding direct reciprocity, that is, pure friendship effect.

Then, the subsequent question is whether *the friendship effect survives to the absence of reciprocity*. To explore this issue, we compare contributions from the strangers treatment ($p = 0$; $n = 27$, see Table 2) with those arising from the friends-without reciprocity treatment ($p = \frac{1}{f}$, $f > 1$; $n = 17$, see Table 3).

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TABLE 3
Giving under uncertainty

	n	*Mean*	*Giving 0 coins*	*1*	*2*	*3*	*4*	*5*	*6*
$0 < p < 1$	17	3.3.5	3	0	2	2	4	5	1
$p = 1$	5	4.8	0	0	0	0	1	4	0

Figure 2(b) repeats the exercise done in Figure 1: the cumulative distribution function of giving in T_s stochastically dominates that in T_f (for $f > 1; n = 17$). Moreover, the Mann–Whitney test ($Z = -1.727$; $p = 0.08$) rejects the null hypothesis that contributions in both samples are drawn from the same population. Thus, in the absence of reciprocity there is still a friendship effect. However, because this effect is weakly significant, the issue would deserve further investigation.

IV. CONCLUDING REMARKS

This paper is a contribution to the stream of research that focuses on the effect on donations of between-subjects social distance. Our results indicate that the taste for altruism is substantially increased when friends play the role of recipients. Controlling for reciprocity there is a significant, although weaker, friendship effect on donations.

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