

Gender Differences in Giving in the Dictator Game: The Role of Reluctant Altruism

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ABSTRACT

One way to study whether men or women are more generous has been to compare how much they give in the Dictator Game. But recent work suggests that motivations such as image concerns and an unwillingness to violate expectations may cause individuals to give “reluctantly” in the Dictator Game, thus sharing money with the recipient if asked to, but renegeing on their gifts if they can do so without being detected. We provide evidence that women are more likely than men to give reluctantly in the Dictator Game. After accounting for retractions of gifts, we find that men and women transfer similar amounts to the recipient in expectation. Our results suggest that a greater concern by women for non-payoff-related motivations may be at least partly responsible for gender differences in giving in the Dictator Game.

Keywords: Gender, Dictator Game, reluctant altruism

JEL codes: C91, J16, D64

1. INTRODUCTION

Understanding whether and under what circumstances men and women differ in their social preferences has important economic implications. Gender differences in social preferences may play a role in producing differences in the labor market (Bertrand, 2011). And differences in charitable preferences may call for gender-specific fundraising strategies (De Wit and Bekkers, 2016). One way economists study gender differences in social preferences—particularly in altruism—is by looking at how males and females allocate money in the Dictator Game (Kahneman et al. 1986, Forsythe et al. 1994).

The body of evidence from Dictator Games is unclear on whether males or females are more generous, although it seems that males are more efficiency oriented and females are more focused on equity (Andreoni and Vesterlund 2001 for a first result; Niederle 2016 for a review). While this literature centers its attention on examining gender differences in preferences over payoffs—efficiency, equity, pure and impure altruism—another line of work unrelated to gender has shown that non-payoff-related motivations such as expectations management and image concerns may also influence giving in the Dictator Game (Dana et al. 2006, List 2007, Bardsley 2008, Andreoni and Bernheim 2009). There is growing evidence that such motivations may cause some individuals to behave as “reluctant altruists,” sharing money when asked to, but avoiding the situation or renegeing on their gifts if they can do so without being detected (Broberg et al. 2007, Lazear et al. 2012, Cain et al. 2014).

In this paper, we draw from these literatures to examine whether males and females display different rates of reluctant altruism, and whether such differences may play a role in producing gender differences in giving in the Dictator Game. We conduct a \$10 Dictator Game in the laboratory and find that females tend to give larger amounts, are more likely to split the \$10 evenly, and are less likely to keep the \$10 entirely for themselves than males. Thus, in terms of payoff outcomes, female dictators in our experiment are more altruistic, more likely to be equalitarian and less likely to be completely selfish than males. Before announcing their Dictator Game choices to the recipient, we subsequently let dictators select the probability with which they want their allocations to be quietly replaced by another allocation that gives \$9 to the dictator and \$0 to the recipient. Female dictators are more likely to prefer this option. Thus, in terms of payoff outcomes,

females are less altruistic than men in the second choice, to the extent that transfers to the recipient in the overall game become similar in expectation across gender. These results suggest that females are more likely than males to share money reluctantly in the Dictator Game. Our study is, however, unable to tease out in detail the differences in motivations that drive the results, although we discuss some possibilities.

In what follows of the paper we present the experiment design, the results, and conclude with a discussion.

2. EXPERIMENT DESIGN

We conduct a laboratory experiment in which participants are randomly and anonymously matched in pairs. Each participant makes two decisions, one in Part 1 and one in Part 2, and at the end of the experiment only one decision from one member of the pair is randomly selected for payment. Participants receive instructions for each part at the beginning of the corresponding part.

In Part 1, participants play a \$10 Dictator Game in the role of dictator and recipient *ex ante*. Each participant privately decides how to allocate \$10 between herself and the partner, while the partner makes the same choice. At the end of the experiment, if Part 1 is selected for payment, one member of the pair is selected, and only her decision is revealed to the partner and implemented for payment.

In Part 2, each participant faces two possible allocations of money between herself and the partner: (i) the allocation she selected in Part 1, and (ii) \$9 for herself and \$0 for the partner. The computer randomly assigns one option to the participant as the allocation that counts for Part 2, but before assigning it, the participant must indicate the probability with which she wants to be assigned the \$9-\$0 option. The probability must be between 10% and 90% (included), and the complement probability is the chance that she gets assigned her Part-1 allocation. Once the participant indicates the probability desired, the computer randomly selects the allocation using these weights. At the end of the experiment, if Part 2 is selected for payment, one member of the pair is randomly

selected, and only her assigned allocation for Part 2 is revealed to the partner and implemented for payment. The probability selected by the participant is never revealed to the partner.¹

Part 1 gives us a measure, between \$0 and \$10, of the participant's willingness to share money with the partner. Part 2 gives us a measure, between 10% and 90%, of the participant's willingness to retract her transfer and instead receive \$9 and leave \$0 for the recipient. This is a "quiet" retraction, in the sense that if \$9-\$0 realizes, the recipient can never learn how the participant divided the \$10 in Part 1 or what probability the participant indicated in Part 2. The recipient cannot even precisely determine whether the participant moved the odds at all in favor of \$9-\$0, because there is a 10% chance that \$9-\$0 realizes even if the participant did not want to. Note that if participants decide how much to transfer in the Dictator Game solely out of payoff considerations (e.g., they are purely selfish, or equalitarian), they have no incentive to select a probability of exit larger than 10%, since doing so increases the chance of obtaining a strictly less efficient monetary outcome. But if participants share money because of other motivations, such as a concern for not disappointing expectations (their own or the recipient's) about how much money they should give, then the opportunity to retract quietly may be an appealing one. A quiet exit potentially increases the participant's own payoff and hides her actions from the recipient. It may also reduce the participant's sense of responsibility for the outcome, as the proximate cause of the outcome is a random allocation selected by the computer. Our experiment cannot disentangle these and other motivations, but it can begin to examine whether they cause males and females to exit at different rates. If they do, this may suggest that their differences in Giving in the Dictator Game may in part stem from differences in non-payoff-related motivations.²

¹ This design is a component of a larger experiment (Klinowski 2016). Prior to playing the Dictator Game, participants solve two real-effort tasks: a slider task (Gill and Prowse 2012) in which bars have to be scrolled to a given location, and a clicking task in which a button has to be pressed precisely within a given one-second interval. Participants generate money from these tasks, and then have an opportunity to donate part of their earnings to a local charity. Earnings prior to the Dictator Game and net of donations are \$14.20 for males and \$13.94 for females (t-test p-value=0.104). In our analysis here, we show results both excluding and including as control the participant's net earnings prior to playing the Dictator Game. Results are not sensitive to the inclusion of controls.

² Our design is inspired by Dana et al. (2006), who run a Dictator Game with dictators and recipients in separate rooms. After deciding how to allocate \$10, dictators are given a binary choice between implementing their transfer, or taking \$9 for themselves and leaving \$0 for the recipient, while also leaving the recipient unaware that the game was played. In our design, we ask dictators to choose a probability of exit between 10% and 90%, rather than giving them a binary choice, in order to obtain a more granular

The experiment was conducted at the Pittsburgh Experimental Economics Laboratory with 308 undergraduate students from the University of Pittsburgh and Carnegie Mellon University. 153 males and 155 females participated in 14 gender-mixed sessions. The experiment was programmed in z-Tree (Fischbacher 2007).

3. RESULTS

We begin by examining how much participants transfer in the Dictator Game. 47% of participants transfer a non-zero amount to the recipient. The mean transfer is \$1.80; the modal non-zero transfer is \$5 (selected by 21% of all participants). 99% of participants keep for themselves at least half of the \$10. These results are in line with typical behavior in the Dictator Game (Camerer 2011).

We are most interested in the gender differences in dictator transfers. Figure 1 presents the distribution of the amount shared by dictators, for male and female dictators separately. The heights of the bars (ignoring the color shading) show the fraction of participants who share a given amount with the recipient. Females' transfers tend to be larger than males': the median transfer is 1 for females and 0 for males (Mann-Whitney U test p -value=0.065). We also see that females are less likely than males to keep the \$10 for themselves, and more likely than males to split it evenly with the recipient. To formalize these results, we run probit regressions that predict the probability that a participant shares \$0 (or \$5 in separate regressions). In the baseline specification, we include only an indicator that equals "1" if the dictator is a female. In the full specification, we control in addition for the dictator's net earnings in the experiment prior to playing the Dictator Game, the dictator's age, and an indicator of whether the dictator is a native English speaker. We present results in Table 1 Panels A and B. We see under both specifications that females are approximately 11 percentage points less likely than males to take the entire \$10 for themselves, and approximately 8 percentage points more likely than males to split the \$10 evenly (both statistically significant). Thus, focusing on Dictator Game behavior alone, we find that females appear more altruistic than males, and we replicate Andreoni and Vesterlund's (2001) result that males are more likely than females to be perfectly selfish, while females are more likely than males to seek equality.

measure of preferences over the exit option, and in order to be able to implement the quiet exit while having dictators and recipients be in the same room.

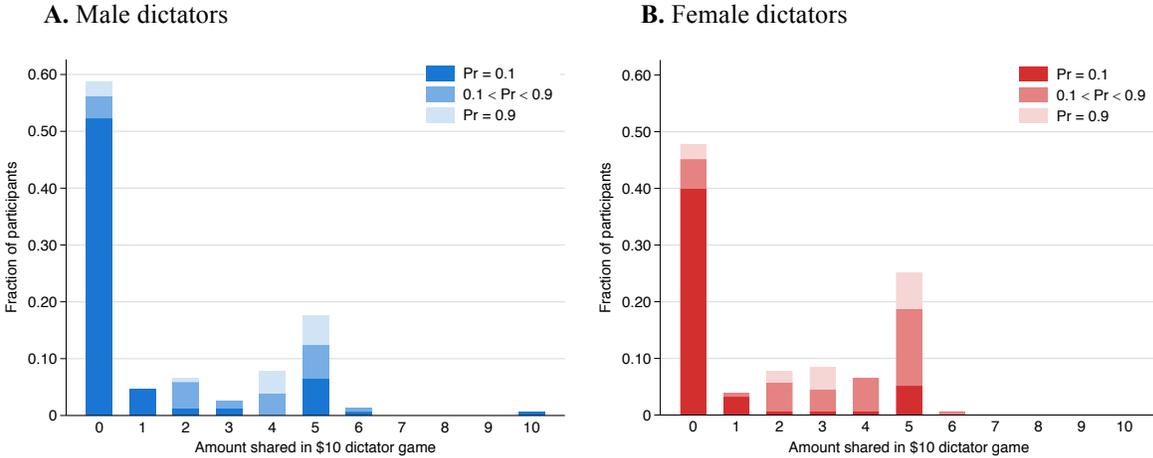


Figure 1: Distribution of amount shared by male and female dictators in \$10 Dictator Game.

Notes: After they decide on their transfers, dictators privately select the probability (between 10% and 90%) with which to cancel their transfers and instead give \$9 to themselves and \$0 to the recipient. Color shades indicate the fraction of dictators who select a probability equal to 10% (dark shade), larger than 10% and smaller than 90% (medium shade), and equal to 90% (light shade).

This picture changes once we consider the quiet exit decision. Recall that after deciding how much to transfer to the recipient, dictators have the chance to privately select the probability (between 10% and 90%) with which to cancel their transfers and instead keep \$9 for themselves and leave \$0 for the recipient. Dictators motivated to transfer money to the recipient solely out of payoff considerations (e.g., they are purely selfish, or equalitarian) have no incentive to select a probability of exit larger than 10%, since doing so increases the chance of obtaining a strictly less efficient monetary outcome. Yet we observe a significant fraction of participants choosing a probability of exit larger than 10%. To illustrate this, the shades of the bars in Figure 1 indicate the fraction of participants that select a probability equal to 10% (dark shade), greater than 10% and smaller than 90% (medium shade), and equal to 90% (light shade). We see that in total, 41% of participants select an exit probability larger than 10%. It is noteworthy that 79% of dictators who transfer \$2 or more to the recipient select an exit probability larger than 10%, while only 13% of dictators who transfer \$1 or \$0 to the recipient do so. This suggests that dictators do not select an exit probability at random, and that they understand that a larger exit probability increases the chance of replacing their original transfer with a \$9-\$0 outcome.³

³ This is not to say that dictators who give \$0 or \$1 and then select an exit probability larger than 10% are choosing the probability at random or are making a mistake. Such behavior is consistent with the participant being willing to give up \$1 to hide the fact that they acted selfishly in the Dictator Game.

Table 1: Marginal effects on the probability that the dictator (A) transfers nothing to the recipient, (B) splits the \$10 evenly with the recipient, (C) selects a probability larger than 10% of retracting her Dictator Game choice

	A. Transfer nothing		B. Split evenly		C. Exit $P > 10\%$	
	Baseline (1)	Full (2)	Baseline (1)	Full (2)	Baseline (1)	Full (2)
Female	-0.111** (0.052)	-0.118* (0.060)	0.075* (0.045)	0.082* (0.047)	0.170*** (0.039)	0.166*** (0.044)
Controls	No	Yes	No	Yes	No	Yes
Pseudo R ²	0.0089	0.0514	0.0081	0.0538	0.0221	0.0371
N	308	308	308	308	308	308

Notes: Marginal effects from probit regressions on the probability that the dictator (A) transfers nothing to the recipient in the \$10 Dictator Game, (B) splits the endowment evenly with the recipient in the \$10 Dictator Game, or (C) selects a probability larger than 10% of quietly canceling the \$10 Dictator Game transfer and receive instead \$9 while leaving \$0 for the recipient. Controls are the dictator’s net earnings in the experiment prior to playing the Dictator Game, the dictator’s age, and an indicator of whether the dictator is a native English speaker. Standard errors clustered at the experimental session in parentheses. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

As before, we are most interested in the gender differences. In terms of exit behavior, we find that females are more likely than males to select a probability of exit larger than 10%. To formalize this result, we run probit regressions on the probability that a participant chooses an exit probability larger than 10%, using the same specifications described earlier. Results appear in Table 1 Panel C. We see under both specifications that females are approximately 17 percentage points more likely than males to select an exit probability larger than 10%; a highly significant difference.⁴ For dictators who transfer a positive amount in the Dictator Game, choosing a larger exit probability increases their advantageous inequality over the recipient (Fehr and Schmidt 1999).⁵ Thus, when responding to the opportunity to exit, females are less likely than males to seek equality of payoffs

⁴ Conditional on selecting a probability larger than 10%, the exact probability selected does not vary by gender. The mean probability is 61.5 for males and 61.8 for females (t-test p-value=0.947). The median probability is 50 for males and 57 for females (Mann-Whitney U test p-value=0.950). The distribution of the probabilities does not differ across gender (Kolmogorov-Smirnov test p-value=0.988). This suggests that differences in preferences over choosing a specific probability value (such as a focal point at 50% or 90%) are not driving the result that females are more likely than males to select a probability of exit larger than 10%.

⁵ 83% of dictators who select a probability of exit larger than 10% transfer more than \$0 in the Dictator Game.

and more likely to favor their own payoff at the expense of the recipient's—a conclusion opposite to the one we reach from examining Dictator Game transfers alone.

How do differences in exit choices affect final monetary outcomes? To examine this, we calculate the expected transfer to the recipient, accounting for the probability of exit selected by the dictator. Denote this probability by P_{exit} and denote the amount the dictator shares with the recipient in the Dictator Game by Y . The expected transfer to the recipient given the dictator's choices of Y and P_{exit} is thus $P_{exit} \cdot (0) + (1 - P_{exit}) \cdot Y$. If there are no gender differences in choices over P_{exit} , gender differences in expected transfers should replicate gender differences in choices over Y (for which we found that the median for females is significantly greater than the median for males). But what we see is that the expected transfer to the recipient is statistically similar across gender: the median expected transfer is 0.3 for females and 0 for males (Mann-Whitney U test p -value=0.119). Thus, once we account for exit choices, males and females transfer similar amounts to the recipient in expectation.

3. DISCUSSION

We conduct a \$10 Dictator Game in the laboratory, and find that females tend to give larger amounts than males. Females are also more likely to split the \$10 evenly, and less likely to keep it entirely for themselves. At face value, these results suggest that females in the experiment are more altruistic, more likely to be equalitarian, and less likely to be completely selfish than males. We then allow dictators to select the probability with which to quietly cancel their transfers and instead receive \$9 and leave \$0 for the recipient. We find that females choose significantly larger probabilities than males, thereby favoring their own payoff and hurting the recipient's to a larger extent than males. The net result in the overall game is that males and females give similar amounts in expectation.

These results suggest that differences in how males and females allocate money in the Dictator Game may stem in part from differences in non-payoff-related motivations. If only preferences over monetary outcomes were at play, participants should not have wanted to retract their Dictator Game transfers and favor a strictly less efficient allocation. The fact that females prefer this latter

option to a larger extent than males suggests that their choices in the experiment are motivated to a larger extent by concerns not characterized by preferences over payoffs.

What are these non-payoff-related motivations? We can only speculate, as our experiment alone cannot shed much light on specific mechanisms. Perhaps the simplest explanation is that males are more efficiency oriented, and thus dislike the \$9-\$0 allocation more than females. But if this alone drove the results, we would expect males to select lower probabilities of exit than females across all levels of giving in the Dictator Game, which is not what we see. The gender difference in exit widens for dictators who transfer at least \$2 to the recipient.⁶ This suggests the possibility that some giving was done reluctantly, especially by female dictators. One plausible explanation is then that males and females wish to transfer similar amounts to the recipient, but females have greater concern for not disappointing expectations (their own or the recipient's) and thus behave more generously unless they have an opportunity to be selfish discreetly. Consistent with this explanation are findings from the charitable giving literature, that males and females respond at equal rates to a door-to-door solicitation, but females become less generous when they can easily avoid the solicitor (DellaVigna et al. 2013); or that females are more image-concerned when donating to a charity (Jones and Linardi 2014) or when volunteering effort to a cause (Exley forthcoming). An alternative explanation comes from Croson and Gneezy (2009), who review the literature on gender and preferences and argue that differences in giving may stem from females being more sensitive to the particular context of the experiment.⁷ This is consistent with our findings, if females are more likely than males to take the Dictator Game as a cue that one should share money, and to take the exit choice as a cue that one should not share money. Evidently more research is needed to assess the merit of these and other explanations.

⁶ Among dictators who transfer less than \$2, females are just 5.9 percentage points more likely than males to select an exit probability larger than 10% (p-value=0.214). Among dictators who transfer at least \$2, the value is 13.9 percentage points (p-value=0.081).

⁷ Although Niederle (2016) suggests a different interpretation to the findings in the literature.

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