Preferences for Giving Versus Preferences for Redistribution

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Abstract

We report the results of an online experiment studying preferences for giving and preferences for group-wide redistribution in small (4-person) and large (200-person) groups. We find that the desire to engage in voluntary giving decreases significantly with group size. However, voting for group-wide redistribution is precisely estimated to not depend on group size. People's perception of the size of their reference group is malleable, and affects their desire to engage in giving. These results suggest that government programs, such as progressive tax-and-transfer systems, can help satisfy other-regarding preferences for redistribution in a way that creating opportunities for voluntary giving cannot.

Key words: social preferences, giving, redistribution, public goods

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> "I know well many of the mega-rich and, by and large, they are very decent people. They love America [...] and most wouldn't mind being told to pay more in taxes [...]. My friends and I have been coddled long enough by a billionaire-friendly Congress. It's time for our government to get serious about shared sacrifice." (Warren Buffet in the New York Times, 2011)

> "Wealthy people saying they want [...] to raise their taxes are just being politically hypocritical. Just pay more taxes right now if you want to. There is nothing stopping you." (Morgan Stanely wealth manager Frank Hill, in the North State Journal, 2019)

Warren Buffet, quoted above, is not the only billionaire to publicly support substantially higher taxes on the rich. In a 2019 article, Forbes listed a dozen "ultra-rich" individuals—including Bill Gates, Michael Bloomberg, and George Soros—who have done the same.[1] Many people at the top of the income distribution support progressive policies that would lead them to pay higher taxes.

A common critique of the wealthy's support for redistribution is that they can make voluntary charitable donations, without government intervention. The U.S. federal government, for example, allows direct donations to itself. Thus, some deride the wealthy's demand for higher taxes as hypocritical, as illustrated in the quote of Frank Hill above.

The hypocrisy argument stems from the assertion that preferences for individual giving and preferences for societal redistribution are identical. For example, if people are motivated by "warm glow" (e.g., Andreoni, 1990, Andreoni, 1993, Andreoni, 1995) or a need to satisfy moral obligations (Rabin, 1995) that is based only on the degree of personal sacrifice, then people's willingness to make a sacrifice through individual giving versus through a more progressive tax could be identical. On the other hand, if people trade off their distributional preferences for more equitable social outcomes against their own material self-interest (a key assumption in models such as those of Fehr and Schmidt, 1999, Charness and Rabin, 2002, or Fisman et al., 2007), then in large groups people may be more willing to support a centralized redistributive policy than to engage in individual giving. The reason is that a centralized redistributive policy has a larger impact on equity at the same cost to oneself. In other words, under certain assumptions about other-regarding preferences, creating equitable social outcomes is analogous to a standard public goods problem, where many could be better off under a policy that requires contribution from all, but very few have an incentive to engage in voluntary giving.

In this paper, we experimentally study to what extent people's preferences for individual giving versus societal redistribution diverge. We find that these preferences are distinct and diverge significantly in large groups. In particular, the desire to engage in individual giving decreases significantly with group size, whereas support for redistributive policies does not.

In our online Amazon Mechanical Turk (MTurk) experiment, a total of 1,600 participants made incentivized choices as "rich" players, in groups with an equal number of rich and poor players. The "rich" were endowed with 350 cents and the "poor" were endowed with 10 cents. We varied two key dimensions of the decision-making environment.

[1] See https://www.forbes.com/sites/cartercoudriet/2019/10/15/billionaires-more-taxes-gates-buffett-bloomberg/

First, half of our participants were part of small groups of 4 people, whereas the other half were in groups of 200 participants. This was varied between subjects.

Second, we introduced within-subject variation in the type of giving decision. The first type involved an option for individual giving, with the gift distributed equally among all of the poor participants. The second type involved an individual giving decision where the gift would be assigned to one randomly chosen poor participant, but in such a way that no poor participant received a gift from more than one rich participant. We call both of these first two types of decisions "individual giving" because a participant's decision to give does not affect transfers from other rich participants. This is in contrast to our third type of decision, where the rich participants voted on whether a transfer should be made from *all* rich participants to all poor participants.

Additionally, we varied the cost of transfers to the poor within-subject, so that each subject participated in a total of 9 decisions: 3 decision types $\times$ 3 different costs of giving. Finally, we varied the framing of individual giving to one participant. In one frame we described the recipient as a "matched partner" while in another frame we described the recipient as a "randomly selected person." This manipulation was conducted to test the malleability of perceived group size; in particular, to test whether participants who initially started out in larger groups might perceive themselves to be in a small group of 2 when the recipient is described as a "matched partner," and thus would more willing to give.

Our three main findings are as follows. First, subjects are significantly more likely to vote for group-wide redistribution than they are to engage in individual giving, when the individual giving is designated to be split evenly among all poor participants, or when it is designated to one "randomly selected person." Second, while subjects' propensity to vote for group-wide redistribution does not vary at all with group size, their propensity to engage in individual giving that is *not* to "a matched partner" declines significantly with group size. Third, subjects' propensity to give to "a matched partner" is statistically indistinguishable from their propensity to vote for group-wide redistribution, both in small *and* large groups. The significant difference between giving to "a matched partner" versus a "randomly selected person," combined with the stark group size effects on most forms of individual giving, implies that perceptions of group size are not only a key driver of individual giving, but are also malleable.

We show that our results are inconsistent with several prominent models of social preferences (e.g., Fehr and Schmidt, 1999; Bolton and Ockenfels, 2000), but we formalize a class of models that is consistent with all of our results. The preferences introduced in Andreoni and Miller (2002), Fisman et al. (2007), and Andreoni (2007) are special cases of the framework that we formalize.

Our results have several other broader implications. First, they suggest that perceived social group size might contribute to an apparent divergence between the generally high degree of individual giving measured in laboratory experiments—which almost ubiquitously frame decisions as occurring in small group sizes—and the seemingly lower degree of individual giving observed outside of laboratory games—where perceived social group size is plausibly large. Second, our results suggest that centralized redistributive policies, such as progressive tax-and-transfer systems, can help

satisfy other-regarding preferences for society-wide redistribution that opportunities for individual giving cannot. The reason is that our results imply a form of other regarding preferences where equitable allocation of resources is an intrinsic public good—but like most "standard" public goods it can more easily be attained through a collective action mechanism because the incentives for voluntary contributions are too weak, especially in large groups.

Our results extend a small but distinguished literature on group size effects in the laboratory. Isaac and Walker (1988) and Isaac et al. (1994) focus on experimental public goods games where individuals can contribute money to their group with a rate of return higher than one. They find that larger group sizes increase "free-riding" behavior when they increase the cost of cooperative actions. Carpenter (2007) shows that cooperative behavior can increase in large public goods games when punishment of free riders is possible, as free riders are more likely to be punished in larger groups. Because these papers focus on group dynamics of positive and negative reciprocity—which involve subtleties such as the nature of beliefs and learning about others' behavior—it is difficult to benchmark our results on voluntary giving to this work.

Closer to our work are the experiments reported by Andreoni (2007), who studies group sizes between 2 and 10 participants, where the "dictator's" gift is equally split among the recipients. Consistent with our results, Andreoni (2007) finds that voluntary giving declines with group size. Our experiment extends Andreoni (2007) by (i) utilizing a much larger range of group sizes, (ii) studying voluntary giving where the gift is both split equally among many recipients or directed to a single participant, (iii) studying the malleability of perceived group size, and (iv) comparing voluntary giving preferences to preferences for group-wide redistribution.

Finally, our paper complements Durante et al. (2014) and Fisman et al. (2021), who study preferences over group-wide allocations in groups of size 21 and 7, respectively. The decisions in these papers are most similar to our subjects' voting decisions about group-wide redistribution, but allow subjects to express more nuanced preferences over the allocation of resources. We complement this work by contrasting group-wide allocation decisions with individual giving decisions, and studying the contrast across groups of very different sizes.

The rest of this paper proceeds by explaining the experimental design in Section 1, reporting the results in Section 2, discussing implications for models of social preferences in Section 3, and concluding in Section 4.

1 Experimental Design

Our experiment was run on Amazon Mechanical Turk (MTurk) in April and June of 2017 on a total of 1600 participants. Our eligibility criteria were that subjects had to be at least 18 years old, have a US or Canadian postal address, and have a favorable rating from at least 95 percent of at least 50 previous tasks on MTurk. A key advantage of large online platforms such as MTurk is the ability to create large group sizes. Another advantage is that participants can be assigned to group sizes completely randomly, rather than at the "session level," which implies that in our statistical

analyses standard errors need only be clustered at the subject level, rather than group level.

Half of the participants were randomly assigned to be in a group of 4 participants, while the other half were randomly assigned to be in a group of 200 participants. Each participant was randomly, and with equal chance, assigned to be either an A player, with an initial endowment of 350 cents, or a B player, with an initial endowment of 10 cents. We used the strategy method and maximized the amount of data we could collect by not initially revealing the assignments to A versus B, and instead asking each participant what they would want to do if they were assigned to be the A player. In the experiment, we referred to the two different roles exclusively as "A player" and "B player," but in the paper we refer to these as "rich" and "poor," respectively.

Screenshots of the full experiment are contained in Appendix C.

Decisions Participants made three sets of decisions, with each set consisting of three decisions. The three sets were randomly ordered, and within each set the three decisions were randomly ordered. Figure 1 summarizes these three sets of experimental decisions, which we now explain in detail.

We refer to the first set as *giving to many*. In these three decisions, the rich participants chose whether to give up $X \in \{80, 100, 120\}$ cents to generate a transfer of 100 cents that would be divided equally among the A players. In small groups, this would entail transfers of 50 cents to each of the poor players, while in large groups this would entail a transfer of 1 cent to each of the poor players. Each of the three different values of X corresponded to a decision in this set.

We refer to the second set of three decisions as *giving to one*, and we label the two variations of this set as *giving to one of many* and *giving to one partner*. In these decisions, rich participants had to choose whether to give up $X \in \{80, 100, 120\}$ cents to generate a transfer of 100 cents to a single poor player. It was explained that "the computer will make sure that no B-player can get more than 100 cents." In the *giving to one of many* variation, we used language that encouraged participants to think of themselves and their partner as part of the larger group, rather than their own group: "Do you want to spend [X] of your 350 cents to increase a random one of the B-players' payoff by 100 cents?" In the *giving to one partner* variation, we used language that encouraged participants to think of themselves and their partner as part of their own group: "Do you want to spend [X] of your 350 cents to increase your paired B player's payoff by 100 cents?"

We refer to the third set of decisions as *voting on redistribution*. In these decisions, each of the rich players voted on whether or not all of the rich players would have to give up $X \in \{80, 100, 120\}$ cents to increase each of the poor player's payout by 100 cents. The tie-breaking rule was that redistribution would be implemented if half or more of the rich players voted for it.

After these three sets of decisions, participants took part in a standard dictator game where the "dictator" chose how to allocate 100 cents between themselves and a partner. While each participant had a 50 percent chance of being the dictator, they did not learn the assignment initially and first had to make a decision about how they would allocate the money in the event that they are assigned to be the dictator. This last decision was not presented in random order relative to the other decisions

because it is not of primary interest to our analysis; instead, we use behavior in this decision to classify subjects as more or less prosocial in various robustness analyses of the primary experimental decisions.

The very last decision, which was also of secondary interest in our analysis, was a single decision about what participants would want to do if they were assigned to be in the role of a poor player. The poor players could vote to decrease the rich players payoffs by 100 cents, without any benefit to themselves. This would be implemented if at least half of the poor players voted this way. The goal of this decision was to study the extent to which the model of Fehr and Schmidt (1999), which predicts significant "behindness aversion," could explain our results.

Incentive compatibility Within each group, one of the nine primary decisions made by the rich players was randomly (and with equal probability) selected to determine the outcomes in the group. This "decision that counts" was the same for all participants within a group. Thus, it was incentive-compatible for participants to indicate their preferences in each decision truthfully, and this was explained to the participants.

The bonus dictator game involved payoffs that were added to the payoffs generated by the nine primary decisions. Finally, since the poor players had a single decision to make, the outcome of that vote would bind for each group.

Comprehension questions Prior to participants making any decisions, we asked five comprehension questions. The first question asked how many players there are in the participant's group. The second and third questions asked how much money the A players and B players start with, respectively. The fourth question asked how many A players and B players there are. The fifth question asked participants to verify that they understood that for the first 9 decisions they should decide in the role of an A player.

Demographics At the very end of the experiment, participants were asked a series of demographic questions about their age, gender, ethnicity, country of residence, marital status, income, education, and political views (details in Appendix C).

2 Results

We limit our primary analysis to participants whose behavior satisfies two key hallmarks of being fully engaged with our experiment. First, we limit analysis only to the 92.5 percent of participants who correctly answered all five comprehension checks. Second, we additionally limit analysis to the 88.3 percent of the remaining individuals whose decisions were monotonic. We say that a participant's decisions are monotonic if within each of the three sets of decisions, the participant was not more likely to give or vote for redistribution at a higher price than at a lower price. This leaves a total of 1307 participants for the main analysis. As we show in Appendices A.1 and A.2,

our results change very little when including all 1600 participants, or when studying participants who passed the comprehension checks but were not necessarily monotonic.

2.1 Descriptive Results

We summarize behavior in the different decisions sets in Figure 2. Approximately 50 percent of participants vote for redistribution, and this share is remarkably similar across large and small groups (48.9 (SE=2.0) percent in large groups; 50.9 (SE=1.9) percent in small groups).

Substantially fewer participants chose to give in the *giving to many* decision set, with a particularly drastic decrease in large groups. 33.4 (SE=1.6) percent chose to give in small groups, and 15.1 (SE=1.2) chose to give in large groups. The difference in giving between large and small groups is a large and statistically significant 18.3 percentage points (SE=2.0).[2]

Behavior in the *giving to one of many* decision set falls in between behavior in the *giving to many* and *voting on redistribution* decision sets. 43.1 (SE=2.2) percent chose to give in small groups, and 34.4 (SE=2.0) chose to give in large groups. The effect of group size in this decision set is a statistically significant 8.7 (SE=3.0), but it is smaller than the effect of group size in the *giving to many* decision set.

Finally, we find a remarkable similarity of prosocial behavior in the *giving to one partner* and *voting on redistribution* decision sets. The share giving in the *giving to one partner* set is 48.7 (SE=2.2) percent in large groups and 50.6 (SE=2.1) percent in small groups. The fact that behavior in the *giving to one partner* decision set does not vary with initial group size suggests that this manipulation led people to adjust their perception of the relevant social group to one that only includes themselves and their partner. This perception of the relevant social group then leads to high levels of giving because as shown in the other two giving conditions, people are more willing to give in smaller groups.

Behavior in the *giving to one partner* decision set suggests a simple explanation of why there is more giving in the *giving to one of many* decision set than in the *giving to many* decision set. In the *giving to one of many* decisions some participants likely regard their relevant social group as only including themselves and the participant who will receive their transfer. Although we used language that highlighted the larger group, the nature of the decision and the prompt—which mechanically drew attention to there being one other individual—likely lead some participants to regard their relevant social group as only including that other individual in the *giving to one of many* decision set

Figure 3 disaggregates the summary statistics in Figure 2 by the price of giving. Consistent with earlier results such as those of Andreoni and Miller (2002) and Fisman et al. (2007), we find that participants are highly elastic to the price of giving. Across the different decision sets, participants are about 25 percentage points more likely to choose to help the poor players when the cost of doing so is 80 cents rather than 120 cents. This is slightly larger than the effect of increasing group size

[2]Standard errors for differences in this and other analogous summaries of Figure 2 results are calculated from inferences on the coefficients estimated in the regression described in the notes of Figure 2.

from 4 to 200 in the *giving to many* decision set, and is slightly smaller than the effect of moving from *giving to many* to *voting on redistribution* in large groups. In other words, increasing group size in the *giving to many* condition or moving from voting on redistribution to decentralized giving decreases willingness to help the poor subjects by about as much as increasing the price of giving by 50 percent (from 80 to 120 cents).

The uniformly strong effect of giving price across all decision sets also helps address the concern that giving is low in the *giving to many* condition because of a rounding heuristic where individuals round down the transfer received by each poor player to zero. Participants who perceive the benefit to the poor players to be zero would not be responsive to the price of giving, as they would never give.

The fact that individuals are equally likely to vote on redistribution in small and large groups addresses the concern that individuals might be more likely to vote prosocially than to give because their vote might not necessarily determine their outcome and thus is a "cheaper" signal of prosociality since their vote. If such a mechanism were true, then individuals would be more likely to vote prosocially in large than in small groups, because in a small group with two rich players a single vote for redistribution much more likely to be pivotal. Thus, voting prosocially is a "cheaper" signal in large groups than in small groups.

Robustness Appendices A.1 and A.2 replicate Figures 2 and 3, respectively, for the full sample of 1600 participants and for the sample of participants who correctly answered all comprehension questions but were not necessarily monotonic in all of their decisions. The results are largely identical.

2.2 Regression Analysis and Further Hypothesis Testing

Table 1 presents regressions that quantify the effect of the different experimental conditions on participants' willingness to redistribute resources to the poor players. In all specifications, the omitted category is the condition where participants are in a small group and asked to vote for redistribution. The columns in the table differ in the subsample considered and/or the additional control variables used. Column 1 quantifies the differences between the averages summarized in Figure 2; Column 2 adds controls for the price of giving and for the order in which the decision was made; Column 3 limits analysis to only the first decision set encountered by participants, so that effects of experimental conditions are quantified solely in a between-subject comparison; Column 4 limits results to participants who chose to give a positive amount in the dictator game at the end of the experiment, as the not-fully-self-interested individuals are most likely to change their behavior across the different experimental conditions; Column 5 combines the restrictions from Columns 3 and 4; Column 6 examines the robustness of Column 2 to controlling for demographics.

Our main results are robust in all specifications. Across all specifications, participants in small groups are 11.5 to 17.3 percentage points less likely to act prosocially in the *giving to many* condition than in the *voting on redistribution* condition. The coefficient estimates on "Giving to one" imply

that participants in small groups are 5.0 to 7.8 percentage points less likely to act prosocially in the *giving to one of many* condition than in the *voting on redistribution* condition. The coefficient estimates on "Giving to one × Partner" imply that participants in small groups are 5.5 to 12.8 percentage points more likely to give in the *giving to one partner* than in the *giving to one of many* conditions. Summing the coefficients on "Giving to one × Partner" and "Giving to one" gives the difference in prosocial behavior in small groups between the *giving to one partner* and the *voting on redistribution* conditions. This difference ranges between 0.3 and 5.9 percentage points and is statistically indistinguishable from zero in all six regressions.

Turning to the effects of group size, the coefficient on "Large x Vote redistribution" quantifies the difference in voting behavior between large and small groups. This difference is a tightly estimated zero. The coefficient on "Large x Giving to many" is the difference between giving in large versus small groups in the *giving to many* condition. Consistent with the visual evidence in the leftmost panel of Figure 2, increasing group size from 4 to 200 is estimated to have a dramatically negative effect of −33.1 to −44.5 percentage points on giving in this condition. The coefficient on "Large x Giving to one" is the difference between giving in large versus small groups in the *giving to one of many* condition. Consistent with the visual evidence in the second panel of Figure 2, increasing group size from 4 to 200 is estimated to have a large but less dramatic negative effect of −14.5 to −16.7 percentage points on giving in this condition. The coefficient estimates on "Large × Giving to one × Partner" imply that participants in large groups are 13.4 to 18.8 percentage points more likely to give in the *giving to one partner* than in the *giving to one of many* conditions. The effect of increasing group size from 4 to 200 in the *giving to one partner* condition is given by the sum of the coefficients in rows 6 and 7 minus the sum of the coefficients in rows 3 and 4. Consistent with the visual evidence in Figure 2, this effect is estimated to be near zero, ranging from −0.7 (SE=5.0) to −7.1 (SE=5.3) percentage points.

In addition to precisely quantifying the various patterns observed in Figure 2, the analysis in Table 1 shows that these effects are robust to (i) controlling for order and demographics, (ii) restricting to the first decision set encountered by participants, meaning that only between-subject variation is utilized, and (iii) restricting to participants who are not classified as purely self-interested through their dictator game decisions. Although restricting to only the first decision set mechanically inflates standard errors, it has no distinguishable effect on coefficient estimates. Thus, there is no evidence that within-subject variation biases our results. Consistent with the logic that purely self-interested individuals cannot be affected by the conditions of our experiment, we find that restricting to dictator game givers amplifies the coefficient estimates.

Robustness Appendices A.1 and A.2 replicate Table 1 for the full sample of 1600 participants and for the sample of participants who correctly answered all comprehension questions but were not necessarily monotonic in all of their decisions. The results are largely identical.

Our results that within-subject and between-subject estimates are similar suggest that within-subject variation of decisions did not introduce bias from anchoring on previous decisions. Appendix

Figure A6 provides additional evidence for this by showing that dictator game decisions were virtually identical for participants in large and small groups.

2.3 Individual Differences

Individuals appear to differ strongly in their prosociality in our experiment. Appendix Figure A5 presents a histogram of the number of prosocial choices, out of nine, made by participants in the three primary decision sets in the experiment. 35.7 percent of participants acted in a self-interested fashion in all 9 decisions, while 12.2 percent of participants acted to transfer money to the poor players in all 9 decisions.

While the results above show that participants' behavior differs significantly across the different conditions in our experiment, we nevertheless find persistent individual differences in prosociality across the different conditions. For example, individuals who give in all three decisions of the *giving to many* condition are significantly more likely to vote for redistribution. We quantify these relationships formally in Table 2 as follows. For each person i and condition k, we compute the fraction f_{ik} of the three decisions in which the person acted to increase the resources of the poor players. For any two conditions a and b, we then report the correlation between f_{ia} and f_{ib}. We find that all correlations are greater than 0.5, with the correlation between *giving to one partner* and *voting on redistribution* as high as 0.88. These results suggest that there is a key dimension of prosociality that drives behavior in *all* conditions, despite some conditions dampening the prosociality and others amplifying it. We formalize this idea more formally below.

3 Implications for Models of Social Preferences

We sketch a class of social preferences models that are consistent with our results, and discuss other popular models that are not consistent. Consider an individual i receiving payoff π_i, who perceives themself to belong to a group of size n. In the group a fraction $\mu(\pi_j)$ of individuals receive payoffs π_j from a finite set. The individual has preferences over their own payoff and the distribution of payoffs in the whole group, inclusive of themself. Let G be a distribution that assigns probability $\mu(\pi_j)$ to payoff π_j, and let the individual's utility function be given by

$$U_i(\pi_i, G, n) = (1 - \varphi_i)u(\pi_i) + \varphi_i \sigma(n) v(G; \pi_i) \tag{1}$$

where φ_i is the degree of prosociality, $\sigma(n)$ is a weakly increasing function, and $v(\cdot; \pi_0)$ is a functional that is continuous in the weak topology on probability measures, which roughly means that v is continuous in $\mu(\pi_j)$ and π_j. The individual's utility depends on the distribution G of payoffs in their perceived relevant social group; e.g., in the *giving to one partner* condition G could be the distribution of payoffs between the individual and their partner.

The models studied by Andreoni and Miller (2002) and Fisman et al. (2007) for two-player

decisions are a special case where $u(\pi_i) = \frac{\pi_i^{1-\rho}-1}{1-\rho}$ and

$$v(G;\pi_i) = \sum_j \mu_j \frac{\pi_j^{1-\rho}-1}{1-\rho} \tag{2}$$

The special case of $\rho \to \infty$ gives the Rawlsian preferences proposed in Charness and Rabin (2002), while the case where $\rho = 1$ and $\varphi_i \equiv 1$ corresponds to efficiency-seeking preferences to maximize the sum of group payoffs.[3] The specification in (2) also covers the specification adapted by Andreoni (2007), with $\sigma(n) = n^\gamma$. Finally, as we show in Appendix B, the Fehr and Schmidt (1999) model is a special case of (1) where $u(\pi_i) = \pi_i$, $\sigma(n) = n/(n-1)$, and

$$v(G;\pi_i) = -\sum_j \mu(\pi_j)\alpha \max(\pi_j - \pi_i, 0) - \sum_j \mu(\pi_j)\beta \max(\pi_i - \pi_j) \tag{3}$$

Because participants are equally likely to vote for redistribution in both large and small groups, the results imply that $\sigma(n)$ is a constant in our general framework. To see this, first observe that group-wide redistribution has the same impact on G in both large and small groups—in both cases it transforms G from a distribution where 50% have \$3.50 and 50% have \$0.10 to a distribution where 50% have \$2.50 and 50% have \$0.10. Second, note that if $\sigma(n)$ increased with n then individuals would value this change in G more in larger groups than in smaller groups, contrary to our results. A corollary of this reasoning is that if the *giving to one partner* condition leads participants to perceive themselves to be in a group of size 2, then they should be just as willing to give in that condition as they are to vote for redistribution in the voting on redistribution condition; the reason is that both giving and voting in these respective conditions have the same impacts on G and the same impacts on own payoff π_i.

The condition that $\sigma(n)$ is constant is also consistent with the result that voluntary giving decreases with (perceived) group size. The reason is simply that a single individual's transfer has a smaller effect on G in larger groups. For example, a \$1 transfer split equally among the poor in a group of size 4 changes G from a distribution in which each of the poor have \$0.10 to a distribution in which each of the poor each have \$0.60. But a \$1 transfer in a group of size 200 changes G from a distribution in which each of the poor have \$0.10 to a distribution in which each of the poor each have \$0.11.

Finally, this modeling framework is consistent with our finding of strong and persistent individual differences. Individuals with a higher value of φ_i will always behave more prosocially in all of the environments studied in our experiment. As illustrated above, the different conditions in our experiment affect how a prosocial action affects the subutility function v, but the benefits of acting prosocially will always be experienced more by higher-φ individuals.

At the same time, not all special cases of the general framework in (1) are consistent with

[3] Andreoni and Miller (2002) and Fisman et al. (2007) write their models as $U_i = \left(\alpha\pi_i^\gamma + (1-\alpha)\pi_j^\gamma\right)^{1/\gamma}$, which of course is equivalent to just $U_i = \alpha\pi_i^\gamma + (1-\alpha)\pi_j^\gamma$. This is mathematically equivalent to our formulation if $\gamma = 1-\rho$ and α is such that $(1-\alpha)/\alpha = \varphi_i\sigma(2)/(1-\varphi)$, or $\alpha = (1-\varphi_i)/\left(\varphi_i\sigma(2) + 1 - \varphi_i\right)$.

our results. As shown in Appendix B, the Fehr and Schmidt (1999) model features an increasing function $\sigma(n)$, which implies that individuals would be more likely to vote on redistribution in large groups than in small groups, and that individuals would be more likely to vote for redistribution than give in the *giving to one partner* condition. The Fehr and Schmidt (1999) model is also not consistent with the fact that only 11.5 percent of poor participants wanted to decrease the payoffs of rich participants at no cost to themselves under the standard assumption that $\alpha \geq \beta$; i.e, the assumption that people are more averse to others having higher payoffs than themselves than they are to having higher payoffs than others. We show in Appendix B that the Fehr and Schmidt (1999) model implies that rich players would be less likely to vote for redistribution than poor players are to vote for reducing the payoffs of rich players.

Some popular models, such as Bolton and Ockenfels (2000), are not special cases of (1) and are also not consistent with our main result of large differences between *giving to many* and *voting on redistribution*. As we show in Appendix B, the Bolton and Ockenfels (2000) model counterfactually predicts that there should be no difference in the propensity to give in these two conditions.

The strong preferences for redistribution and a general reluctance to destroy other players' payoffs is well-captured by the special case proposed in equation (2). This particular formulation generalizes the preferences proposed by and validated in Andreoni and Miller (2002) and Fisman et al. (2007) among others, while also being consistent with all of the results of our experiment.

Finally, we note in passing that our formalization of group size effects can explain the identifiable victim effect (Jenni and Loewenstein, 1997), which is the finding that people are more likely to give to a single "identifiable" individual rather than to a large group. This is predicted by our model if, like our *giving to one partner* frame, the identifiable victim effect operates by influencing the perceived group size.

4 Conclusion

This paper shows that many people have a strong preference for society-wide redistribution from rich to poor in both small and large groups, but a much weaker preference for individual giving in large groups. Preferences for voluntary giving match preferences for redistribution only in very small groups. These results are inconsistent with several prominent models of social preferences, but we provide a general theoretical framework that is consistent with our results. This general framework can aid future investigations of the types of redistributive mechanisms that can help people realize their taste for redistribution in situations where the desire for voluntary giving is too weak to achieve the equitable outcomes that many desire.

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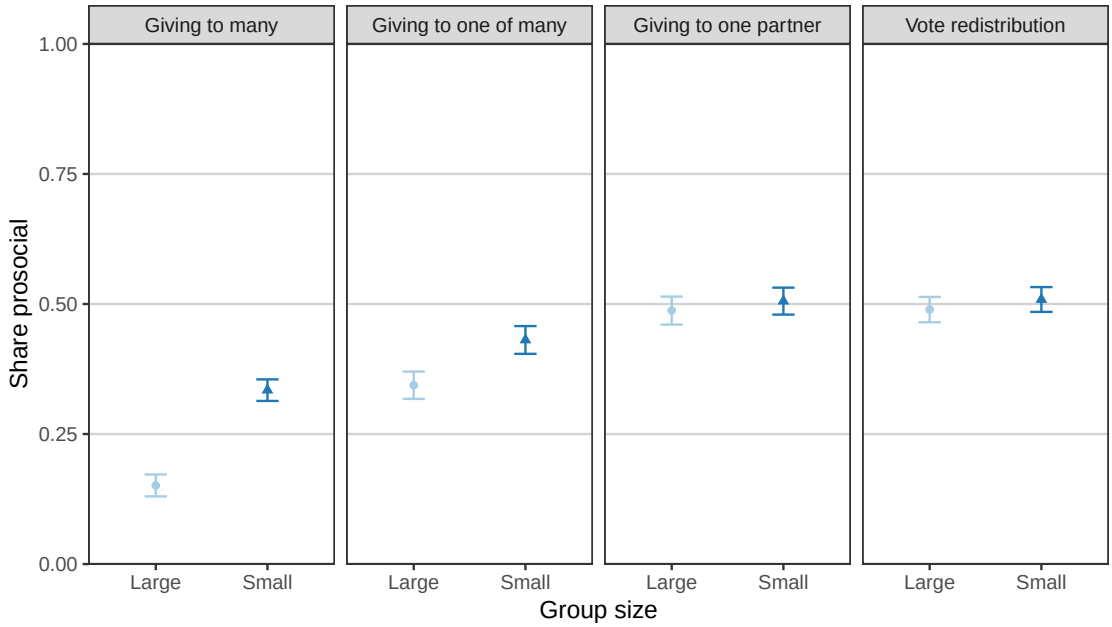
Figure 1: Summary of Experimental Decisions

Scenario		Last Sentence
Giving to Many		Do you want to spend X of your 350 cents to increase each B-player's payoff by Y cents?
Giving to One	...of Many	Do you want to spend X of your 350 cents to increase a random one of the B-player's payoff by 100 cents?
	...Partner	Do you want to spend X of your 350 cents to increase your paired B-player's payoff by 100 cents?
Voting on Redistribution		Do you want to vote for or against each of the B-players getting 100 cents at a cost of X to each of the A-players?

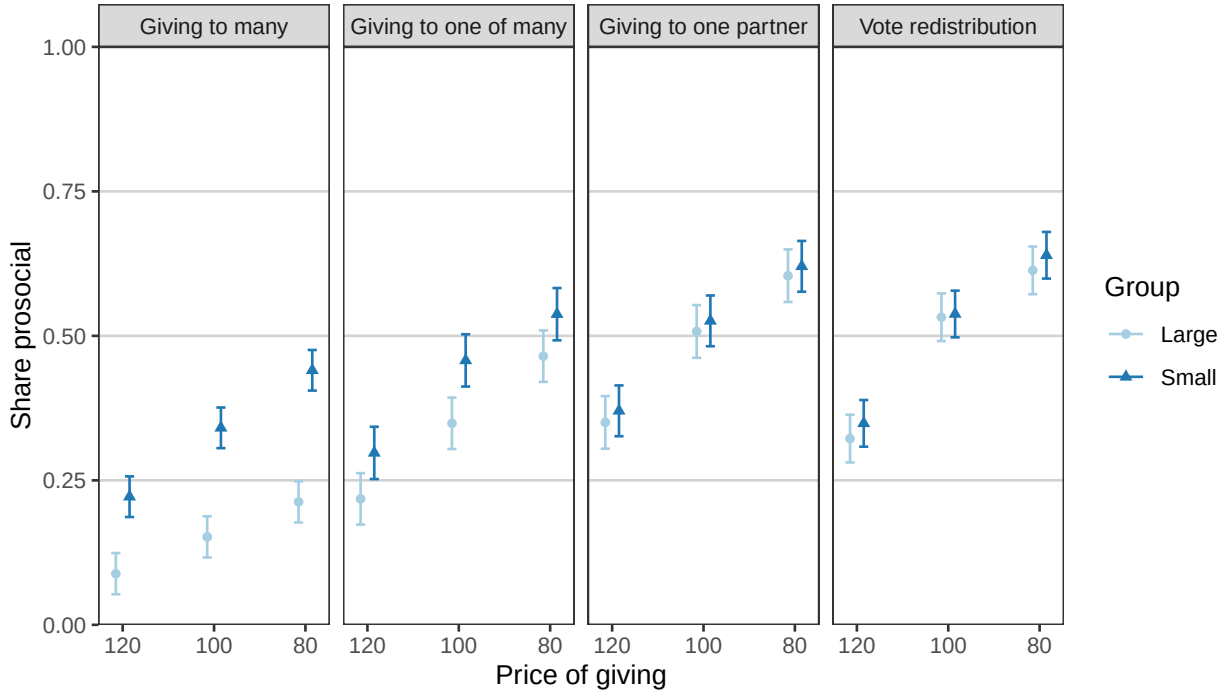
Notes: This figure summarizes the experimental conditions and shows the last sentence participants are asked before making a decision in each of the scenarios. Each "Scenario," or decision set, involves three decisions that differ in the price of giving, $X \in \{80, 100, 120\}$. Y varies with group size: $Y = 50$ in small groups, $Y = 1$ in large groups.

Figure 2: Prosocial choice by scenario and group size



Notes: This figure summarizes the share of choices in favor of giving or redistribution, by the type of decision and group size. The averages pool across the three different prices of giving/redistributing within each decision set. The point estimates are produced by running a regression of acting prosocially on 8 dummy variables corresponding to each of the 8 pairs of conditions in the figure, which result from crossing four decision sets with two possible group sizes. Standard errors clustered at the participant level and error bars represent 95% confidence intervals.

Figure 3: Prosocial choice by scenario, group size, and price



Notes: This figure summarizes the share of choices in favor of giving or redistribution, by the type of decision, group size, and price of giving. The point estimates are produced by running a regression of acting prosocially on 24 dummy variables corresponding to each of the 24 conditions in the figure, which result from crossing four decision sets with two possible group sizes and three prices. Standard errors are clustered at the participant level and error bars represent 95% confidence intervals.

Table 1: Likelihood of prosocial choice by condition

	(1)	(2)	(3)	(4)	(5)	(6)
Giving to many	-0.174***	-0.165**	-0.115***	-0.204**	-0.153***	-0.165**
	(0.016)	(0.021)	(0.008)	(0.023)	(0.005)	(0.021)
Giving to one	-0.078***	-0.059*	-0.071	-0.050**	-0.069	-0.060**
	(0.018)	(0.015)	(0.030)	(0.010)	(0.027)	(0.014)
Giving to one x Partner	0.075***	0.068**	0.055*	0.071***	0.128**	0.070**
	(0.019)	(0.009)	(0.015)	(0.007)	(0.021)	(0.009)
Large x Vote redistribution	-0.019	-0.019	-0.055*	-0.019	-0.041	-0.021*
	(0.017)	(0.007)	(0.016)	(0.007)	(0.029)	(0.006)
Large x Giving to many	-0.357***	-0.347**	-0.331**	-0.445**	-0.406**	-0.349**
	(0.016)	(0.048)	(0.042)	(0.058)	(0.044)	(0.049)
Large x Giving to one	-0.165***	-0.145**	-0.157***	-0.191**	-0.167***	-0.146**
	(0.018)	(0.017)	(0.012)	(0.023)	(0.008)	(0.017)
Large x Giving to one x Partner	0.143***	0.136***	0.134***	0.188***	0.155***	0.134***
	(0.019)	(0.012)	(0.002)	(0.018)	(0.003)	(0.013)
N	11763	11763	3921	8640	2880	11763
Participants	1307	1307	1307	960	960	1307
Sample	All	All	1st round	DG givers	1st round, DG givers	All
Price fixed effects		Yes	Yes	Yes	Yes	Yes
Order fixed effects		Yes	NA	Yes	NA	Yes
Demographics						Yes

Notes: This table shows the differences in likelihood of making a prosocial decision by experimental condition. The omitted category is *voting for redistribution* in the small group. The baseline specification in column (1) regresses prosocial choice on dummies for each of "giving to one", "voting for redistribution", and "giving to many" interacted with a dummy for "Large" group; also, "giving to one" is interacted with a dummy that equals 1 for "partner" and 0 for "one of many". Therefore, rows 3 and 7 show the effects of *giving to one partner* relative to *giving to one of many*. The baseline sample are all participants who passed a comprehension quiz and did not violate monotonicity in their choices. Column (1) is the entire sample with no controls. Column (2)-(6) add price and order of scenarios fixed effects. Column (3) restricts the sample to the first set of 3 decisions only. Column (4) restricts the sample to participants who later gave a positive amount in a dictator game. Column (5) is first set of 3 choices of dictator-game givers. Column (6) is adds demographic controls to the specification in column (2). Standard errors are clustered at the participant level. *** p< .01, ** p< 0.05, * p< .10.

Table 2: Within-individual correlation in prosocial choices between scenarios

	Giving to one of many	Giving to one partner	Vote redistribution
Giving to many	0.539	0.55	0.513
Giving to one of many			0.762
Giving to one partner			0.882

Notes: This table reports within-individual pairwise correlations, between the prosocial choices in the different types of decisions. For each participant, we first aggregate prosocial choice at the type of decision level (out of 3 possible giving decisions), and then compute the pairwise correlations. For each person i and condition k, we compute the fraction f_{ik} of the three decisions in which the person acted to increase the resources of the poor players.

Online Appendix, Not For Publication

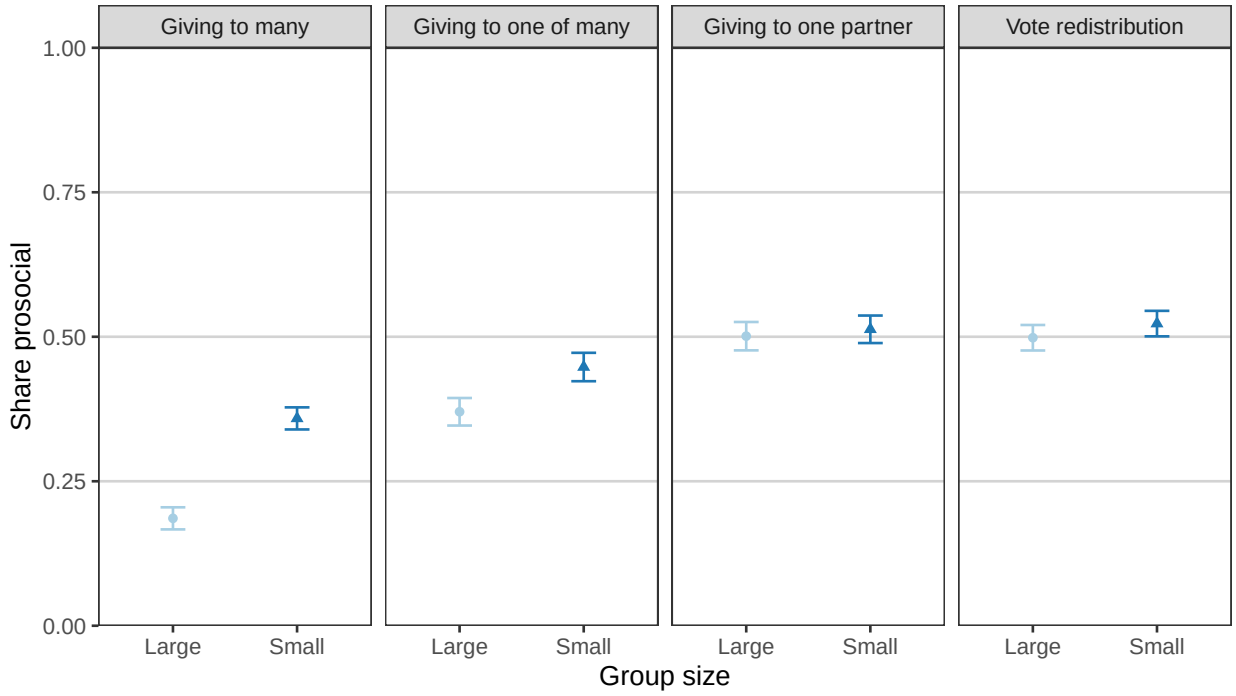
Preferences for Giving Versus Preferences for Redistribution

Johanna Mollerstrom, Avner Strulov-Shlain, Dmitry Taubinsky

A Supplementary Empirical Results

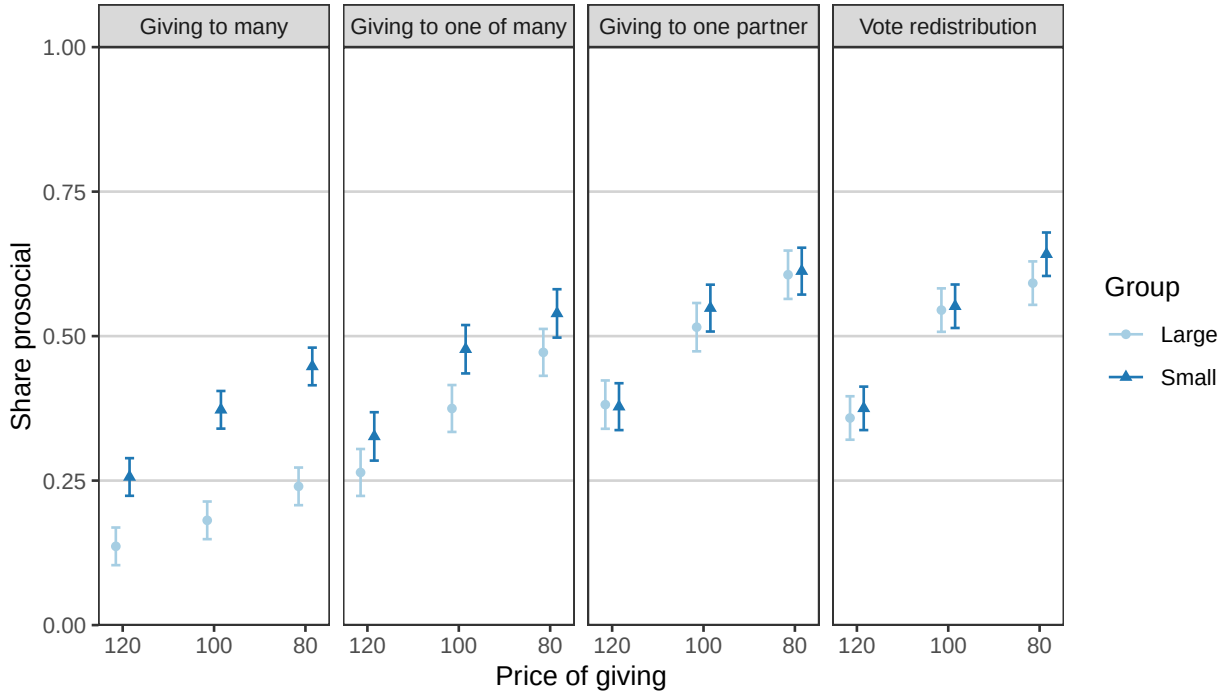
A.1 Replication Using the Full 1600-Person Sample

Figure A1: Prosocial choice by scenario and group size



Notes: This figure replicates Figure 2, with the underlying sample being the full 1600-person sample.

Figure A2: Prosocial choice by scenario, group size, and price



Notes: This figure replicates Figure 3, with the underlying sample being the full 1600-person sample.

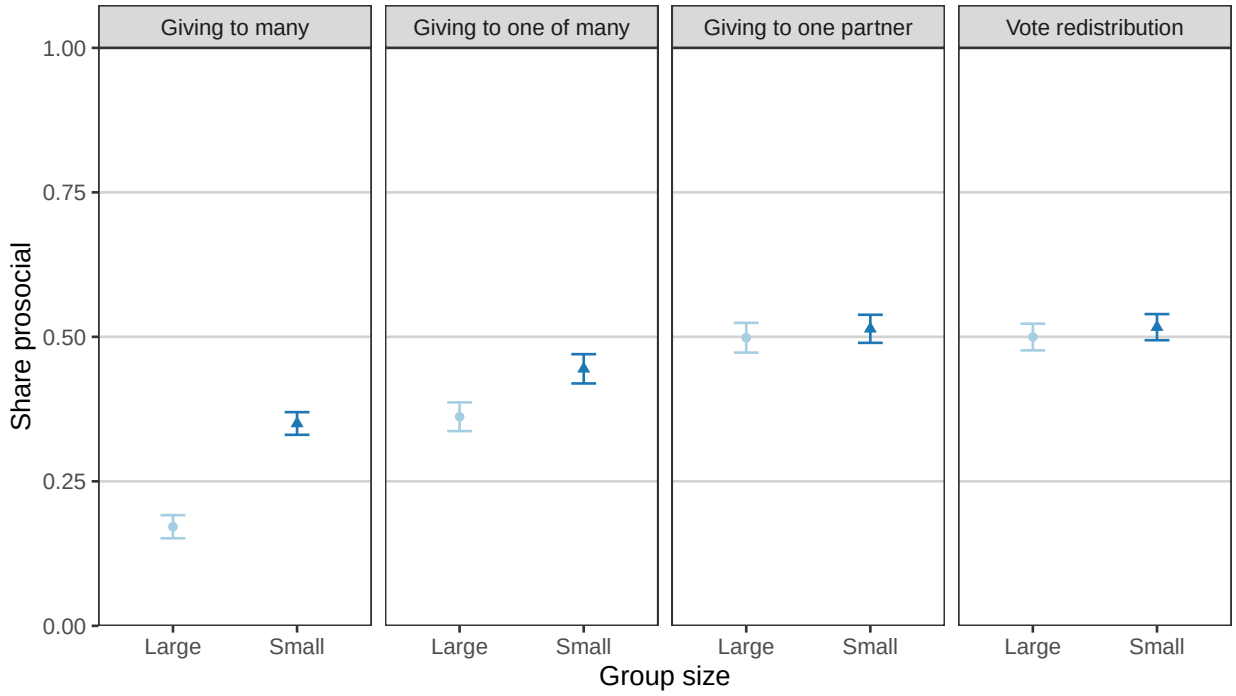
Table A1: Prosocial choices, alternative sample (Full)

	(1)	(2)	(3)	(4)	(5)	(6)
Giving to many	-0.164***	-0.155**	-0.088*	-0.183**	-0.106**	-0.156**
	(0.015)	(0.021)	(0.020)	(0.022)	(0.022)	(0.021)
Giving to one	-0.075***	-0.059*	-0.078*	-0.048**	-0.077*	-0.061**
	(0.017)	(0.015)	(0.026)	(0.010)	(0.022)	(0.014)
Giving to one x Partner	0.065***	0.061**	0.047**	0.063**	0.122**	0.064**
	(0.017)	(0.010)	(0.011)	(0.010)	(0.015)	(0.009)
Large x Vote redistribution	-0.024	-0.024	-0.063***	-0.026	-0.047*	-0.022
	(0.016)	(0.014)	(0.005)	(0.014)	(0.014)	(0.013)
Large x Giving to many	-0.337***	-0.328**	-0.305**	-0.404**	-0.363**	-0.324**
	(0.015)	(0.049)	(0.048)	(0.056)	(0.049)	(0.048)
Large x Giving to one	-0.153***	-0.136**	-0.155**	-0.168**	-0.156**	-0.131**
	(0.017)	(0.020)	(0.024)	(0.024)	(0.022)	(0.020)
Large x Giving to one x Partner	0.131***	0.128***	0.141**	0.164***	0.152**	0.125***
	(0.017)	(0.010)	(0.015)	(0.015)	(0.018)	(0.011)
N	14400	14400	4800	10971	3657	14400
Participants	1600	1600	1600	1219	1219	1600
Sample	All	All	1st round	DG givers	1st round, DG givers	All
Price fixed effects		Yes	Yes	Yes	Yes	Yes
Order fixed effects		Yes	NA	Yes	NA	Yes
Demographics						Yes

Notes: This table replicates Table 1, but includes all participants who completed the experiment. *** p< .01, ** p< 0.05, * p< .10.

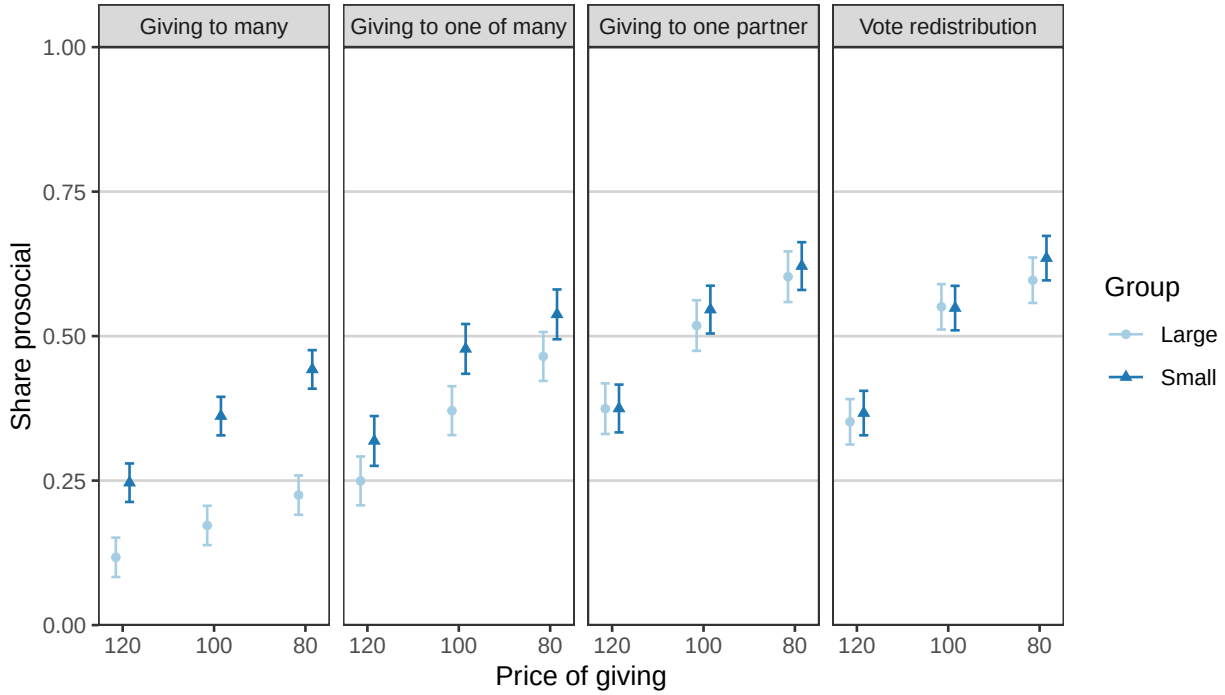
A.2 Replication on Sample Without the Monotonicity Restriction

Figure A3: Prosocial choice by Scenario and Group size



Notes: This figure replicates Figure 2, with the underlying sample being the 1480 participants who passed the comprehension quiz.

Figure A4: Prosocial choice by scenario, group size, and price



Notes: This figure replicates Figure 3, with the underlying sample being the 1480 participants who passed the comprehension quiz.

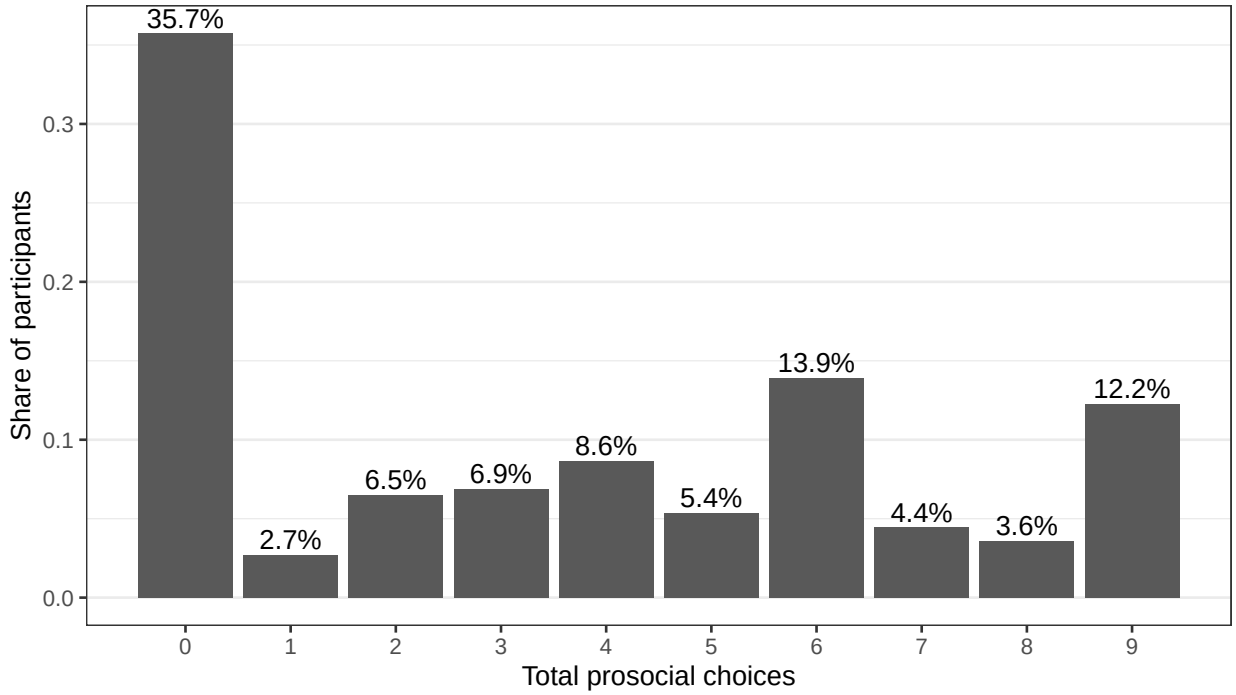
Table A2: Prosocial choices, alternative sample (Passed Quiz)

	(1)	(2)	(3)	(4)	(5)	(6)
Giving to many	-0.167***	-0.158**	-0.093**	-0.190**	-0.119**	-0.159**
	(0.015)	(0.022)	(0.020)	(0.024)	(0.023)	(0.022)
Giving to one	-0.072***	-0.058*	-0.075*	-0.048*	-0.076*	-0.060*
	(0.017)	(0.015)	(0.023)	(0.012)	(0.021)	(0.014)
Giving to one x Partner	0.069***	0.067**	0.051*	0.068**	0.125**	0.071**
	(0.018)	(0.013)	(0.012)	(0.012)	(0.017)	(0.012)
Large x Vote redistribution	-0.017	-0.017	-0.056***	-0.017	-0.047*	-0.014
	(0.016)	(0.012)	(0.006)	(0.014)	(0.014)	(0.012)
Large x Giving to many	-0.345***	-0.337**	-0.316**	-0.420**	-0.380**	-0.333**
	(0.015)	(0.048)	(0.045)	(0.056)	(0.044)	(0.048)
Large x Giving to one	-0.155***	-0.141**	-0.149**	-0.175**	-0.149**	-0.135**
	(0.017)	(0.020)	(0.018)	(0.024)	(0.015)	(0.020)
Large x Giving to one x Partner	0.137***	0.135***	0.133**	0.176***	0.147**	0.131***
	(0.018)	(0.011)	(0.017)	(0.014)	(0.019)	(0.011)
N	13320	13320	4440	10044	3348	13320
Participants	1480	1480	1480	1116	1116	1480
Sample	All	All	1st round	DG givers	1st round, DG givers	All
Price fixed effects		Yes	Yes	Yes	Yes	Yes
Order fixed effects		Yes	NA	Yes	NA	Yes
Demographics						Yes

Notes: This table replicates Table 1, but includes all participants who completed the experiment and passed a comprehension quiz. *** p< .01, ** p< 0.05, * p< .10.

A.3 Histogram of Prosocial Choices

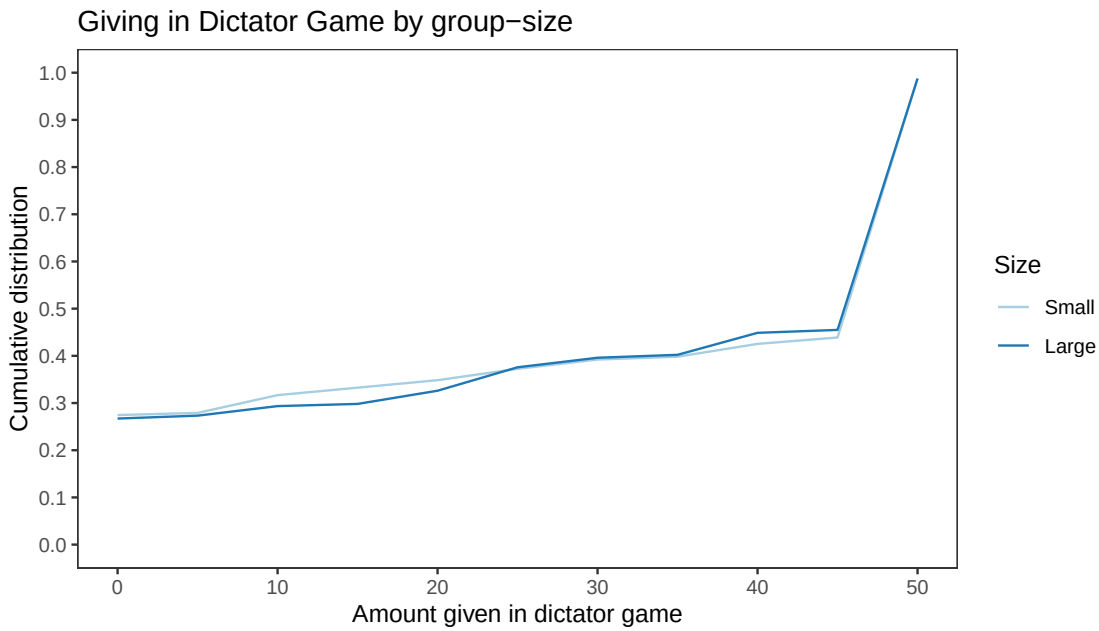
Figure A5: Histogram of total prosocial choices



Notes: This figure shows the distribution of participants by their total number of prosocial choices. The horizontal axis is the total number of prosocial choices and the vertical axis is the share of participants. Numbers above the bars show their height translated to percent.

A.4 Distribution of Amount Given in Dictator Game

Figure A6: CDF of amount given in Dictator Game



Notes: This figure shows the cumulative distribution of amount given in a "dictator game" out of 100 cents. The dark curve represents players who were assigned to the large group (light = small).

B Supplementary Theoretical Results

B.1 Results on the Fehr and Schmidt (1999) Model

Consider a set of n players indexed by i, and let x_i denote player i's payoff. The standard Fehr and Schmidt (1999) model posits that utility is given by

$$U_i = x_i - \frac{\alpha}{n-1}\sum_{j\neq i}\max(x_j - x_i, 0) - \frac{\beta}{n-1}\sum_{j\neq i}\max(x_i - x_j, 0)$$

Now if $c(\pi_i)$ is the number of individuals with payoff $x_i = \pi_i$, so that $\mu(\pi_i) = c(\pi_i)/n$ is the fraction of individuals with payoff $x_i = \pi_i$, we can instead rewrite the model as

$$\begin{aligned} U_i &= x_i - \frac{\alpha}{n-1}\sum_{j} c(\pi_j)\max(\pi_j - x_i, 0) - \frac{\beta}{n-1}\sum_{j} c(\pi_j)\max(x_i - \pi_j, 0) \\ &= x_i - \frac{\alpha n}{n-1}\sum_{j} \mu(\pi_j)\max(\pi_j - x_i, 0) - \frac{\beta n}{n-1}\sum_{j} \mu(\pi_j)\max(x_i - \pi_j, 0) \end{aligned} \tag{4}$$

Finally, note that rich individuals choose to vote for redistribution if

$$(200)\frac{\beta n}{n-1} > 100$$

where the left-hand side is the benefit of increasing poor players' payoffs relative to oneself, while the right-hand-side is the financial cost to oneself. On the other hand, poor players would vote to decrease rich players' payoffs by 100 at no cost themselves as long as $\alpha > 0$. The fact that only 11.48 percent choose to do this implies that $\alpha > 0$ for only 11.48 percent of participants, which also implies that $\beta > 0$ for only 11.48 of participants. Thus, only 11.48 percent of participants could vote for redistribution in the Fehr and Schmidt (1999) model.

B.2 Results on the Bolton and Ockenfels (2000) Model

Bolton and Ockenfels (2000) propose models in which utility of a player with payoff π_i is a function $U(\pi_i, \sigma_i)$,where $\sigma_i = \frac{\pi_i}{n\sum_j \mu(\pi_j)\pi_j}$ is player i's relative share of the pie $n\sum_j \mu(\pi_j)\pi_j$. Inequality aversion is captured by the assumption that $\frac{\partial}{\partial\sigma}U(\pi_i, \sigma)|_{\sigma=1/n} = 0$ and that U is strictly concave in σ_i ; i.e., holding π_i constant, U attains its maximum at $\sigma = 1/n$, and it decreases as σ deviates from $1/n$. Observe that σ_i is a function of n, not just G. Thus, the Bolton and Ockenfels (2000) model belongs to a more general class of models than (1), where the subutility function v must take G, π_i, *and* n as arguments.

Importantly, Bolton and Ockenfels (2000) is sharply inconsistent with our results. To see this, consider the decisions where the price of giving or redistribution is 100 cents to the rich players. In these decisions, first note that all forms of individual giving, as well as redistribution, have no impact on the total pie $n\sum_j \mu(\pi_j)\pi_j$. Second, note that in these decisions both giving or implementing redistribution have the same impact on π_i , and thus also on σ_i. Therefore, the Bolton and Ockenfels (2000) model counterfactually predicts that there should be no difference in the propensity to give in the *giving to many* condition and the propensity to vote on redistribution in the *voting on redistribution* condition.

C Experimental Screenshots

Figure A7: Introduction and Welcome

(a) Introduction: MTurk ID

To receive your bonus payment, you must enter your Mechanical Turk ID into the box below and then click >> to continue.

Your WorkerID starts with the letter A and has 12-14 letters or numbers. It is not your email address.

To ensure accuracy, please copy and paste your WorkerID from Mturk. This makes sure that there are no mistakes (an example of a common mistake is that "0" (the number) is written instead of an "O" (the letter), or similarly).

Enter your WorkerID here:

(b) Introduction: Welcome

Thank you for participating in our study. This study will take 5-10 minutes to complete. After you have finished, you will receive a completion code. Please return to the HIT on MTurk and enter the completion code in the space provided, in order to receive your credit.

You will receive $0.25 for completing the HIT. After you have read the initial instructions, you will answer a short quiz. If you get the quiz questions right, you will receive **an additional $0.15**. In addition to that, you can earn **a bonus of up to $4.50** based on the decisions you and others make.

As established researchers and long-term Requesters on Amazon MTurk, we promise that the information in this survey is truthful and accurate. We never use deception: the decisions you make are real, the group you participate in is real and we always send you the money that you earn in your interactions with others in this HIT.

If you have any questions about this research, please feel free to email us at mturk.surveys.research@gmail.com.

Figure A8: Descriptions for Large and Small Groups

(a) Description 1: Large Group

You are going to participate in an experiment.

Your payment from the experiment will be transferred to you as a bonus on MTurk. We will now explain how the payment will be determined.

You are going to be in a group with 199 other players who are completing this hit. This means that there is a total of 200 people in your group, including you.

The experiment will consist of several parts. After all the 200 players in your group have made their decisions, we will randomly choose which part of the experiment to play out for money. All parts have equal probability to be chosen.

This means that you should consider all decisions carefully, as any one of those could be the one that determines your payoffs, and the payoffs for all the other 199 people in you group, from this HIT.

(b) Description 2: Large Group

Everyone in the group will be assigned to be either an A- or a B-player. There will be 100 A-players and 100 B-players in each group. A-players will start each part of the experiment with 350 cents and B-players will start each part with 10 cents.

It will be randomly determined if you are an A-player or a B-player.

Figure A8: Descriptions for Large and Small Groups (Continued)

(c) Description 1: Small Group

You are going to participate in an experiment.

Your payment from the experiment will be transferred to you as a bonus on MTurk. We will now explain how the payment will be determined.

You are going to be in a group with 3 other players who are completing this hit. This means that there is a total of 4 people in your group, including you.

The experiment will consist of several parts. After all the 4 players in your group have made their decisions, we will randomly choose which part of the experiment to play out for money. All parts have equal probability to be chosen.

This means that you should consider all decisions carefully, as any one of those could be the one that determines your payoffs, and the payoffs for all the other 3 people in you group, from this HIT.

(d) Description 2: Small Group

Everyone in the group will be assigned to be either an A- or a B-player. There will be two A-players and two B-players in each group. A-players will start each part of the experiment with 350 cents and B-players will start each part with 10 cents.

It will be randomly determined if you are an A-player or a B-player.

Figure A9: Hypothetical Role Description

(a) Hypothetical Role Description: Large Group

At this point, assume that you have been randomly chosen to be an **A-player**. That means that you will start each part of the experiment with 350 cents. There are a total of 100 A-players in your group, including you. The other 100 players in your group are B-players who start each part of the experiment with 10 cents.

(b) Hypothetical Role Description: Small Group

At this point, assume that you have been randomly chosen to be an **A-player**. That means that you will start each part of the experiment with 350 cents. There are a total of two A-players in your group, including you. The other two players in your group are B-players who start each part of the experiment with 10 cents.

Figure A10: Comprehension Quiz Questions

(a) Quiz Questions: Large Group

Quiz - large

Out of the 200 players in your group, 100 are A-players (who start each part of the experiment with 350 cents) and 100 are B-players (who start each part of the experiment with 10 cents).

To make sure that you, and everyone else in your group, have understood the instructions, please answer the quiz questions below. You need to get these questions right in order to receive the additional payment of $0.15 for correctly answering the quiz questions.

How many players are there in your group (in total, counting both A- and B-players)?

How many cents do the A-players in the group start each part of the experiment with?

- 10
- 200
- 350

How many cents do the B-players in the group start each part of the experiment with?

- 10
- 200
- 350

How many A-players and how many B-players are there in total in each group?

- 1 A-player and 1 B-player
- 10 A-players and 10 B-players
- 100 A-players and 100 B-players

At this point, which role should you assume that you have been given? (This information was given to you on the previous screen)

- A-player
- B-player

Figure A10: Comprehension Quiz Questions (Continued)

(b) Quiz Questions: Small Group

Quiz - small

Out of the 4 players in your group, two are A-players (who start each part of the experiment with 350 cents) and two are B-players (who start each part of the experiment with 10 cents).

To make sure that you, and everyone else in your group, have understood the instructions, please answer the quiz questions below. You need to get these questions right in order to receive the additional payment of $0.15 for correctly answering the quiz questions.

How many players are there in your group (in total, counting both A- and B-players)?

How many cents do the A-players in the group start each part of the experiment with?

- 10
- 200
- 350

How many cents do the B-players in the group start each part of the experiment with?

- 10
- 200
- 350

How many A-players and how many B-players are there in total in each group?

- 1 A-player and 1 B-player
- 1 A-player and 2 B-players
- 2 A-players and 2 B-players

At this point, which role should you assume that you have been given? (This information was given to you on the previous screen)

- A-player
- B-player

Figure A11: Scenarios Introduction

(a) Scenarios Introduction: Large Group

You will now see nine different screens that describe nine different scenarios. Please answer the question about how you want to act in each scenario. The scenarios may sometimes seem similar, so make sure to read carefully so that you see the differences between them.

Remember that one of these scenarios will be selected at random and be played out for money (all have equal probability of being selected). Therefore, please consider all decisions carefully as any one of them may be the one that determines your payoffs and the payoffs of the other 199 people in your group.

(b) Scenarios Introduction: Small Group

You will now see nine different screens that describe nine different scenarios. Please answer the question about how you want to act in each scenario. Remember that one of these scenarios will be selected at random and be played out for money (all have equal probability of being selected). Therefore, please consider all decisions carefully as any one of them may be the one that determines your payoffs and the payoffs of the other 3 people in your group.

Figure A12: Giving to Many

(a) Giving to Many: Large Group

This is scenario X of 9.

In this scenario, you and the other 99 A-players (you all start with 350 cents each) will each individually choose whether or not to spend [*80/100/120*] cents to increase each of the 100 B-players' payoff by 1 cent. The B-players have 10 cents to start and will make no decision in this part.

	Yes	No
Do you want to spend [80/100/120] of your 350 cents to increase each B-player's payoff by 1 cent?	○	○

(b) Giving to Many: Small Group

This is scenario X of 9.

In this scenario, you and the other A-player (you both start with 350 cents each) will each individually choose whether or not to spend [*80/100/120*] cents to increase each of the two B-players' payoff by 50 cents. The B-players have 10 cents to start and will make no decision in this part.

	Yes	No
Do you want to spend [80/100/120] of your 350 cents to increase each B-player's payoff by 50 cents?	○	○

Figure A13: Giving to One of Many

(a) Giving to One of Many: Large Group

This is scenario X of 9.

In this scenario, you and the other 99 A-players (you all start with 350 cents each) will each individually choose whether or not to spend [*80/100/120*] cents to increase a random one of the hundred B-players' payoff by 100 cents. The computer will make sure that no B-player can get more than 100 cents. The B-players have 10 cents to start and will make no decision in this part.

	Yes	No
Do you want to spend [80/100/120] of your 350 cents to increase a random one of the hundred B-players' payoff by 100 cents?	○	○

(b) Giving to One of Many: Small Group

This is scenario X of 9.

In this scenario, you and the other A-player (you both start with 350 cents each) will each individually choose whether or not to spend [*80/100/120*] cents to increase a random one of the two B-players' payoff by 100 cents. The computer will make sure that no B-player can get more than 100 cents. The B-players have 10 cents to start and will make no decision in this part.

	Yes	No
Do you want to spend [80/100/120] of your 350 cents to increase a random one of the two B-players' payoff by 100 cents?	○	○

Figure A14: Giving to One Partner

(a) Giving to One Partner: Large Group

This is scenario X of 9.

In this scenario, you and the other 99 A-players (you all start with 350 cents each) will each be paired with one B player. You will individually choose whether or not to spend [*80/100/120*] cents to increase your paired B-player's payoff by 100 cents. Each B-player will be paired with exactly one A-player. The B-players have 10 cents to start and will make no decision in this part.

	Yes	No
Do you want to spend [80/100/120] of your 350 cents to increase your paired B-player's payoff by 100 cents?	○	○

(b) Giving to One Partner: Small Group

This is scenario X of 9.

In this scenario, you and the other A-player (you both start with 350 cents each) will each be paired with one B player. You will individually choose whether or not to spend [*80/100/120*] cents to increase your paired B-player's payoff by 100 cents. Each B-player will be paired with exactly one A-player. The B-players have 10 cents to start and will make no decision in this part.

	Yes	No
Do you want to spend [80/100/120] of your 350 cents to increase your paired B-player's payoff by 100 cents?	○	○

Figure A15: Voting on Redistribution

(a) Voting on Redistribution: Large Group

This is scenario X of 9.

In this scenario, you and the other 99 A-players (you all start with 350 cents each) will vote about whether or not all of the A-players should spend [*80/100/120*] cents each to increase the 100 B-players' payoff by 100 cents each. The B-players start with 10 cents and will not vote in this part.

If a majority of the A-players vote for the transfer it will be implemented, otherwise it will not be implemented. If exactly half (i.e. 50) of the A-players vote for this transfer, it will be randomly determined if it is implemented or not.

Now please make your decision: do you want to vote for or against each of the B-players getting 100 cents at a cost of [*80/100/120*] cents to each of the A-players?

- For
- Against

(b) Voting on Redistribution: Small Group

This is scenario X of 9.

In this scenario, you and the other A-player (you both start with 350 cents each) will vote about whether or not both of the A-players should spend [*80/100/120*] cents each to increase the two B-players' payoff by 100 cents each. The B-players start with 10 cents and will not vote in this part.

If a majority of the A-players vote for the transfer it will be implemented, otherwise it will not be implemented. If exactly half (i.e. one) of the A-players vote for this transfer, it will be randomly determined if it is implemented or not.

Now please make your decision: do you want to vote for or against each of the B-players getting 100 cents at a cost of [*80/100/120*] cents to each of the A-players?

- For
- Against

Figure A16: Decision as a B-player (poor)

(a) Decision as a B-player: Large Group

You have now made decisions in all scenarios under the assumption that you are randomly selected to be one of the 100 A-players.

It is, however, equally likely that you are randomly selected to be one of the 100 B-players. If you are assigned to be a B-player you just have one decision to make.

In this part, you and the other 99 B-players (you all start with 10 cents each) will vote about whether or not all of the A-players should get 100 cents less (without the B-players getting anything extra). The A-players start with 350 cents and will not vote in this part.

If a majority of the B-players vote for this, it will be implemented and the A-players will have 350-100=250 cents each, and the B-players will have 10 cents each. If a majority of the B-players vote against this, it will not be implemented and the A-players will have 350 cents and the B-players will have 10 cents. If exactly half (i.e. 50) B-players vote for this transfer, it will be randomly determined if it is implemented or not.

Now please make your decision: do you want to vote for or against each of the A-players getting 100 cents less without the B-players getting anything extra?

- For
- Against

(b) Decision as a B-player: Small Group

You have now made decisions in all scenarios under the assumption that you are randomly selected to be one of the two A-players.

It is, however, equally likely that you are randomly selected to be one of the two B-players. If you are assigned to be a B-player you just have one decision to make.

In this part, you and the other B-player (you both start with 10 cents each) will vote about whether or not both of the A-players should get 100 cents less (without the B-players getting anything extra). The A-players start with 350 cents and will not vote in this part.

If a majority of the B-players vote for this, it will be implemented and the A-players will have 350-100=250 cents each, and the B-players will have 10 cents each. If a majority of the B-players vote against this, it will not be implemented and the A-players will have 350 cents and the B-players will have 10 cents. If exactly half (i.e. one) of the B-players vote for this transfer, it will be randomly determined if it is implemented or not.

Now please make your decision: do you want to vote for or against both of the A-players getting 100 cents less without the B-players getting anything extra?

- For
- Against

Figure A17: Dictator Game

This is the last question where you can earn money. This part has a 20 percent probability to be played out for money, and it is independent of the other scenarios that you provided answers to.

In this part you are paired with one other survey respondent. This may or may not be someone who was in your group in the previous part of the experiment.

In this game **one of you in the pair** will be allocated 100 cents. The other person will be allocated zero cents.

The person who has 100 cents can decide what amount of cents, between 0 and 100, to allocate to the other person in the pair. The rest you will keep for yourself.

If you are the person who has 100 cents, what amount do you want to transfer to the other person in the pair:

Figure A18: End of Experiment Message

The experiment is now over. Your earnings will be transferred to you as a bonus on mturk.

We now ask you to please answer some questions before we provide you with the completion code for the hit.

Figure A19: Politics Questionnaire

When it comes to social issues, how liberal or conservative are you?

1 (Very liberal)	2	3	4	5	6	7	8	9 (Very conservative)
○	○	○	○	○	○	○	○	○

When it comes to economic issues, how liberal or conservative are you?

1 (Very liberal)	2	3	4	5	6	7	8	9 (Very conservative)
○	○	○	○	○	○	○	○	○

Which political party do you more strongly identify with?

- ○ Democrat
- ○ Republican
- ○ Independent

How strongly do you affiliate with this party?

1 (Very weakly)	2	3	4	5	6	7	8	9 (Very strongly)
○	○	○	○	○	○	○	○	○

Figure A19: Politics Questionnaire (Continued)

Do you think that the redistribution of economic resources from those with more resources to those with less resources is an important part of the government's job?

1 (It is definitely not an important part)	2	3	4	5	6	7	8	9	10 (It is definitely an important part)
○	○	○	○	○	○	○	○	○	○

Compared to the current situation, do you think that there should be more or less redistribution of resources from those in the US who have more monetary resources (income and/or wealth) to those who have less?

1 (Less redistribution)	2	3	4	5	6	7	8	9	10 (More redistribution)
○	○	○	○	○	○	○	○	○	○

To the extent that you think that resources should be redistributed between people in the US, who do you think should be mainly responsible for making sure that this redistribution happens?

1 (Only the government)	2	3	4	5	6	7	8	9	10 (Only charitable organizations or other private initiatives)
○	○	○	○	○	○	○	○	○	○

To what extent do you think that an individual's economic success or failure can be attributed to personal effort and to luck?

1 (Only luck)	2	3	4	5	6	7	8	9	10 (Only effort)
○	○	○	○	○	○	○	○	○	○

Figure A20: Demographics Questionnaire

To what extend have you participated in other studies involving the dividing up of money on MTurk before taking this HIT?

1 - Never	2	3 - Sometimes	4	5 - Very often
○	○	○	○	○

What is your age (in years)?

What is your gender?

- ○ Male
- ○ Female
- ○ I do not identify myself as male or female.

Ethnicity:

- ○ Asian
- ○ Black
- ○ Hispanic-Latino
- ○ Native American
- ○ White
- ○ Other

What is your country of residence?

- ○ United States
- ○ Canada
- ○ India
- ○ Other

Figure A20: Demographics Questionnaire (Continued)

Are you currently a student?

- ○ Yes
- ○ No

Are you currently married and living with the person you are married to, or are you living in a marriage-like relationship with your partner?

- ○ Yes
- ○ No

What was your total personal income last year? Take into account all your sources of income, including scholarships, health benefits, fringe benefits, and others. Please note that this is your personal income, not the income of your household.

- ○ Less than $10,000
- ○ $10,000 to $20,000
- ○ $20,000 to $30,000
- ○ $30,000 to $40,000
- ○ $40,000 to $50,000
- ○ $50,000 to $60,000
- ○ $60,000 to $70,000
- ○ $70,000 to $80,000
- ○ $80,000 to $90,000
- ○ $90,000 to $100,000
- ○ Over $100,000

Figure A20: Demographics Questionnaire (Continued)

In case your household consists of more people that you, what was the total income of your household last year? Take into account all sources of income, including scholarships, health benefits, fringe benefits, and others. Please note that this the income of your household.

- ○ Less than $20,000
- ○ $20,000 to $40,000
- ○ $40,000 to $60,000
- ○ $60,000 to $80,000
- ○ $80,000 to $100,000
- ○ $100,000 to $120,000
- ○ $120,000 to $140,000
- ○ $140,000 to $160,000
- ○ $160,000 to $180,000
- ○ $180,000 to $200,000
- ○ Over $200,000
- ○ The question does not apply to me because I am the only person in my household.

What is your highest level of education completed?

- ○ Less than a high school degree
- ○ High School Diploma
- ○ Vocational Training
- ○ Attended College
- ○ Bachelor's Degree
- ○ Graduate Degree

What was/is your major in college/graduate school?

- ○ Economics
- ○ Psychology
- ○ Sciences / Math
- ○ Humanities / Arts
- ○ Business / MBA
- ○ Medical
- ○ Law
- ○ Others
- ○ Not applicable

Was anything unclear in the instructions or survey questions? (Optional)