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

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ABSTRACT

One way economists study whether males or females are more generous is by comparing how they allocate money in the Dictator Game. But recent work suggests that other motivations beside altruism also influence behavior in this game. Image concerns and expectations management may cause dictators to give "reluctantly", thus sharing money with the recipient if asked to, but reneging on their gifts if they can do so without being detected. We provide evidence from two separate experiments that females are more likely than males to give reluctantly in the Dictator Game. After accounting for retractions of gifts, we find that males and females transfer similar amounts to the recipient in expectation. The results suggest that gender differences in non-payoff-related motivations may play a role in producing gender differences in giving in the Dictator Game.

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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 is by looking at how males and females allocate money in the Dictator Game (Forsythe et al., 1994).

The body of evidence from Dictator Games is unclear on whether males or females are more generous, although a robust finding seems to be 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 individuals to behave as "reluctant altruists," sharing money when asked to, but avoiding the situation or reneging 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. In two separate laboratory studies (total N=634), we conduct a Dictator Game with an endowment of 10 ECU (or Experimental Currency Units), and find consistently that females give larger amounts on average than males, are less likely to keep the endowment entirely for themselves, and are more likely to split the endowment evenly or near evenly with the recipient. Thus, in terms of payoff outcomes, females in our Dictator Game are more altruistic, less likely to be completely selfish, and more likely to approximate equality. But before announcing their Dictator Game choices to the recipient, we subsequently let dictators select the probability with which to replace their allocations with one that gives 9 ECU to themselves and 0 ECU to the recipient, while the recipient is kept unaware of what probability the

dictator selects. In both experiments, female dictators choose significantly larger probabilities, favoring their payoffs and hurting the recipient's, to the extent that expected transfers in the overall game become similar 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 different mechanisms that may drive the results, although we discuss some possibilities.

2. EXPERIMENT DESIGN

We conduct two laboratory experiments, one at the Pittsburgh Experimental Economics Laboratory, and one at the Centre for Experimental Social Sciences in Santiago, Chile, that follow similar procedures. In both experiments, participants in a session are randomly and anonymously matched in pairs. Each participant makes two decisions over an allocation of money for the pair. At the end of the experiment, only one allocation from one member of the pair is randomly selected for payment. Participants make the first decision not knowing anything about the instructions for the second decision.

For the first decision, participants play a Dictator Game in the role of dictator and recipient ex ante. Each participant privately decides how to allocate the endowment between herself and the partner, while the partner makes the same choice. In Pittsburgh, the endowment is 10 US Dollars (USD) and it must be divided in multiples of 1 USD. In Santiago, the endowment is 5000 Chilean Pesos (CLP) and it must be divided in multiples of 500 CLP.[1] Participants see payoffs expressed in local currency. However, to simplify comparisons across experiment locations, throughout this text we express payoffs in terms of ECU, where 1 ECU equals 1 USD in Pittsburgh and 500 CLP in Santiago. Thus, in both locations, participants have 11 possible allocations of ECU to choose from (10–0, 9–1, …, 0–10).

For the second decision, each participant faces two possible allocations between herself and the partner: (i) the allocation she selected for the first decision, and (ii) 9 ECU for herself and 0 ECU for the partner. The computer randomly assigns (i) or (ii) to the participant as the allocation that counts for this part, but before assignment, the participant must indicate the probability with which

[1] At the time of sessions in Santiago, 5000 CLP exchange for approximately 8 USD. Thus, endowments are fairly similar in size across locations.

she wants to be assigned option (ii). The probability must be between 10 and 90 percent (inclusive), and the complement probability becomes the chance that she gets assigned (i). Once the participant indicates a probability, the computer randomly selects an option using these weights. At the end of the experiment, if this part is selected for payment, one member of the pair is randomly selected, and only the option assigned to this member is revealed to the partner and implemented for payment. Participants are never informed of the probabilities selected by their partners.

The first decision provides a measure of the dictator's distributional preferences over 10 ECU. The second decision provides a measure, between 10 and 90 percent, of the dictator's willingness to retract her allocation and instead receive 9 ECU and leave the partner with 0 ECU. This is a quiet, or discreet, retraction, in the sense that if 9–0 realizes, the recipient can never learn how the dictator divided the 10 ECU in the first decision or what probability she selected in the second decision. The recipient cannot even precisely infer that the dictator moved the odds at all in favor of the 9–0 outcome, because there is always at least a 10 percent probability that this outcome realizes regardless of the dictator's choice. Note that if dictators allocate money in the Dictator Game based solely on payoff considerations, they have no incentive to select a retraction probability larger than 10 percent, since doing so increases the chance of obtaining a monetary outcome that is strictly less efficient that the initial transfer, and for which an option existed in the Dictator Game that increases either the dictator's payoff (10–0) or the recipient's payoff (9–1) without hurting the other party. But if dictators' allocation decisions are influenced by other motivations, such as a concern for not appearing selfish (to themselves or to the recipient) or not disappointing expectations about how to divide the endowment, then the opportunity to retract quietly may be appealing. Conditional on giving at least 2 ECU in the Dictator Game, dictators who select a larger retraction probability benefit themselves at the expense of the recipient, without letting the recipient know they are doing this. These dictators may even be able to rationalize to themselves that such behavior is not selfish, by reasoning that there continues to be at least a 10 percent probability that their initial allocation realizes. Or they may rationalize that the proximate cause of the final outcome is now the computer's choice rather than their own. Our experiment cannot disentangle these and other potential motivations, but it can begin to examine whether males and

females exhibit them to different extent. If they do, this may suggest that their differences in giving in the Dictator Game may stem in part from differences in non-payoff-related motivations.[2]

To conclude this section, we describe the differences between the Pittsburgh and Santiago experiments. In Pittsburgh, the decisions described previously are made within a larger experiment on charitable donations (Klinowski, 2016). In that experiment, prior to playing the Dictator Game, participants earn money from a slider task (Gill and Prowse, 2012) and a clicking task. The purpose of these tasks in the experiment is to endow participants with money they earn, and to make the experiment's question of interest less obvious to the participants. The tasks are designed such that it is fairly easy for participants to obtain the maximum possible earnings (15 ECU). After completing the tasks, participants have an opportunity to donate any fraction of their earnings to a charity. It is after this donation decision that participants face the Dictator Game (over 10 additional ECU) and the retraction opportunity. Final earnings in the experiment are the sum of their task earnings net of donations, and their earnings from the Dictator-plus-Retraction Game. Earnings prior to the Dictator Game and net of donations are 14.20 ECU for males and 13.94 ECU for females (t-test $p=0.104$). In our analysis here, we present results with and without controlling for task earnings net of donations.

We designed the Dictator-plus-Retraction Game in Pittsburgh as a secondary tool in the larger experiment, with the goal of constructing a "reluctance measure" that could explain donation behavior. We did not anticipate to find gender differences in this measure. But after observing such differences, we considered them interesting and valuable enough to merit separate treatment, which led to the writing of an earlier version of this paper. Following comments from an anonymous referee, we conducted a second experiment that only involved the design components discussed in this paper and that examined the robustness of the results. This is the Santiago experiment.

[2] Our design is inspired by Dana et al. (2006), who run a Dictator Game with dictators and recipients sitting in separate rooms. After deciding how to allocate $10, dictators face a binary choice between implementing their allocation, or taking $9 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 retraction probability between 10 and 90 percent, rather than giving them a binary choice, in order to obtain a more granular measure of preferences over retraction, and to be able to implement the retraction quietly while sitting dictators and recipients in the same room. This also implies that instructions are common knowledge at all times in the experiment.

In Santiago, prior to making the Dictator-Game and retraction decisions, participants solve a slider task, whose purpose is simply to make the experiment's question of interest less obvious to the participants. All but one participant earn 4 ECU in this task (the maximum possible). It is after completing the slider task that participants make the decisions over the Dictator Game and the retraction choice. Final earnings in the experiment are the sum of their task earnings, their earnings from the Dictator-plus-Retraction Game, and a 4 ECU show-up fee. The Online Appendix presents instructions and screenshots of the two experiments.

In Pittsburgh, 308 undergraduate students (153 males) participated in 14 gender-mixed sessions that lasted approximately 60 minutes each. In Santiago, 326 undergraduate students (166 males) participated in 19 gender-mixed sessions that lasted approximately 30 minutes each.[3] The experiment in Pittsburgh was programmed in zTree (Fischbacher, 2007). The experiment in Santiago was programmed in oTree (Chen et al., 2016), with recruitment conducted through ORSEE (Greiner, 2015).

3. RESULTS

A. Behavior in the Dictator Game

We begin by examining transfers in the Dictator Game. The mean transfer is 1.80 ECU in Pittsburgh and 2.94 ECU in Santiago. 47 percent of participants transfer a non-zero amount in Pittsburgh, while 76 percent of participants do so in Santiago. More than 99 percent of participants keep for themselves at least half of the endowment in either experiment location. Thus, while participants in Santiago appear more generous than those in Pittsburgh, transfers in general are fairly in line with typical Dictator Game behavior (Camerer, 2003).

We are most interested in the gender differences in dictator transfers. Figure 1 plots the distribution of amounts transferred by dictators, separated by gender and experiment location. The height of each bar (ignoring color shades) represents the fraction of participants who transfer a given amount to the recipient. Across locations, female transfers tend to be larger than males', and

[3] Two subjects participated twice in the Santiago experiment. We dropped their second participation (2 observations) from the data.

females appear less likely than males to be completely selfish. In Pittsburgh, females also appear more likely than males to split the endowment evenly, while no such difference exists in Santiago.

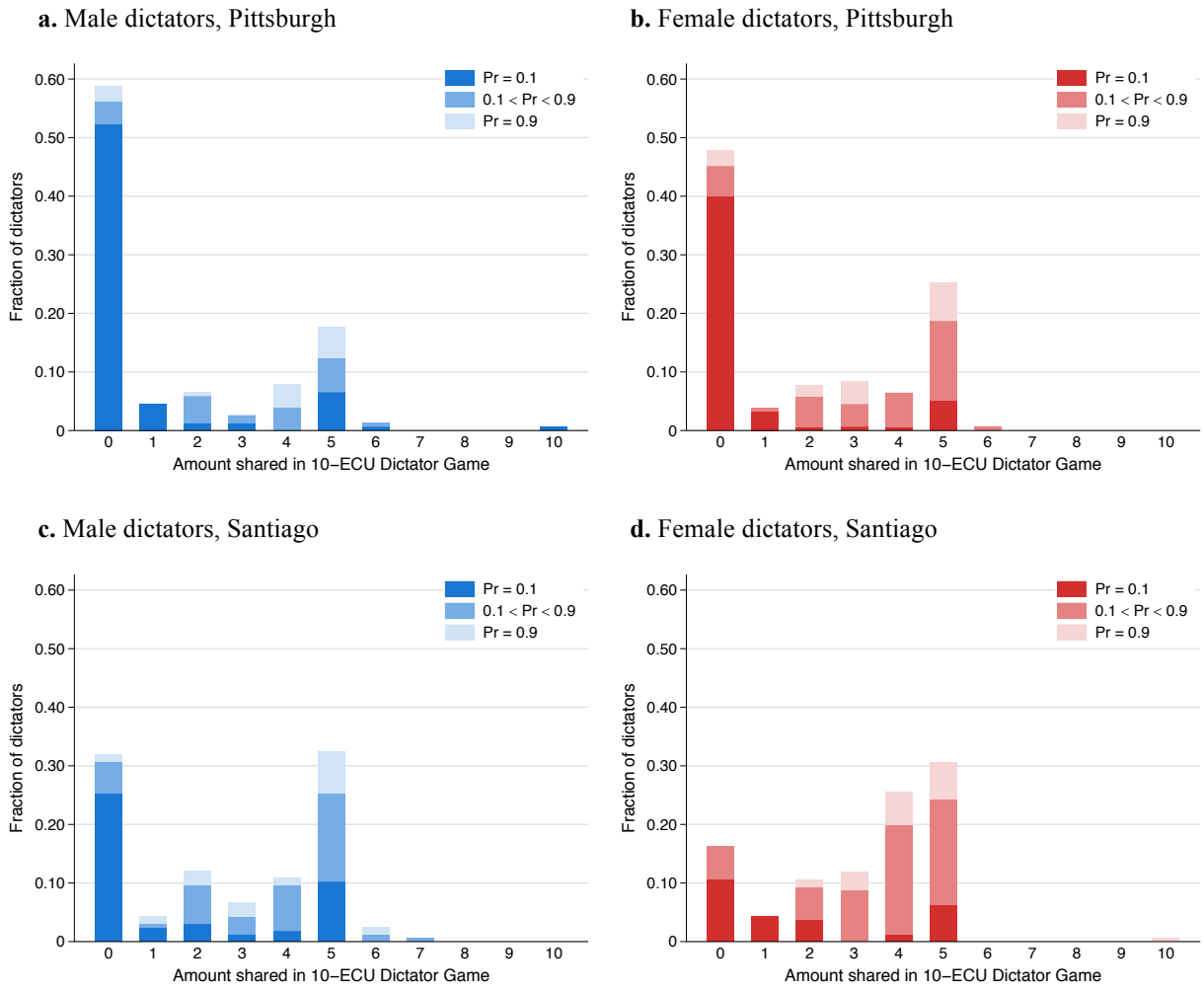

Figure 1: Distribution of amount shared in the Dictator Game.
Notes: Color shades indicate the fraction of dictators who select a retraction probability equal to 10 percent (dark shade), larger than 10 and smaller than 90 percent (medium shade), and equal to 90 percent (light shade).

To formalize these results, we run regressions that predict (i) the amount transferred, (ii) the probability that the dictator transfers nothing, and (iii) the probability that the dictator splits the endowment evenly. We estimate (i) with OLS, and (ii) and (iii) with probit regressions. For all outcomes, we regress the outcome on a female indicator, and control for the dictator's age. For Pittsburgh data, we control in addition for the dictator's net earnings prior to playing the Dictator Game, and for whether the dictator is a native English speaker. We conduct separate regressions

for each experiment location, and also regressions pooling data from both locations (in which case we include a location fixed effect). Results are shown in Tables 1 and 2a. (Tables A1 and A2 in the Online Appendix replicate these regressions without controls, obtaining similar results.)

Table 1: Behavior in the Dictator Game

	a. Amount transferred			b. Prob. transfer nothing		
	Pittsburgh	Santiago	Pooled	Pittsburgh	Santiago	Pooled
Female	0.403	0.562**	0.495***	-0.118**	-0.156***	-0.136***
	(0.251)	(0.226)	(0.168)	(0.056)	(0.046)	(0.036)
Controls	Yes	Yes	Yes	Yes	Yes	Yes
R^2	0.0911	0.0456	0.0873	0.0514	0.0559	0.0888
N	308	326	634	308	326	634

Notes: Marginal effects on the (a) amount of ECU transferred by dictators, and (b) the probability that the dictator transfers nothing to the recipient. Estimates from OLS in (a) and probit regressions in (b), that control for the dictator's age, and in Pittsburgh in addition for the dictator's net earnings prior to the Dictator game and for whether the dictator is a native English speaker. Pooled regressions include a location fixed effect. Heteroskedasticity-robust standard errors in parentheses. *p<0.1, **p<0.05, ***p<0.01.

Table 2: Behavior in the Dictator Game (Continued)

	a. Prob. split evenly			b. Prob. split near evenly		
	Pittsburgh	Santiago	Pooled	Pittsburgh	Santiago	Pooled
Female	0.082*	-0.017	0.031	0.073	0.129**	0.098***
	(0.046)	(0.051)	(0.035)	(0.051)	(0.055)	(0.038)
Controls	Yes	Yes	Yes	Yes	Yes	Yes
R^2	0.0538	0.0119	0.0251	0.0439	0.0200	0.0500
N	308	326	634	308	326	634

Notes: Marginal effects on the probability that the dictator chooses to allocate (a) 5–5 ECU, and (b) 5–5 or 6–4 ECU. Estimates from probit regressions that control for the dictator's age, and in Pittsburgh in addition for the dictator's net earnings prior to the Dictator game and for whether the dictator is a native English speaker. Pooled regressions include a location fixed effect. Heteroskedasticity-robust standard errors in parentheses. *p<0.1, **p<0.05, ***p<0.01.

We see that relative to males, female transfers are on average 0.403 ECU larger in Pittsburgh ($p=0.109$), 0.562 ECU larger in Santiago ($p=0.013$), and 0.495 ECU larger when the data are pooled ($p<0.01$). Females are also significantly less likely to keep the entire endowment for themselves, by 11.8 percentage points in Pittsburgh ($p=0.035$), 15.6 percentage points in Santiago ($p<0.01$), and 13.6 percentage points when the data are pooled ($p<0.01$). Finally, we find inconsistent evidence that females are more likely than males to split the endowment evenly: they are 8.2 percentage points more likely to do so in Pittsburgh ($p=0.074$), but there are no statistical gender differences in Santiago or when pooling the data. However, it is clear from Figure 1c,d that females in Santiago are more likely than males to *approximate* equalitarianism, since the fraction of dictators who transfer 4 or 5 ECU is far larger for females than males. Table 2b presents regressions similar to those described above but that predict the probability that a dictator transfers 4 or 5 ECU, finding that females are more likely than males to do so, by 7.3 percentage points in Pittsburgh ($p=0.152$), by 12.9 percentage points in Santiago ($p=0.019$), and by 9.8 percentage points when the data are pooled ($p<0.01$).

Thus, on balance, when we focus on behavior in the Dictator Game alone, we find that females appear to be more altruistic than males, as they transfer larger amounts on average, are less likely to keep the entire endowment for themselves, and more likely to approximate equalitarianism. These results are largely in line with those of Andreoni and Vesterlund (2001), who find that females are less likely than males to be perfectly selfish and more likely to seek equality.

B. Behavior in the Retraction Opportunity

Though females appear more altruistic than males based on their Dictator Game allocations, this picture changes once we consider their behavior when faced with the opportunity to retract their choices. Recall that this opportunity involves selecting the probability (between 10 and 90 percent) with which to replace their Dictator Game allocation by one that gives 9 ECU to themselves and 0 ECU to the recipient. Although any payoff-related motivation predicts that dictators select a retraction probability of 10 percent, we find that a large fraction of dictators in both experiment locations choose a larger probability. To show this, the shades of the bars in Figure 1 indicate the fraction of participants who select a retraction probability equal to 10 percent (dark shade), greater than 10 and smaller than 90 percent (medium shade), and equal to 90 percent (light shade). In total,

41 percent of dictators in Pittsburgh and 65 percent of dictators in Santiago select a probability larger than 10 percent. It is noteworthy that, among dictators who transfer 2 or more ECU initially, 79 percent of them in Pittsburgh and 81 percent of them in Santiago select a retraction probability larger than 10 percent, while only 13 percent in Pittsburgh and 25 percent in Santiago do so among dictators who transfer nothing in the Dictator Game. This suggests that dictators do not choose probabilities at random, but rather do so largely seeking to increase their own payoff.[4]

Table 3: Behavior in the Retraction Opportunity

	a. Stated Retraction *P*			b. Prob. retraction $P > 10\%$		
	Pittsburgh	Santiago	Pooled	Pittsburgh	Santiago	Pooled
Female	9.569***	6.500*	7.676***	0.176***	0.174***	0.172***
	(3.451)	(3.418)	(2.394)	(0.055)	(0.052)	(0.038)
Controls	Yes	Yes	Yes	Yes	Yes	Yes
R^2	0.0407	0.0206	0.0560	0.0395	0.0416	0.0647
N	308	326	634	308	326	634

Notes: Marginal effects on the (a) dictator's selected retraction probability, and (b) the probability that retraction probability is larger than 10 percent. Estimates from OLS in (a) and probit regressions in (b), that control for the dictator's age, and in Pittsburgh in addition for the dictator's net earnings prior to the Dictator game and for whether the dictator is a native English speaker. Pooled regressions include a location fixed effect. Heteroskedasticity-robust standard errors in parentheses. *p<0.1, **p<0.05, ***p<0.01.

As before, we are most interested in the gender differences. Across experiments, we find that females select larger retraction probabilities than males, and are more likely to select probabilities larger than 10 percent. To formalize these results, we run regressions following the specifications presented previously, but change the outcome of interest to (i) the dictator's selected retraction probability (estimated with OLS), and (ii) the probability that the dictator selects a retraction probability larger than 10 percent (estimated with a probit). Results appear in Table 3 (replicated without controls in Table A3 in the Online Appendix, obtaining similar results). Females select

[4] Though not increasing payoff to the self, the behavior of dictators who transfer 0 ECU and then select a retraction probability larger than 10 percent could also be rationalized by non-payoff-related motivations, such as that these dictators are willing to give up 1 ECU to hide from the recipient the fact that they acted selfishly in the Dictator Game. Or they could be engaging in self-punishment or "moral cleansing" after having acted selfishly in the Dictator Game (Sachdeva et al., 2009).

larger retraction probabilities on average than males: 9.57 percentage points larger in Pittsburgh ($p<0.01$), 6.50 percentage points larger in Santiago ($p=0.058$), and 7.68 percentage points larger when that data are pooled ($p<0.01$). Females are also more likely than males to select a retraction probability larger than 10 percent: 17.6 percentage points more likely in Pittsburgh ($p<0.01$), 17.4 percentage points more likely in Santiago ($p<0.01$), and 17.2 percentage points more likely when the data are pooled ($p<0.01$).

Conditional on giving 2 or more ECU in the Dictator Game, larger retraction probabilities increase (in expectation) the dictator's advantageous inequality over the recipient (Fehr and Schmidt, 1999). Since, conditional on giving at least 2 ECU, females are more likely than males to select a retraction probability larger than 10 percent (see Table A4), in this part of the experiment they appear less likely than males to seek equality and more likely to favor their own payoff at the expense of the recipient's—a conclusion opposite to the one we reach by examining behavior in the Dictator Game.

C. Overall Transfers to the Recipient

How do differences in retraction choices affect final monetary outcomes? To examine this, we calculate the expected transfer to the recipient, accounting for the probability of retraction selected by the dictator. The expected transfer is computed as $(1 - P_{retract}) \cdot Y$, where $P_{retract}$ is the retraction probability and Y is the amount shared in the Dictator Game. If there are no gender differences in choices over $P_{retract}$, gender differences in expected transfers should replicate gender differences in Y (for which we found that females tend to transfer on average significantly larger amounts than males). But what we see is that expected transfers to the recipient are statistically similar across gender. To make these results precise, we use OLS regressions that follow the previous specifications, to predict (i) the expected transfer to the recipient, and (ii) the difference between the dictator's initial transfer and the expected transfer. Table 4 presents the results (replicated in Table A6 without controls, obtaining similar results). Across experiment locations and also when the data are pooled, expected transfers are statistically indistinguishable across gender: expected transfers by females are larger than males' by 0.021 ECUs in Pittsburgh ($p=0.903$), by 0.161 ECUs in Santiago ($p=0.313$), and by 0.121 ECUs when the data are pooled ($p=0.294$). When we look at the difference between the Dictator Game transfer and the expected

transfer, this difference is significantly larger for females than for males: by 0.383 ECUs in Pittsburgh (p=0.016), by 0.401 ECUs in Santiago (p=0.015), and by 0.374 when the data are pooled (p<0.01). Thus, these results suggest that female dictators retract their transfers to a significantly larger extent than males, and that once we account for this behavior, we find that males and females transfer similar amounts to the recipient in expectation.

Table 4: Amount Transferred Accounting for Retraction

	a. Expected transfer			b. DG transfer – Expected transfer		
	Pittsburgh	Santiago	Pooled	Pittsburgh	Santiago	Pooled
Female	0.021	0.161	0.121	0.383**	0.401**	0.374***
	(0.169)	(0.159)	(0.115)	(0.159)	(0.164)	(0.113)
Controls	Yes	Yes	Yes	Yes	Yes	Yes
R^2	0.0962	0.0251	0.0429	0.0546	0.0316	0.0655
N	308	326	634	308	326	634

Notes: Marginal effects from OLS regressions on the (a) expected amount of ECU transferred by dictators given the selected retraction probability, and (b) the difference between the amount transferred by the dictator in the Dictator Game and the expected transfer. Regressions control for the dictator's age, and in Pittsburgh in addition for the dictator's net earnings prior to the Dictator game and for whether the dictator is a native English speaker. Pooled regressions include a location fixed effect. Heteroskedasticity-robust standard errors in parentheses. *p<0.1, **p<0.05, ***p<0.01.

4. DISCUSSION

We conduct a 10-ECU Dictator Game in two separate laboratory studies, and find consistent evidence that females (i) give larger amounts on average than males, (ii) are less likely to keep the entire endowment to themselves, and (iii) are more likely to split the endowment evenly or near evenly with the recipient. At face value, these results suggest that females in our experiments are more altruistic, less completely-selfish, and more equality-seeking than males. But we then allow dictators to select the probability with which to quietly retract their transfers and instead receive 9 ECU for themselves and leave 0 ECU for the recipient. Consistently across the two experiments, we find that females choose significantly larger retraction probabilities than males, thereby favoring their own payoff and hurting the recipient to a larger extend than males do. The net result in the overall game is that males and females give similar amounts to the recipient in expectation.

These findings 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 in favor of a strictly less efficient, unambiguously Pareto-inferior allocation. The fact that females prefer this latter option to a larger extent than males suggests that something about this option is appealing to them, and that this motive, which is not characterized by preferences over payoffs, could also be influencing their behavior in the Dictator Game.[5]

What are these non-payoff-related motivations? We can only speculate, as our experiment alone cannot shed much light on specific mechanisms. One plausible explanation is that males and females ultimately wish to transfer similar amounts to the recipient, but that 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). Another explanation may be that females in the experiment are more likely than males to engage in motivated reasoning over what it means to be generous when choosing a retraction probability. That is, conditional of transferring 2 or more ECU in the Dictator Game, dictators may argue to themselves that selecting a retraction probability larger than 10 percent is not a selfish act, since there remains some chance that their initial transfer gets implemented. Gino et al. (2016) survey ample evidence that individuals exploit such uncertainty to act egoistically while still feeling moral. Such behavior could explain our findings, if females are more able than

[5] Perhaps an explanation to these findings that does not invoke non-payoff-related motivations is that males are more efficiency oriented than females. Or, alternatively, that females are simply more susceptible than males to being given an opportunity to revise a decision. Both of these explanations make no prediction over behavior in the Dictator Game, but predict that females be attracted to the 9–0 allocation more than males. However, if this alone drove the results, we would expect females to select larger retraction probabilities than males across all levels of giving in the Dictator Game, which is not what we see. Tables A4 and A5 show that the gender difference in retraction emerges (or widens) only for dictators who give 2 or more ECU in the Dictator Game, and not for dictators who give 0 or 1 ECU.

males to stretch the extent to which they select a higher retraction probability while still feeling generous. Yet another 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.[6] 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 retraction choice as a cue that one should not share money. Evidently more research is needed to assess the merits of these and other explanations.

[6] Although Niederle (2016) suggests a different interpretation to the findings in the literature.

REFERENCES

Andreoni, J., and Bernheim, D. (2009). "Social Image and the 50-50 Norm: A Theoretical and Experimental Analysis of Audience Effects." *Econometrica*, 77(5):1607-1636.

Andreoni, J., and Vesterlund, L. (2001). "Which is the Fair Sex: Gender Differences in Altruism." *Quarterly Journal of Economics*, 116(1):293-312.

Bardsley, N. (2008). "Dictator Game Giving: Altruism or Artefact?" *Experimental Economics*, 11(2):122-133.

Bertrand, M. (2011). New Perspectives on Gender. In *Handbook of Labor Economics*, vol. 4, pp. 1543-1590. Elsevier.

Broberg, T., Ellingsen, T., and Johannesson, M. (2007). "Is Generosity Involuntary?" *Economics Letters*, 94(1):32-37.

Cain, D. M., Dana, J., and Newman, G. E. (2014). "Giving Versus Giving In." *The Academy of Management Annals*, 8(1):505-533.

Camerer, C. F. (2003). *Behavioral Game Theory: Experiments in Strategic Interactions*. Princeton University Press.

Chen, D. L., Schonger, M., and Wickens, C. (2016). "oTree: An Open-Source Platform for Laboratory, Online, and Field Experiments." *Journal of Behavioral and Experimental Finance*, 9(1):88-97.

Croson, R., and Gneezy, U. (2009). "Gender Differences in Preferences." *Journal of Economic Literature*, 47(2):448-474.

Dana, J., Cain, D. M., and Dawes, R. M. (2006). "What You Don't Know Won't Hurt Me: Costly (but Quiet) Exit in Dictator Games." *Organizational Behavior and Human Decision Processes*, 100(2):193-201.

DellaVigna, S., List, J. A., Malmendier, U., and Rao, G. (2013). "The Importance of Being Marginal: Gender Differences in Generosity." *American Economic Review: Papers and Proceedings*, 103(3):586-590.

De Wit, A., and Bekkers, R. (2016). "Exploring Gender Differences in Charitable Giving." *Nonprofit and Voluntary Sector Quarterly*, 45(4):741-761.

Exley, C. L. (forthcoming). "Incentives for Prosocial Behavior: The Role of Reputations." *Management Science*.

Fehr, E., and Schmidt, K. M. (1999). "A Theory of Fairness, Competition, and Cooperation." *Quarterly Journal of Economics*, 114(3):817-868.

Fischbacher, U. (2007). "Z-Tree: Zurich Toolbox for Ready-Made Economic Experiments." *Experimental Economics*, 10(2):171-178.

Forsythe, R., Horowitz, J. L., Savin, N. E., and Sefton, M. (1994). "Fairness in Simple Bargaining Experiments." *Games and Economic Behavior*, 6(3):347-369.

Gill, D., and Prowse, V. (2012). "A Structural Analysis of Disappointment Aversion in a Real Effort Competition." *American Economic Review*, 102(1):469-503.

Gino, F., Norton, M. I., and Weber, R. A. (2016). "Motivated Bayesians: Feeling Moral While Acting Egoistically." *Journal of Economic Perspectives*, 30(3):189-212.

Greiner, B. (2015). "Subject Pool Recruitment Procedures: Organizing Experiments with ORSEE." *Journal of the Economic Science Association*, 1(1):114-125.

Jones, D., and Linardi, S. (2014). "Wallflowers: Experimental Evidence of an Aversion to Standing Out." *Management Science*, 60(7):1757-1771.

Klinowski, D. (2016). "Reluctant Donors and Their Reactions to Social Information." *Working Paper*.

Lazear, E. P., Malmendier, U., and Weber, R. A. (2012). "Sorting in Experiments with Application to Social Preferences." *American Economic Journal: Applied Economics*, 4(1):136-163.

List, J. A. (2007). "On the Interpretation of Giving in Dictator Games." *Journal of Political Economy*, 115(3):482-493.

Niederle, M. (2016). Gender. In *Handbook of Experimental Economics*, vol. 2, pp. 481-562. Princeton University Press.

Sachdeva, S., Iliev, R., and Medin, D. L. (2009). Sinning Saints and Saintly Sinners: The Paradox of Moral Self-Regulation. *Psychological Science*, 20(4):523-528.