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Psychological ownership, group affiliation and other-regarding behaviour: Some evidence from dictator games



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ABSTRACT

We find that dictator giving is higher in group environments, where the dictator and recipient share a common group affiliation, and the funds are group-owned, than in the benchmark individual environment, where the dictator and recipient do not share a group affiliation, and the funds are owned by the dictator. A move to the group environment from the individual environment involves two distinct shifts: one, a shift in affiliation, where the dictator gives to a group member, rather than just a randomly matched partner out of his own fund, and, two, a shift in ownership, where the dictator gives out of group-owned rather than personal funds, in either case to a group member. We implemented these two shifts through linguistic framing of instructions. Our results show that, although simple group framing does lead to a somewhat higher give rate, group framing combined with joint psychological ownership of the endowment leads to significantly higher average offers in the dictator game.

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Introduction

Does the amount given in dictator games depend on psychological ownership over the divisible surplus? Cherry, Frykblom, and Shogren (2002) and Oxoby and Spraggon (2008) have shown that whether or not the surplus is earned, and whether the dictator or the recipient earns it, can affect giving, with the dictator keeping more when he earns the endowment.¹ The results of these studies suggest that the sense of personal property induced by earning reduces the amount given.²

In this present paper, we study whether psychological ownership effects can be generated when ownership is induced through the weaker mechanism of linguistic framing of instructions. We consider an environment where the dictator and the recipient share (also through framing of instructions) a common group affiliation,

and analyze the impact of transferring ownership of the endowment to be divided from the dictator to the group. We find this leads to a substantially increased proportion of equal (50:50) offers. Average giving is also raised significantly, if measured by the median. Mean giving is slightly higher as well, but not significantly so.

Mean giving is significantly higher when the ownership and affiliation effects work jointly; i.e., when we compare the group environment, where the dictator and recipient share a group affiliation and ownership of the endowment is with the group, to the benchmark individual environment studied in the literature, where the dictator and recipient do not share a group affiliation, and ownership is with the dictator.³ Further, we find that the affiliation effect in itself is of inadequate strength: when the dictator gives out of his own funds, whether or not the dictator and recipient share group affiliation makes little difference to average giving or the proportion of equal offers.

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¹ In order to have economy of speech, in this manuscript, an agent characterized as “he”, denotes “he or she”.

² In a dictator game, an active dictator agent unilaterally decides how much of a surplus to give to a passive recipient agent, keeping the rest for himself. We refer to the version in Forsythe, Horowitz, Savin, and Sefton (1994). An earlier version is by Kahneman, Knetsch, and Thaler (1986).

³ While the rational benchmark predicts the dictator will keep the entire surplus, experimental evidence shows many dictator subjects leave a part, sometimes substantial, for the recipient (see, e.g., Engel, 2011). This has generally been understood to indicate the presence of dispositions for altruism. Intense research has been conducted over the last two decades devoted to understanding the factors determining dictator decisions; however, very little literature exists exploring the effects of group affiliation and ownership (see Section ‘Related literature’).

Specifically, we examine dictator behaviour under three incremental linguistic frames that define the same surplus-sharing problem. In the benchmark *individual* frame (*I*), the dictator decides how much of a fund owned by him to give to the recipient subject.⁴ The *group affiliation* frame (*GA*) adds a few words to the instructions of frame *I* stating that the dictator and the recipient are in a group; the dictator's problem is still cast in terms of giving out of his own funds. The instructions of the *group affiliation-ownership* frame (*GAO*) are very similar to those of frame *GA* and also state that the dictator and recipient are in a group. However, they differ in that they state the dictator has to allocate a *group* fund among the two.⁵

The affiliation effect can thus be investigated by comparing outcomes under frame *I* to those under frame *GA*.⁶ Both instruct the dictator to choose how much to give to the recipient, with the fund being owned by the dictator. However, while the two paired participants are implicitly framed as separate individuals in *I*, they are explicitly framed as members of a group in *GA*. We find no effect in this case. Median offers are the same in the two situations (30%). Mean offers and the proportion of equal offers are slightly higher in *GA* (31.5% and 24%, respectively) compared with *I* (27.5% and 16%, respectively), but are not significantly different.

The ownership effect; i.e., the effect of a shift in reference with regard to how fund-ownership is notionally allocated, given group affiliation, in its turn can be analyzed by comparing outcomes under frame *GA* with those under frame *GAO*. In both, the paired participants are explicitly deemed as being part of a group. However, while in *GA* the dictator is instructed to choose how much to give to the recipient out of his own fund, in *GAO* the instructions say he has to allocate a group fund. Mean offers are slightly higher in *GAO* (35.4%), but not significantly different from those in *GA*. However, median offers and the proportion of equal offers are substantially higher in *GAO* (40% and 42%, respectively).

These findings suggest that psychological ownership effects can be generated, at least weakly, through framing in group contexts. However, group affiliation is difficult to engender only by framing. Further, dictator behaviour differs substantially between the individual and group environments, suggesting that ownership and affiliation effects have important joint consequences.⁷

Demographic data were collected from the subjects. We find that most demographic variables (gender, having a sibling, subject of study, family size and location) have little or no effect on outcomes. However, two of these, age and family income, do have effects, with age increasing the award to the recipient, and family income reducing it. Finally, the use of a hurdle regression approach yields the result that the dictator's decision on whether to give is affected only by ownership transfer, whereas the actual amount given to the recipient (conditional on choosing to give a positive amount) is not affected by framing at all.

The rest of the paper is organized as follows: Section 'Related literature' discusses the literature; Section 'Experimental design' details our experimental design and protocol; Section 'Results' presents results; and Section 'Discussion' offers a conclusion.

Related literature

The present paper is linked to several strands of the literature. We compare our work with prior research in each strand separately.

Psychological ownership in dictator games: our contribution to the literature

One factor that is posited to influence dictator giving is psychological ownership of the endowment that is to be shared by the dictator. Accordingly, if ownership is notionally with the dictator, he may be willing to give a smaller fraction to the recipient compared with a situation in which the ownership is joint.

Oxoby and Spraggon (2008) induce ownership by allowing the dictator endowment to be earned by either the dictator or the recipient (through an exam). These investigators find that the amount given is smallest when the dictators earn, largest when the recipients earn, and intermediate with exogenous assignment. List (2007) also induces ownership through earning, although he uses a routine mail-sorting task rather than an exam. He finds that average giving is smaller with exogenous assignment than with earning.⁸ These results thus emphasize the importance of property rights in determining individuals' social preferences.

In contrast to the papers above, we induce ownership through framing of instructions. We find that even with this weak mechanism, psychological ownership transfers may impact dictator giving. Specifically, dictators are more egalitarian with group ownership, and dictator giving to a group member is found to be higher when the fund is group-owned than when it is dictator-owned, if medians are compared. However, the ownership effect is not strong enough in itself to generate higher mean giving; it does so when bolstered by a psychological affiliation effect.

A seminal paper by Hoffman, McCabe, and Smith (1996) was the first to point towards this sort of psychological ownership, although in that study the effect was reported as a reduction in social distance leading to higher dictator giving. In the replication by Hoffman et al. (1996) of the study by Forsythe, Horowitz, Savin, and Sefton (1994), whose instructions "provisionally allocated to each pair" a certain sum which the dictators were then asked to allocate, Hoffman et al. (1996) included a variant that "weaken(ed) the dictator's sense of community with his or her counterpart" (p. 657). The dictator was now simply to "divide" between himself and the randomly paired other. Hoffman et al. (1996) found that this change in the instructions reduced the amount of dictator giving, but the difference was not statistically significant. Our study differs in that we calibrate this movement from a "high social distance" environment (unilateral transfer with no joint endowment and no group affiliation) to a "low social distance" environment (unilateral transfer with group affiliation and joint endowment), by introducing an intermediate variant that has the dictator and recipient in a group but with no notionally joint endowment. We find that the increase in giving that Hoffman et al. (1996) attribute to reduced social distance may be driven largely by psychological joint ownership of the endowment rather than the group framing of instructions. Furthermore, unlike Hoffman et al. (1996), we find that this effect is strong in our sample.

Group affiliation in games

The recognition that people belong to groups, sometimes many groups at the same time, and that individual decision-making may be influenced by group affiliation, has led to research on

⁴ This is similar to the standard neutrally worded frame that the majority of dictator game studies have used.

⁵ In the *GAO* treatment, the endowment to be shared is framed to be notionally owned by the "group" comprising the dictator and the recipient. Thus, the move from *I* to *GA* uses label framing, while the move from *GA* to *GAO* uses value framing, in the terminology of Dufwenberg, Gächter, and Hennig-Schmidt (2011).

⁶ Each of the three frames constitutes a separate treatment. We use the same letters (*I*, *GA* and *GAO*) to denote frame as well as treatment.

⁷ Hence, in a similar vein, whether a frame can induce a difference in outcome may depend on where in a hierarchy the frame lies, or its degree of marginality (or substantiality). Relatively marginal frames are unlikely to have an impact, while more substantial ones may.

⁸ Here, we compare Treatments Take (\$5) and Earnings in List (2007).

whether group affiliation induced in the laboratory can affect actions. Research originating in social psychology has shown that mere categorization of subjects into groups in the laboratory may be effective in generating behaviour such as in-group favouritism and out-group discrimination. This has led to the study of minimal groups; that is, the minimal conditions required for group behaviour to emerge (see, e.g., [Tajfel, 1970](#); [Tajfel & Turner, 1986](#)).

Our motivation for the use of group-based frames in the dictator game is to understand whether minimal groups can emerge in dictator situations on a purely linguistic basis; in other words, whether the degree of altruism in dictator settings is affected by identification with an in-group induced only through framing in the laboratory. The relationship between group affiliation induced minimally and dictator behaviour has been studied previously by [Güth, Ploner, and Regner \(2009\)](#). However, their setting involves neither framing, nor ownership transfers. [Güth et al. \(2009\)](#) induce groups through prior interaction that uses a public goods game, and find that dictator behaviour is more favourable to in-group than to out-group recipients.⁹ [Guala, Mittone, and Ploner \(2013\)](#) try to explore the effects of group identity. These authors first try to identify whether group identity effects are due to changes in an individual's objective (utility) function or if individuals alter their beliefs or expectations regarding what other players may do. [Guala et al. \(2013\)](#) also try to ascertain whether group effects are robust using three versions of the classic minimal group paradigm explored by [Tajfel, Billig, Bundy, and Flament \(1971\)](#). Using a two-player public goods game, [Guala et al. \(2013\)](#) find that minimal groups alter mainly the beliefs of players regarding the decisions of the other players. They also find that the nature of minimal group effects is fragile; under some circumstances, they lead to more cooperation than others.

Our design allows us to study in-group behaviour in two treatments (GA and GAO) versus behaviour in the absence of group affiliation in another treatment (I). We find that exogenous categorization into linguistically minimal groups cannot in itself engender an increased amount of other-regarding behaviour. Hence, our finding is weaker than that of [Güth et al. \(2009\)](#). However, the basis for group formation is more minimal in our case.

Group framing

The understanding that mere categorization of subjects into groups in the laboratory may induce differences in behaviour has also led to the study of whether frames that use group- or group-oriented terminology can affect choices. Many researchers have found that they can, with the use of group frames typically increasing positive behaviour.¹⁰

In public good games, for example, [Elliott, Hayward, and Canon \(1998\)](#) show that framing a voluntary contributions mechanism as a game between entrepreneurs can lead to lower contribution than if the same game is framed as one between cooperatives, while [Cookson \(2000\)](#) finds that contributions in a linear public good game is higher under a 'We' frame than an 'I' frame. For prisoners' dilemma games, [Ellingsen, Johannesson, Mollerstrom, and Munkhammar \(2012\)](#) find that cooperation may be higher when the game is labelled 'community game' than when it is labelled 'stock market game'. However, not all investigators have found that group frames yield positive effects. For example, in a trust game experiment, [Hargreaves Heap and Zizzo \(2009\)](#) find that group

frames can induce negative outcomes through excessive out-group discrimination. We extend this work to dictator settings and show that marginal group frames do not positively affect other-regarding behaviour, but substantial ones involving property rights do.

Framing in dictator games

Framing effects are said to exist when decision tasks or outcomes, which are objectively identical but described differently in experimental instructions, yield different choices. A debate has emerged over the last decade around whether framing of instructions influences dictator choices.

[Suvoy \(2003\)](#) explores the difference between a 'give' frame, where the dictator has the endowment, with the associated action being give, and a 'take' frame, where the recipient has the endowment, with the associated action being take. He finds no framing effects. [Dreber, Ellingsen, Johannesson, and Rand \(2012\)](#) use similar designs and come to similar conclusions.¹¹ In contrast, we find that psychological ownership effects can be produced through framing, especially when the frame is substantial.

In [Brañas-Garza \(2007\)](#), the two treatments describe decision tasks and outcomes identically, but differ in the way the context is framed. His approach is therefore different from ours (and also from [Suvoy \(2003\)](#) and [Dreber et al. \(2012\)](#)). Specifically, he adds one sentence: "NOTE that your recipient relies on you." Although this is a single sentence change, it appears to be a substantial frame. This is because the dictator is alerted to recipient dependency ("your recipient relies on you"), and, additionally, is implicitly exhorted or cued to respond to this dependency by being asked to note (in block letters) this fact. [Brañas-Garza \(2007\)](#) finds a treatment effect, with the alert and exhortation together generating higher giving. Hence, the finding of [Brañas-Garza \(2007\)](#) is close to ours, as both papers show that substantial frames can produce an impact.¹²

Our main hypotheses

The previous sections describe several largely unconnected strands of literature that deal with psychological ownership and group affiliation.¹³ We try to summarize the concepts in a few sentences before moving on to our hypotheses. There is some evidence ([Hoffman et al., 1996](#); [Oxoby & Spraggon, 2008](#)) that the existence of property rights over even a part of the endowment to be divided makes a proposer less other-regarding in his decision making. In the few cases where assignment of property rights has been attempted through the framing of instructions, the evidence is mixed. [Bardsley \(2008\)](#) and [List \(2007\)](#) find positive effects, although their design is somewhat different from the standard dictator game that we employ. [Suvoy \(2003\)](#) finds no effect of framing. With respect to

⁹ Laboratory research on dictator games using subjects from real-world groups has also shown that group affiliation can increase other-regarding preferences (see, for example, [Fershtman & Gneezy, 2001](#); [Hoff & Pandey, 2006](#)).

¹⁰ To our knowledge, such investigations have not been previously conducted in dictator game settings.

¹¹ [Bardsley \(2008\)](#) and [List \(2007\)](#) also use "take" treatments, where they do find that giving varies artifactually with the introduction of different giving and taking options. These studies are not strictly comparable to ours, as both dictators and recipients receive endowments, which are manipulated over the treatments. Another related study is [Keysar, Converse, Wang, and Epley \(2008\)](#). Although these authors find treatment effects using a marginal frame (comparing give and take treatments), there are many differences in design, making their results difficult to compare with ours. In particular, theirs is a study of reciprocity in environments where subjects face a series of dictator situations with role reversal; hence, the effect they find is for reciprocity rates, not give rates.

¹² A related study is by [Rigdon, Ishii, Watabe, and Kitayama \(2009\)](#), who investigate the role of pictorial cues. In this case, three dots representing "watching eyes" are presented to some dictators prior to decision-making and not to others. These investigators find a treatment effect: the dictators receiving this cue provide higher contributions.

¹³ Here, we use the word "identity" or "affiliation" in a synonymous way; that is, identifying or feeling affiliation with another person, group or institution. However, the experiment is single-blind; no subject knows the identity of his or her paired participant, either before or after the experiment.

minimum group affiliation with framing (Cookson, 2000; Ellingsen et al., 2012; Elliott et al., 1998; Hargreaves Heap & Zizzo, 2009) and without (Güth et al., 2009), there is mixed evidence that such framing induces a regard for others.

With no clear consensus on behaviour emerging from these very disparate studies, we attempt to explore these ideas of affiliation and ownership within a common framework of the dictator game. Accordingly, we design three frames that in an incremental manner add group affiliation and ownership to a standard neutrally framed dictator game, where an individual decides how much to allocate to a randomly matched other out of his or her endowment. Let the amount given in this baseline situation be y_I . We now keep the endowment with the individual, and in our second frame deem the individual and his paired partner to belong to a group. Let the amount given be y_{GA} . Finally in our third frame, we frame instructions so as to imply that the endowment now belongs to the group rather than the individual. Let the amount given by dictators in this treatment be y_{GAO} .

We hypothesize that the average giving over the three frames will follow this pattern:

$$\text{Average}(y_I) < \text{Average}(y_{GA}) < \text{Average}(y_{GAO}) \quad (1)$$

The next section presents our experimental design.

Experimental design

The instructions (available in Appendix 1) for our individual treatment (frame I) have the following paragraph:¹⁴

“In this experiment you have been randomly selected to receive an endowment of Rs 500. You may keep all of it or give a part (or all) of it to the participant paired with you. This is entirely your business. Please enter in the response sheet (given below) the amount you wish to give to the other person.”

The GA treatment instructions break up the first sentence of the paragraph above into two, and simply append a few words, namely, “you and your paired partner constitute a two-member group.”

“In this experiment you and your paired partner constitute a two-member group. You have been randomly selected to receive an endowment of Rs 500. You may keep all of it or give a part (or all) of it to the participant paired with you. This is entirely your business. Please enter in the response sheet (given below) the amount you wish to give to the other person.”

The instructions for treatment GAO poses the same unilateral division problem as the other treatments. However, this time the endowment is given to the group. Therefore, the paragraph quoted above is replaced by:

“In this experiment, you and your paired partner constitute a two-member group which has to allocate among themselves a sum of Rs 500. You have been randomly selected to perform this division. You may allocate all of it to yourself, or a part (or all) of it to your group partner. Your partner has no say in this, and how you divide the money is entirely your business. Please enter in the response sheet (given below) the amount you allocate between the two of you.”

The rest of the instructions are identical for all the treatments.

Table 1

Number of subjects in each treatment.

Treatment	Number of observations	Description
Treatment I	62	No group affiliation, endowment owned by dictator
Treatment GA	38	Group affiliation, endowment owned by dictator
Treatment GAO	64	Group affiliation, endowment owned jointly
Total	164	

Table 2

Detailed demographics of the subject pool.

Variable	Percentage (%)
Female	42
High age (23years and above)	50
High income (>Rs. 500,000 p.a.)	43
Household has five or more people	38
Has at least one sibling	81.5
Studies economics	30.5
Studies humanities or social science (other than economics)	33
Studies business administration	35

Subject pool

The sessions were run at three different academic institutions in India. They were Jawaharlal Nehru University (JNU, New Delhi), Institute of Management Technology (IMT, Ghaziabad) and Jadavpur University (JU, Kolkata). The three sessions reported in this study use 164 subjects who make a single decision each. Care was taken to ensure that the (student) subject pool did not solely comprise economics students. Three locations were used, two of which were in or near Delhi (JNU, IMT) and one in Kolkata (JU), in order to have variation in the subject pool. The students from JNU and JU were bachelors and masters students in humanities and social science and science disciplines, while the IMT students were masters students from the business administration (MBA) programme, with a majority of them having studied engineering, technology or sciences for their undergraduate degrees. The students were recruited via email or posters displayed at the respective institutions. Table 1 gives the number of subjects for each of our treatments. Note that the sample size differed across conditions because some sessions had absentee subjects who signed up and then withdrew.

The subject pool is in the age range [18–33 years] with an average age of 23 years. Women constitute 42% of the subject pool. Table 2 presents a more detailed demographic description of our subject pool. We follow the deliberate strategy of choosing subjects from diverse backgrounds (not just economics and management), as pro-social behaviours in games, and more specifically in this dictator task, have been seen to systematically differ with demographic and cultural contexts. Henrich, Heine, and Norenzayan (2010) and Engel (2011) contain detailed analyses regarding representativeness of laboratory experimental samples.

Experimental protocol

When the subjects gathered for a session, each was randomly assigned to one of the two rooms. All subjects were then read dictator instructions and asked to transfer an amount to a matched recipient (seated in the other room). Hence, there were no inactive subjects. Anonymity was maintained, and subjects were not allowed to communicate during the experimental sessions. Payments were individual and privately disbursed at the end of the session. Subjects were informed at the time of payment that they

¹⁴ The instructions do not use terms such as dictator, recipient and identity as we did not want to a priori cue the subjects towards any specific behaviour.

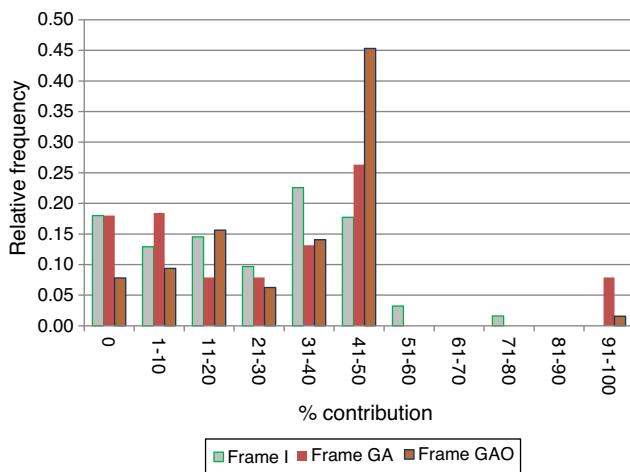


Fig. 1. Distribution of amounts given by treatment.

had also been passive recipients, in addition to being active dictators.

An experimental session took approximately 45 min from the beginning to when the subjects were paid. To standardize the procedure, the same experimenter read out loud the instructions in both rooms. The subjects also filled out a demographic information form (Appendix 2) before they were handed the instructions.

The endowment for each dictator was Rs. 500 (US\$10 at the market exchange rate and US\$33.33 at the PPP exchange rate).¹⁵ The stakes were moderately high; this was felt to be ample for participants informally surveyed after the experiment. The subjects were paid in cash privately after the experiment.

Results

Univariate comparisons

Pooling the treatments, the mean amount given by dictators is Rs. 157.5. The given-ratio is thus 31.5% of the endowment of Rs. 500. The mean amount given by dictators in treatment *I* is Rs. 137.3 (27.5%). This is close to the grand mean of 28.4% in a meta-study by Engel (2011). The mean amount given by dictators in treatment *GA* is Rs. 157.6 (31.5%). The mean amount given by dictators in treatment *GAO* is Rs. 177 (35.4%).

Fig. 1 depicts the distribution of amounts given disaggregated by frame. Notice that the distributions for treatments *I* and *GA* are more even than that for treatment *GAO*, where almost 50% of the observations are concentrated in the 41–50% range (between Rs. 200 and Rs. 250). Among subjects who gave between 41% and 50%, there is a clear ordering of treatments, with the largest fraction being subjects from frame *GAO*. This is followed by frames *GA* and *I*, respectively. Forty-five percentage of dictators in treatment *GAO* give between 41% and 50% compared with 26% and 18%, respectively, for treatments *I* and *GA*. From the observed frequency of actions, it seems that a focal point of egalitarian division is created in the minds of the dictators in frame *GAO* (and more weakly in frame *GA*).

In order to compare the three treatments, we use contrasts in an analysis of variance (ANOVA) model. The difference between the mean amounts given in treatments *I* and *GA* is not significant ($F_{1,161} = 0.83$, p -value = 0.3647); neither is the difference between

the mean amounts given in treatments *GA* and *GAO* ($F_{1,161} = 0.77$, p -value = 0.3807). However, the difference between the mean amounts for treatments *I* and *GAO* is significant ($F_{1,161} = 4.25$, p -value = 0.0409). The median offers for treatments *I* and *GA* are Rs. 150 each, and that for treatment *GAO* is Rs. 200. The non-parametric three-way median difference test reports a continuity corrected Pearson's Chi-square statistic of 8.2032 and a p -value of 0.017, indicating that the median offer in *GAO* is significantly higher than in the other two treatments. An interesting comparison can be made with Hoffman et al. (1996), in which the FHSS-R treatment is the closest to *GAO*, and FHSS-V likewise corresponds to *GA* or *I* (increased social distance).¹⁶ In the former, approximately 40% of the dictators gave 60% or more out of their endowment to the recipient. In the latter, between 35% and 40% gave over 60% of their endowment. Thus, in contrast to our study, for Hoffman et al. (1996), dropping the “sharing language” does not engender significantly less other-regarding behaviour. Of course, this could be due to a low number of subjects in their treatments (28 in each).

In the present study, 16.1% (10 out of 62) of dictators in treatment *I* gave equal (50:50) offers. Such offers were given by 23.7% (9 out of 38) of dictators in treatment *GA*. The corresponding %age in treatment *GAO* is 42.2 (27 out of 64). Using ANOVA contrasts as above, the difference between treatments *GA* and *GAO* is significant ($F_{1,161} = 4.26$, p -value = 0.0407), as is the difference between treatments *I* and *GAO* ($F_{1,161} = 11.15$, p -value = 0.0010). However, the difference between treatments *I* and *GA* is not statistically significant ($F_{1,161} = 0.70$, p -value = 0.4035).

The %ages of dictators making zero offers are 17.7, 18.4 and 7.8 in treatments *I*, *GA* and *GAO*, respectively. However, the total number of zero observations in our sample (23 out of 164) is quite small; thus, none of the three comparison tests yield significance at the 5% level.

For the pooled data, using two-tailed t -tests, there is no observed effect on the given-ratio of gender (p -value: 0.6490), studying a humanities subject or a social science subject other than economics (p -value: 0.6476), studying business administration (p -value: 0.1656) or having a sibling (p -value: 0.4260). Studying economics makes a difference: subjects studying economics gave 27%, while others gave 33%. This difference is marginally significant (p -value: 0.0840).¹⁷

However, higher income appears to make a subject more selfish. Dictators with family income above Rs. 500,000 per annum (which we deem the high-income category) gave Rs. 137.1, while dictators from lower income families gave Rs. 172.3. The latter is significantly greater than the former (t -test two tailed p -value: 0.0412). We computed the differences in giving across treatments for each category. We find that in the high-income category, mean giving is roughly the same for subjects in treatments *I* and *GA* (Rs. 100.7 and Rs. 100.1, respectively). The mean giving in treatment *GAO* is Rs. 187.6. Using ANOVA contrasts, we find that the difference between *GAO* and *GA* ($F_{1,66} = 6.19$, p -value = 0.0154) is significant, as is the difference between *GAO* and *I* ($F_{1,66} = 10.24$, p -value = 0.0021). This sensitivity to framing is not observed in the low-income category. The mean amounts given for this category are Rs. 167.4, Rs. 184.1 and Rs. 168.4 for treatments *I*, *GA* and *GAO*, respectively, which are not significantly different from each other.¹⁸ We also look at the differences in giving across income category within each

¹⁵ The purchasing power parity (PPP) exchange rate between the Indian Rupee and the US Dollar for 2009 was 15 Rupees to a Dollar according to the Penn World Tables (Heston, Summers, & Aten, 2011).

¹⁶ FHSS stands for Forsythe, Horowitz, Sevin and Sefton, cited in the text as Forsythe et al. (1994). Hoffman et al. (1996) replicate two FHSS treatments (R and V) in their study on the effect of social distance in dictator games.

¹⁷ None of the variables discussed above yielded significant results for any individual treatment.

¹⁸ For *GA*–*I*, $F_{1,92} = 0.36$, p -value = 0.5533. For *GA*–*GAO*, $F_{1,92} = 0.32$, p -value = 0.5757. For *GAO*–*I*, $F_{1,92} = 0.00$, p -value = 0.9371.

Table 3
Regressors used.

Variable	Description
Female	Takes the value 1 if subject is female, 0 otherwise
High income	Takes the value 1 if family income is above Rs. 500,000 per annum, 0 otherwise
Sibling	Takes the value 1 if subject has at least one sibling, 0 otherwise
Frame GA	Takes the value 1 if subject received frame GA, 0 otherwise
Frame GAO	Takes the value 1 if subject received frame GAO, 0 otherwise
Age	Age in years
No in household	Number of members who live in subject's household
Economics	Takes the value 1 if subject studies economics, 0 otherwise
Location Kolkata	Takes the value 1 if the observation was in Kolkata, 0 otherwise

treatment. We find there is no difference between dictators from high- and low-income families for treatment GAO (*t*-test one-tailed *p*-value: 0.2144). However, for both *I* and GA, low-income dictators give significantly more than high income dictators (*t*-test one-tailed *p*-values: 0.0041 and 0.0406, respectively).

Finally, in the pooled data, subjects aged 23 years or above gave Rs. 182.3, while younger subjects gave Rs. 132.8. This difference is significant at the 1% level (*t*-test two-tailed *p*-value = 0.0034). Age therefore appears to make subjects less selfish. We looked at the differences in mean giving across age categories within each treatment. For GAO, older dictators gave Rs. 200.5, which is greater than Rs. 155.2, the giving by younger dictators (*t*-test one-tailed *p*-value: 0.0286). A similar finding is obtained for GA. Older dictators gave Rs. 195, and younger ones gave Rs. 116, with the difference significant at the 5% level (*t*-test one-tailed *p*-value: 0.0391). In *I*, older dictators gave Rs. 155.8, while younger ones gave Rs. 118.7. The difference is only weakly significant (*t*-test one-tailed *p*-value: 0.0735). However, when we computed the differences in giving across treatments for each age category using ANOVA contrasts, we found no significant differences, whether for older or for younger dictators.

Overall, the higher givers were poorer and older. These results are largely consonant with studies by other researchers. List (2004) uses field data on charitable giving and decision-making in a television game to show that age positively affects altruism and cooperation. Piff, Kraus, Côté, Cheng, and Keltner (2010) obtain the result that poorer people have a higher degree of pro-sociality compared with the rich. See Engel (2011) for a meta-analysis of demographic effects on dictator giving.

Regression approaches

In order to ascertain whether the framing effect remains after controlling for a number of demographic variables, we performed a series of regressions. Table 3 below describes the various regressors that were used in the analysis.

The dependent variable for the Ordinary Least Squares (OLS) and Tobit (left censored at zero) regressions is the amount given to the recipient by a dictator.¹⁹ From columns 1 and 2 of Table 4, for both of these, the frame GAO is associated with offers that are on average higher than for frame *I* after controlling for demographic

effects – Rs. 43 for the OLS and Rs.51 for the Tobit. These effects are significant at the 5% level.

Dictators from high-income families give on average Rs. 42 less (OLS) and Rs. 50 less (Tobit) than dictators from low-income families.²⁰ The OLS effect is significant at the 5% level, and the Tobit at the 1% level. Finally, age is significant in both regressions and is associated with dictators giving approximately Rs. 8 more for every year they age. Both these effects are significant at the 5% level. Frame GA does not significantly affect choices in either regression.

A relatively new analytical approach to problems, where an agent makes a weakly positive contribution, assumes that the decision to make a positive offer to the recipient, and the decision regarding how much to give, conditional on the willingness to give at all, are two separate processes. A hurdle model is then appropriate. The hurdle model first analyses the binary decision to give or not to give with a logit model. Once that “hurdle” is crossed, for the size of positive contributions, conditional on giving anything, the hurdle model uses OLS, adjusting the distributional assumption to the fact that observations are taken from a truncated normal distribution (for more detail see McDowell, 2003).

Columns 3 and 4 of Table 4 provide the results from a hurdle model, where the decision to contribute or not is captured by a binary choice logit regression, and the amount contributed, given that the dictator has decided to offer a non-zero amount, by a truncated (at zero) OLS regression. We find that frame GAO is significant at the 5% level in the logit regression (marginal effect on the probability of giving something is 0.11), but not in the truncated OLS regression. This indicates that the decision to contribute or not is affected by the framing of the choice problem, but that the actual amount contributed (given that the decision is made to contribute) is not affected by framing. Again, frame GA is seen to not affect giving in either the logit or the truncated OLS regression.

High income is significant at the 5% level in the logit regression, but not in the truncated OLS. Hence, higher family income negatively affects the willingness to give anything more than zero, but not the amount given, if greater than zero. For age, the situation is reversed. It has no effect in the logit regression, but is significant at the 5% level in the truncated OLS. Therefore, higher age does not affect the willingness to give, but positively impacts the amount given, if greater than zero. The hurdle results thus confirm the importance of frame GAO and the unimportance of frame GA, and also that family income and age are the only demographic variables that have impact at the 5% level.

Finally, we test two other logit models. These allow us to study the factors that are important in determining egalitarian (50:50) choice (column 5) and the factors that drive a high (40% of the endowment or higher) level of giving (column 6). The binary choice model for 50:50 offers versus non-50:50 offers (column 5 of Table 4) shows that frame GAO positively and significantly (at 1%) affects the probability of a 50:50 offer. Specifically, on receiving frame GAO, the probability of making a 50:50 offer is 0.27 higher than if the subject received frame *I*. No other variable has any effect. The binary choice model for high offers (offers equal to or above Rs. 200 or 40% of the endowment) given in column 6 of Table 4 gives similar results. It shows that frame GAO is positively and significantly (at 1%) associated with making a high offer. As with the logit model on 50:50 offers, the marginal effect of GAO framing is 0.26. Further, no other

¹⁹ Although our sample has a total of 164 observations, two were dropped by STATA as the subjects had not entered their age. Dropping the age field and re-doing the analysis gave very similar results and no changes in variable significance. These regressions have not been reported.

²⁰ A Tobit specification assumes that the domain of the dependent variable is truncated at zero, which may be a more correct way to define the dictator choice when no “take” outcomes are included. In the more standard logistic regression approach, we implicitly assume that all outcomes in R^1 are included. However, in our experiment they are not available, and so giving behaviour is restricted to be no lower than zero.

Table 4

Regression analysis (standard errors in parentheses).

Variable	OLS	Tobit	Logit0	Trunc OLS	Logit 50:50	Logit200
Female	20.39 (18.80)	21.62 (20.83)	0.21 (0.59)	19.53 (17.70)	0.37 (0.42)	0.26 (0.40)
High income	−42.10** (17.25)	−50.99*** (19.22)	−1.16** (0.52)	−23.72 (16.66)	−0.42 (0.40)	−0.69 (0.38)
Sibling	19.86 (23.80)	22.99 (26.44)	0.52 (0.75)	13.95 (22.63)	0.66 (0.56)	0.38 (0.52)
Frame GA	2.06 (26.00)	3.16 (28.93)	0.26 (0.75)	−3.51 (25.08)	0.25 (0.61)	0.31 (0.55)
Frame GAO	43.32** (19.06)	51.29** (21.13)	1.32** (0.65)	23.93 (17.93)	1.35*** (0.45)	1.17*** (0.42)
Age	7.50** (4.29)	8.13** (3.95)	0.10 (0.12)	6.10** (3.29)	0.09 (0.08)	0.10 (0.07)
No in household	0.74 (4.90)	1.03 (5.40)	0.02 (0.17)	0.50 (4.51)	−0.20 (0.14)	−0.09 (0.11)
Economics	−25.03 (22.46)	−29.34 (24.94)	−0.54 (0.71)	−15.57* (21.47)	−0.18 (0.51)	−0.38 (0.48)
Location Kolkata	−9.08 (24.57)	−0.90 (27.27)	1.49* (0.86)	−36.05 (23.28)	−0.53 (0.56)	−0.49 (0.53)
Constant	−30.47 (88.69)	−57.71 (98.12)	−0.99 (2.82)	37.37 (82.45)	−3.13 (1.99)	−3.03 (1.82)
Observations (<i>n</i>)	162	162	162	140	162	162
R^2 /Pseudo R^2	0.14	0.01	0.12	0.14	0.10	0.09
Model F	2.66			2.42		
Model χ^2		22.68	15.30		19.97	19.57
Prob.	0.0068	.0069	0.08	0.0143	0.0181	0.0208
Log likelihood		−886.72	−56.71		−86.67	−95.29

*** Indicate significance at 1%.

** Indicate significance at 5%.

* Indicate significance at 10%.

variable is significant at the 5% level. In both regressions, frame GA is not seen to affect dictator choices.

Discussion

This paper studies whether group affiliation between dictator and recipient, or group ownership over distributable funds, can impact dictator decisions, when affiliation and ownership are induced through linguistic framing of instructions. Using mean giving as a measure, we find that such a psychological affiliation or ownership effects are each weak in isolation, and unable to increase dictator giving significantly. However, they are jointly effective, and result in 8% higher giving in the group environment. The effect remains after controlling for a variety of demographic characteristics. Two of these characteristics, family income and age, appear to influence the level of giving, with family income reducing giving, and age increasing it.

However, psychological transfer of ownership to the group is revealed to have significant individual impact when median giving or the proportion of 50:50 offers are used as measures. Simple group affiliation with no psychological joint ownership does not have any such impact, suggesting that ownership effects may dominate affiliation effects in the current context. As pointed out in earlier sections, this study extends in a more systematic way the findings of Hoffman et al. (1996), who qualitatively obtain a similar result with no statistical significance.

We conducted a hurdle regression that splits the decision to give a positive amount to the recipient into the decision to give a non-zero amount and the decision to give a specific amount conditional on choosing a positive one. The results show that the ownership effect acts to significantly increase the probability of giving an amount greater than zero. However, conditional on the player giving a positive amount, ownership or affiliation effects do not significantly impact the actual amount given. Two other regressions show that the ownership effect also significantly increases

the probability of making high (40% or higher) or 50:50 offers to the recipient. No such affiliation effects are found.

Our results indicate that the strength of other-regarding preferences may be context-dependent, and that the level of altruism observed in the dictator game may depend on the way the problem is posed. Specifically, we show that outcomes are unlikely to be changed by the introduction of marginal linguistic variation, which merely confers group membership. However, the presence of more substantial variation, which not only confers such a membership but also alters the reference point of the endowment, may have a strong influence.

Our results seem to offer an extension to the policy conclusions of Campbell and Putnam (2012), who find that simply belonging to a (religious) group is not enough to spur a higher level of charitable giving without a common purpose that binds members of a group together. We see from our results that when the dictator regards the endowment to be shared as belonging to the group rather than to him, he is more charitable towards the recipient. Therefore, organizations wanting to increase charitable giving may benefit by making donors feel that at least a part of the wealth they have acquired from society belongs to each individual with whom they are connected. This may be possible if these organizations frame their communication to reflect that potential donors and beneficiaries are in fact all human beings with a common purpose, with a quirk of chance giving the donor cohort redistributive rights over the not-so-privileged in society.

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Appendix 1.

Instructions (frame I)

Subject # _____

Thanks for signing up to participate in this experiment. In today's session, you have to perform a task for which you will be paid in rupees. Please remember that your response, which will determine the amount of money you take back from this experiment, is confidential, and your identity will not be known by anyone except the experimenter and others directly related to this project.

In this experiment, you have been randomly matched with another participant who is identified to you only by his or her number. This is given below. The paired participant will not know your identity over the course of this experiment or later. He or she will merely be informed of your choice with the ID number given on the top right corner of this set of instructions.

In this experiment, you have been randomly selected to receive an endowment of Rs 500. You may keep all of it or give a part (or all) of it to the participant paired with you. This is entirely your business. Please enter in the response sheet (given below) the amount you wish to give to the other person.

After everybody is done, we will pay you privately and in cash the part of your endowment that you have kept back (500 less what you gave to the subject paired with you) and pay the subject paired with you the amount you gave to him or her, also in private.

Please maintain silence while you are performing this task. When everyone is done with their tasks, the experimenter will collect this sheet from you. You may be asked to leave this room. In a few minutes, we will call you back in to collect your payment.

You have been paired with subject # B _____

Out of your Rs 500 endowment, you choose to give to him or her

Rs _____

Instructions (frame GA)

Subject # _____

Thanks for signing up to participate in this experiment. In today's session, you have to perform a task for which you will be paid in rupees. Please remember that your response, which will determine the amount of money you take back from this experiment, is confidential, and your identity will not be known by anyone except the experimenter and others directly related to this project.

In this experiment, you have been randomly matched with another participant who is identified to you only by his or her number. This is given below. The paired participant will not know your identity over the course of this experiment or later. He or she will merely be informed of your choice with the ID number given on the top right corner of this set of instructions.

In this experiment, you and your paired partner constitute a two-member group. You have been randomly selected to receive an endowment of Rs 500. You may keep all of it or give a part (or all) of it to the participant paired with you. This is entirely your business. Please enter in the response sheet (given below) the amount you wish to give to the other person.

After everybody is done, we will pay you privately and in cash the part of your endowment that you have kept back (500 *less what you gave to the subject paired with you*), and pay the subject paired with you the amount you gave to him or her, also in private.

Please maintain silence while you are performing this task. When everyone is done with their tasks, the experimenter will collect this sheet from you. You may be asked to leave this room. In a few minutes, we will call you back in to collect your payment.

You are in a group with subject # B_____

Out of your Rs 500 endowment, you choose to give to him or her

Rs _____

Instructions (frame GAO)

Subject # _____

Thanks for signing up to participate in this experiment. In today's session, you have to perform a task for which you will be paid in rupees. Please remember that your response, which will determine the amount of money you take back from this experiment, is confidential, and your identity will not be known by anyone except the experimenter and others directly related to this project.

In this experiment, you are randomly matched with another participant who is identified to you only by his or her number. This is given below. The paired participant will not know your identity over the course of this experiment or later. He or she will merely be informed of your choice with the ID number given on the top right corner of this set of instructions.

In this experiment, you and your paired partner constitute a two-member group which has to allocate among themselves a sum of Rs 500. You have been randomly selected to perform this division. You may allocate all of it to yourself, or a part (or all) of it to your group partner. Your partner has no say in this, and how you divide the money is entirely your business. Please enter in the response sheet (given below) the amount you allocate between the two of you.

After everybody is done, we will pay you privately and in cash the share of the endowment you allocated to yourself (500 *less* what you allocated to the other group member), and pay your partner the amount you allocated to him or her, also in private.

Please maintain silence while you are performing this task. When everyone is done with their tasks, the experimenter will collect this sheet from you. You may be asked to leave this room. In a few minutes, we will call you back in to collect your payment.

You are in a group with subject # B _____

Out of the Rs 500 total endowment for your group, the allocations you choose are:

For yourself: Rs _____

For your partner: Rs _____

Appendix 2.**INFORMATION FORM**

Name - _____

A. General information

1. Firstname - _____ Lastname - _____

2. Current Address - _____
_____3. Permanent Address – _____

4. Date of birth - _____

5. Gender – M____ F____

6. Marital status – Single ____ Married ____

B.Socio-religious information

7. Religion – Hindu____ Muslim____ Christian____ Other ____ None____

8. Caste – General ____ SC ____ ST ____ OBC ____ Other ____ None ____

C. Family Information

9. Please circle the category below that describes the total amount of gross (pre-tax) INCOME earned in 2009 by your family. (Circle one number)

9a. Less than 1 lakh

9b. Between 1 and 2.5 lakhs

9c. Between 2.5 and 5 lakhs

9d. Between 5 and 7.5 lakhs

9e. Between 7.5 and 10 lakhs

9f. Above 10 lakhs

10. What was the **highest** level of education that your **father** (or male guardian) completed? (Circle one choice)

- 10a. Std. XII or less
- 10b. Vocational Diploma
- 10c. Bachelors Degree
- 10d. Post Graduate Degree

11. What was the **highest** level of education that your **mother** (or female guardian) completed?
(Circle one choice)

- 11a. Std. XII or less
- 11b. Vocational Diploma
- 11c. Bachelors Degree
- 11d. Post Graduate Degree

12a. Total number of persons in your household ____

12b. Number of adults ____ Number of brothers ____ Number of sisters ____

12c. Did you grow up in a joint family? Yes ____ No ____

D. Educational information

13a. College –

13b. Medium of instruction – _____

13c. Subject studied in college - _____

13d. Year of graduation – _____

13e. Total Marks – ____/100 or CGPA- ____/____

E. Attitude and opinion survey

14. Are you active in student politics? Yes ____ No ____

Not applicable (not a student) ____

15. In your opinion, which is the best political party in India?

16. Are you actively involved in any form of voluntary/ community / social work?

Yes ____ No ____

17. Are you actively involved in any theatre, art, music or any other cultural organization? Yes__

No__

18. Are you actively involved in any sports organization or involved in sporting activity? Yes__

No__

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