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## Gender Effects in Dictator Game Giving: Women Favour Female Recipients

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# Gender Effects in Dictator Game Giving: Women Favour Female Recipients

## Abstract

Allowing for a free choice of the recipient's gender in a dictator game ( $N = 508$ ), we find that women show a substantial gender bias towards females. Adding a charity recipient to the possible choices, the charity becomes the primary recipient and overall transfers increase. Yet, conditioning on transfers to fellow students the gender bias of women remains. Moreover, we find that women tend more towards giving half the endowment while men tend more towards "all or nothing." The literature on cognitive dissonance (the feeling of distress once we act against our internalised values) emphasises the importance of voluntary choice for dissonance effects to take hold. Accordingly, we interpret our results as hinting at an important detail regarding the ongoing debate about gender differences in altruistic giving: primary differences may not be found in the amount of transfers made but rather in the choice of the beneficiary's gender.

JEL-Codes: C910, D640.

Keywords: dictator game, gender differences, voluntary choice, charitable giving.

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# 1 Introduction

Are men less giving than women? Gender differences in altruistic giving are one of the many questions dictator games have been used to study (e.g. Bolton and Katok, 1995; Eckel and Grossman, 1998; Ben-Ner et al., 2004; Dufwenberg and Muren, 2006; see Croson and Gneezy, 2009, for a review).<sup>1</sup> While the evidence regarding differences in transfers made is mixed, aggregating over different studies, Engel (2011) indeed reports higher average transfers for women, suggesting that women are more giving than men. Interestingly, however, Ben-Ner et al. (2004) find that once dictators are informed about the gender of the recipient, women give less to other women (than to men).<sup>2</sup> So, are women more generous in general but comparably mean towards their own gender?

An arguable important feature which, to the best of our knowledge, has not been studied in the context of gender differences in altruistic giving but which we believe to be highly pertinent to the discussion is the effect of voluntary choice. That the possibility to choose aspects of the game may indeed have a substantial effect on behaviour in a distributional task was demonstrated, for instance, by Wichardt et al. (2009). In the slightly different context of the ultimatum game, the authors find that rejection rates of low offers drop significantly once responders have to pay to participate (or else opt out); i.e. responders first choose to participate. More recently, the importance of voluntary actions has been convincingly emphasised by Smith and Wilson (2018) in a similar setting, albeit from a slightly different angle.

With respect to the present discussion, the question arises whether a voluntary choice would also affect (gender specific) behaviour in the dictator game, if subjects had some freedom of choice with respect to the receiver (e.g. being able to choose their gender). In fact, this appears to be particularly relevant once we have in mind the literature on cognitive dissonance (e.g. Festinger, 1957; Harmon-Jones and Mills, 1999; see also Wichardt, 2012); Wichardt et al. (2009) indeed offer an explanation for their results along these lines. Cognitive dissonance, roughly speaking, refers to a feeling of distress once we act against our internalised norms and values.<sup>3</sup> For such distress to occur, however, the respective actions have to be freely chosen and having little external justification (cf. Nail et al., 2004). Thus, we would expect behaviour

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<sup>1</sup>See Camerer (2003) or Engel (2011) for more extensive surveys on dictator games.

<sup>2</sup>More generally, the evidence on differences in cooperative behaviour within genders is mixed; e.g. Balliet et al., 2011; or Croson et al., 2008.

<sup>3</sup>The tendency to avoid such distress, for example, acts as an internal enforcement device for norms we have identified with (cf. Wichardt, 2011).

in case of free choice of the recipient’s gender – the primary focus of our explorative study – to be indeed more informative than in cases where the gender is fixed by the experimenter.<sup>4</sup>

Accordingly, we set out to investigate (a) how gender differences in altruistic giving in dictator games are affected if dictators can actually *choose* the gender of the recipient. Moreover, as earlier studies show that dictator game giving is substantially affected (increased) if the money given goes to charity instead of peers (Eckel and Grossman, 1996), we also test (b) how adding the *choice option* of charitable giving affects outcomes. Does free choice of recipients change behavioural patterns regarding giving to charity observed earlier? Or does the charity simply become the focal recipient? And how are potential gender biases (in transfers to classmates) affected once the option of a charitable recipient is added?

In order to explore these questions, we conducted a standard dictator game ( $N = 508$ ) with two treatments. In the first treatment (the baseline), subjects could only choose the gender of the recipient. In the second treatment, we added the option of giving to charity rather than a peer (still both genders were available).

The results of our study extend and confirm existing findings in the following way: First of all, on average women give more also under free choice of the recipient’s gender (cf. Engel, 2011) but differences vanish once the option to give to charity is added.<sup>5</sup> Moreover, consistent with Eckel and Grossman (1996), subjects in the charity treatment give more on average. Different from the findings by Ben-Ner et al. (2004), though, women in our study with free choice of the recipient’s gender give more to other women, not less. This is due to women (but not men) actually favouring their own gender when choosing a recipient (average actual transfers do not differ); this gender bias (of female dictators) also persists in the charity treatment. Thus, while gender differences in average giving towards different female or male recipients may be small and arguably contentious, our study suggests that it is not only the amount given one ought to look at but also *the choice* of its beneficiary (see also Section 4).

Furthermore, we find that once a charitable option is added to the possible recipients, this becomes the focal choice for both genders and overall transfers increase

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<sup>4</sup>More specifically, Nail et al. (2004) write “dissonance arousing behaviour must be perceived as: (a) having been freely chosen [...], (b) having little external justification [...], and (c) entailing a commitment [...]” Allowing for the gender of the recipient to be determined by the dictator, these conditions are satisfied. Hence, the respective behaviour ought to be more informative about the dictators preferences than when the recipients gender is fixed (so that there is external justification).

<sup>5</sup>This latter result differs from Kamas and Preston (2015) who find that women give significantly more to charity even after accounting for social preferences.

substantially. Thus, free choice of the recipient does not change the general tendency of increased transfers to charitable recipients observed earlier.<sup>6</sup> Yet, as already mentioned above, gender differences in the choice frequencies for female and male classmates observed without the charity option persist.

Finally, in both treatments, men tend more towards “all or nothing” while women are more inclined to give half of their endowment suggesting that men are more efficiency oriented while women have a stronger tendency towards equal sharing (see also Andreoni and Vesterlund, 2001, or Croson and Gneezy, 2009).<sup>7</sup> Thus, the effect regarding vanishing differences in average giving is essentially due to more men giving all once the charity option is added.

The last result indicates that altruistic transfers (in particular) of men hinge on whether they serve the general good or a single individual about whom little is known. A possible interpretation of this result, in addition to the aforementioned efficiency concerns, could be the higher competitiveness of men (e.g. Gneezy et al. 2003; Niederle and Vesterlund, 2007) as it is arguably easier to perceive individual receivers, especially classmates, as potential competitors.<sup>8</sup> While we see some appeal in such an argument, the data allow us only to speculate about reasons.

## 2 Experimental Design and Procedures

For our study, we implemented a standard dictator game where the dictator receives €10 endowment to be divided between themselves and a recipient to be determined. In Treatment Q1, dictators could choose between an anonymous female or male recipient. In Treatment Q2, dictators had the additional option to give money to the charity “Kinderkrebshilfe e.V.” (the German child cancer fund). Thus, subjects had to determine the (one) recipient and the amount to be transferred.

The study was conducted as a classroom experiment in December 2014 at the University of Rostock with voluntary students recruited in lectures at the Institute of Philosophy and the faculty of Economic and Social Sciences. In each class, both questionnaires were used and distributed at random. To begin with, some general information about the experiment was read aloud and participants were told that

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<sup>6</sup>Here, of course, the choice is only between a female classmate, a male classmate, and a charity. Note, however, that social proximity of classmates could also have been a reason for comparably low transfers to charity - but turns out not to be.

<sup>7</sup>Note that assuming a different marginal utility of money, giving all or nothing would be the efficient thing to do. A focus on common western sharing norms (usually half-half) instead suggests more sharing.

<sup>8</sup>Note that if efficiency was all, men should also give all to peers if they expect them to be more in need.

about 10% of the questionnaires would be randomly chosen at the end and paid as indicated (with the receiver being drawn from the students of the class). After the experiment questionnaires were selected and students were paid anonymously; payments to the Kinderkrebshilfe were made by bank-transfer and the receipt was posted on the web.<sup>9</sup>

Overall 508 students participated in the experiment (273 females, 235 males; mean age 21.68).

### 3 Results

Transfers by treatment and gender are reported in Table 1. As can be seen, women dictators in Q1 (no charity) give more than men but do so mostly to women. Yet, gender differences in average giving vanish once the charity is added as an option, i.e. in Q2 (incl. charity).

Average transfer		to <b>females</b> (%)	to <b>males</b> (%)	to the <b>CCF</b> (%)
Q1	by females (N=132)	2.61 (61.4)	0.70 (17.4)	-
	<i>cond. on transfer &gt; 0 (N=105)</i>	<i>4.25</i>	<i>4.04</i>	-
	by males (N=123)	1.22 (30.1)	1.36 (30.1)	-
	<i>cond. on transfer &gt; 0 (N=75)</i>	<i>4.07</i>	<i>4.41</i>	-
Q2	by females (N=141)	0.90 (19.1)	0.11 (2.8)	4.30 (68.1)
	<i>cond. on transfer &gt; 0 (N=127)</i>	<i>4.49</i>	<i>3.75</i>	<i>6.31</i>
	by males (N=112)	0.46 (8.9)	0.35 (7.1)	4.68 (68.8)
	<i>cond. on transfer &gt; 0 (N=95)</i>	<i>5.20</i>	<i>4.88</i>	<i>6.81</i>

Table 1: Average transfers by gender. % displays the probability for receiving a transfer made by a female or male. CCF is the transfer to Child Cancer Foundation. Cond. on transfer refers to the subset of individuals with transfers > 0

Focusing only on Q1 (no charity), women give significantly – economically and statistically – more than their male counterparts (3.31 vs 2.58;  $p < .05$  Mann-Whitney

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<sup>9</sup>Note that various differences in the type of experiment have been discussed. For example, the experimental environment (i.e. classroom or laboratory) has been found to potentially affect giving decision; e.g. Eckel and Grossman (2000) find in a series of dictator games that pseudo-volunteers (classroom) are more generous on average than volunteers (lab). Yet, Cleave et al. (2013) do not find significant differences in social and risk preferences between volunteers and pseudo-volunteers of the same population (i.e. class). Moreover, the payment method (i.e. pay all or randomly chosen) may affects individual decisions. Yet again, the evidence is mixed: while Stahl and Haruvy (2006) do find effects, Charness et al. (2016), reviewing a significant amount of papers, find that paying for only a subset of periods or individuals is at least as effective as the pay all approach. Regarding our experiment, participation was explicitly announced as voluntary. Also, we are only interested in relative effects and we see no reason to believe that our setting (classroom, pay some) will induce structural differences potentially distorting our results.



test). Averaging over both treatments, though, we find that on average men donate only slightly less than women (€3.97 vs. €4.33;  $p < .10$  Mann-Whitney test); again this finding is driven by higher average transfers to classmates by women (€2.12 vs €1.74;  $p < .05$  Mann-Whitney test).

Moreover, most transfers made by women go to classmates of their own gender while for men the picture is more balanced. More precisely, in Q1 the probability that a woman gives to their own gender is more than three times as high as that of giving to a male counterpart (61.4 % vs. 17.4 %); in Q2, the probability is almost ten times higher (19.1 % vs. 2.8%). By contrast, for men transfers to their own gender or to females are almost equally likely (30.1 % vs. 30.1 % and 8.9 % vs. 7.1.%).

Furthermore, once the additional charity option is added, overall giving increases (see Table 1: 5.49 vs 2.58 for men,  $p < .01$ ; 5.31 vs. 3.31 for women,  $p < .01$  Mann-Whitney test) as both genders show a high inclination for charitable giving (average €4.30 for women, €4.68 for men; difference not significant). Also, gender differences in average amount given vanish (5.49 vs 5.31;  $p = 0.83$  Mann-Whitney test) as overall men on average react slightly stronger to the treatment; regression results show that for men the average share kept drops more strongly between treatments ( $p = .076$ ).

Finally, average transfers to classmates drop significantly – again both economically and statistically – for both genders and differences in means vanish. Nonetheless, women still give more frequently to female classmates (27 vs. 4) which again leads to overall averages being higher (cf. Table 1).

However, while differences in average giving in Q2 (incl. charity) are not significant (neither for classmates nor for charity; also when conditioning on positive transfers), giving behaviour still differs between genders. In particular, men are more frequently willing to give their full endowment while women have a stronger tendency towards equal sharing; this tendency is reflected in both treatments; cf. Figure 1 and Figure 2.

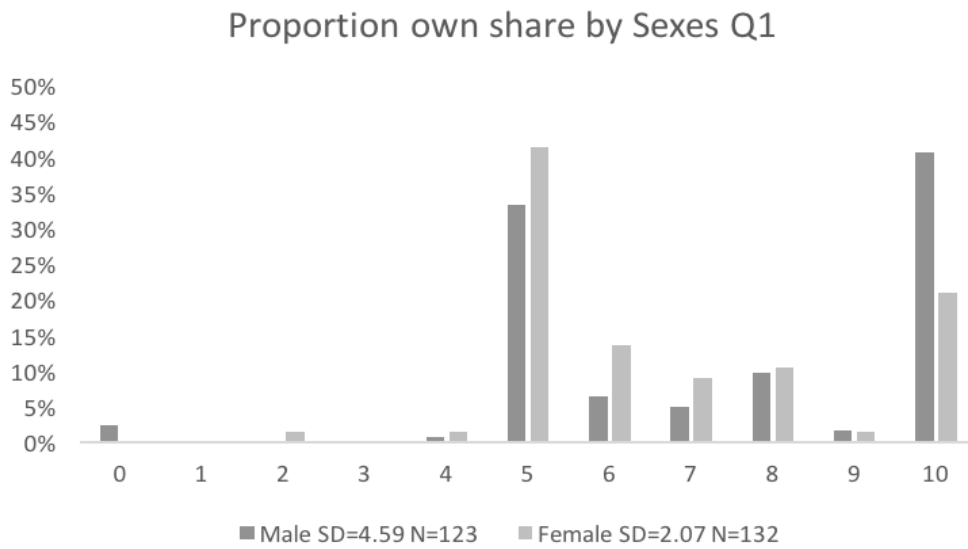


Figure 1: Variance between both samples is significantly different (Levene-Test  $p < 0.01$ ).

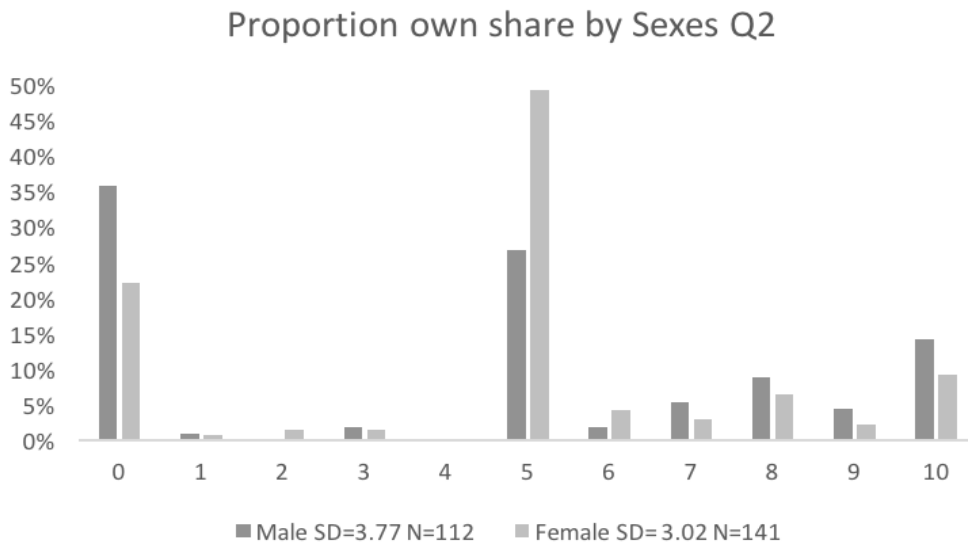


Figure 2: Variance between both samples is significantly different (Levene-Test  $p < 0.05$ ).

A comparison between Figure 1 and 2 also shows that for Q2 (incl. charity) fewer subjects of both genders keep much or all of the endowment for themselves; i.e. the

charitable option induces less selfish behaviour. The effect is stronger for men, though, which makes gender differences in average giving disappear.

A probit regression (cf. Table 2) confirms the results above, namely that drivers for transfers are the specific opportunities to donate (i.e. Q1 or Q2) and the donor's gender. Findings regarding gender are also robust to a possible selection bias, i.e. the possibility of one group of women (economists or philosophers) being especially affected by the treatment.

Probability to donate	
Probit regression model	
Q-type	0.625*** (0.153)
female	0.389** (0.178)
philosophy	0.505* (0.259)
female $\times$ philosophy	-0.336 (0.345)
political attitudes	-0.225* (0.132)
importance social	-0.189** (0.083)
constant	1.637*** (0.494)
Observations	397
Pseudo R <sup>2</sup>	0.119

Table 2: Probit regression results for the probability to make a transfer. Independent variables: Q-type = 1 for Q2 (incl. charity) and otherwise 0. Philosophy = 1 if course of study is Philosophy and 0 otherwise. Political attitudes: categorial from left to right. Importance social: categorial, referring to importance to be liked by peers from important to non important. We also control for income, age, birthplace, terms studied, and experience with experiments. Robust standard errors in parentheses. \*  $p < 0.10$ , \*\* $p < 0.05$ , \*\*\*  $p < 0.01$

Result 1 below summarises the main findings of our study. A brief discussion of the relevance of the results is provided in the concluding section.

**Result 1** *The analysis of the Dictator Game data with the option to choose between different recipients gives the following main results for Q1 (no charity) and Q2 (incl. charity):*

- *Women give more (often) to female peers.*
- *Women give more on average (without the charity).*
- *Differences in average transfers are essentially due to fewer transfers being made, not to average actual transfers being lower.*
- *Once a charity is added to the possible recipients, this becomes the focal choice for both genders and average transfers increase substantially.*
- *Differences in average giving disappear once the charity option is added.*
- *Distributions of transfers differ in both treatments: men tend more towards extremes, i.e. more frequently give all (nothing) with(out) the charity option.*

**Remark 1** *Note that we do not report any (own) data on behaviour without voluntary choice, i.e. if dictators simply get assigned a receiver of known gender (female/male). Once we fix the gender of the receiver, any relevant freedom of choice - the effect of which is the focus of our study - is gone and gender is no longer focal in the intended way.*

## 4 Concluding Remarks

In the present paper, we have presented the results from a dictator game study with student participants in which dictators could choose the gender of the recipient. As we have argued in the introduction, free choice of the recipient's gender is likely to increase the reliability of the results in view of gender specific biases in altruistic giving, which have been discussed a lot in the literature. The reason is that, different from cases where the gender is set by the experimenter, free choice should trigger cognitive dissonance (Festinger, 1957) once dictators act against their internal convictions. Moreover, in one treatment a further option - giving to charity - was added.

As we have seen, different from men, women tend to give more and, in particular, more frequently to peers of their own gender if they can choose the recipient's gender. Yet, once the charity option is added, this become the primary focus of transfers for both genders and average transfers adjust; for those who give to peers, the female

gender bias seems to persist, though. Moreover, we find that men tend more towards an “all or nothing” whereas women tend more to intermediate splits.

Regarding the relation of our results to the literature, note first that our findings about gender differences in average amounts given to women/men as well as differences in distributions (the higher tendency of men towards “all or nothing”) are very much in line with the existing literature (cf. Andreoni and Vesterlund, 2001, or Croson and Gneezy, 2009, regarding “all or nothing”; see Engel, 2011, regarding average giving). Thus, free choice of the recipient’s gender does not change known patterns in dictator game behaviour once the choice of recipient is made.<sup>10</sup>

The substantial bias of female dictators towards *choosing* a recipient of their own gender, though, appears to add an interesting new twist to earlier findings regarding gender differences in altruistic giving. More specifically, recall that, if not conditioned on a transfer being made, differences in average giving between men and women in our study are quite substantial (cf. Table 1). By contrast, differences in earlier studies with fixed gender of the recipient are often small (as in our study if controlled for transfers being made) and in general not uncontentious (cf. Engel, 2011). Thus, the present data suggest that the discussed gender differences in altruistic giving could indeed be much stronger than what the earlier discussion would suggest. To find them, one would have to look not at the size of the transfer, though, but at *the choice* of its beneficiary.

In fact, we believe that a possible explanation for why women in our study give *more often* (and also more) to other women may indeed lie in the ability to *choose* the recipient. Recall that Croson et al. (2008) argue that identity concerns induce higher cooperation among women; the fact that recipients come from the same class as donors might further emphasize this effect. Moreover, free choice (through cognitive dissonance) is an important ingredient for cognitive dissonance effects (cf. Nail et al., 2004).<sup>11</sup> Thus, we are confident that free choice at least strongly contributes to the observed patterns in the choice of recipients.

Whether the female bias in the choice of recipients eventually is due to a general feeling of discrimination in society, which might induce a stronger group cohesion among women, or results from more fundamental differences in preferences, we can only speculate about. Future research may, however, shed more light on this (to us)

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<sup>10</sup>Note that we have no reason to believe that our subject group shows any structural differences from earlier ones which would favour our findings. Hence, we are confident that both effects indeed rather reflect a general pattern than an artifact of the special free choice design of our study.

<sup>11</sup>In fact, cognitive dissonance is what effectively drives identity consistent behaviour inducing distress in case of deviations from one’s identity.

surprising result.

Finally, the fact that men show a stronger tendency to give all once the charity is added can be interpreted as supporting the idea that men are more efficiency oriented (cf. Andreoni and Vesterlund, 2001; Croson and Gneezy, 2009). An additional motive behind this finding might be that men are more inclined to perceive individual peers – but not the charity – as competitors and, given their higher level of competitiveness (e.g. Niederle and Vesterlund, 2007), therefore give less. Once again, based on our data, we can only speculate about reasons. Yet, we believe that a combination of both may well lie behind these findings.

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