

Giving and taking in dictator games – differences by gender?

A replication study of Chowdhury et al. (*Southern Economic Journal*, 2017)

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Abstract

This study attempts to replicate experimental results from Chowdhury et al. published in *Southern Economic Journal* (2017). They study gender differences in the giving and taking variants of the dictator game. Using the same experimental design on a sample of German students our findings differ from Chowdhury et al. (2017). In contrast to the original study, we do not find support for an asymmetric gender effect. Our results indicate that, on average, both men and women allocate similar amounts in the giving and in the taking frame. Additional analyses indicate that men are more likely than women to allocate nothing in the taking variant rather than in the giving variant, in line with Chowdhury et al. (2017).

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1 Introduction

Research on gender differences in social preferences clearly suggests that women are as generous as men when it comes to giving (donations, for example) but shy away from taking, for example in pay negotiations (e.g., Kamas and Preston 2015; Kugler et al. 2018). Dictator games have been used extensively to study social preferences and framing effects of giving vs. taking (e.g., Suvoy 2003). Results are ambiguous, as some studies find that giving is different from not taking (e.g. Bardsley 2008, Korenok et al. 2013), while others find no effect of framing (e.g., Engel 2011, Dreber et al. 2013). Few studies have focused on gender differences in the giving (GG) and taking (TG) variants (e.g., Grossmann and Eckel 2015, Alevy et al. 2014), with some findings indicating that gender effects may be asymmetric.

In a recent study, Chowdhury et al. (2017) contributed to this literature by investigating gender differences in the giving and taking variants of the dictator game. They conducted a between-subjects dictator game with 280 students at the University of East Anglia. Their findings indicate that framing has opposing effects on female and male dictators: whereas women are more generous in the TG than in the GG, men are significantly less generous in the TG than in the GG. According to Chowdhury et al. (2017), gender differences occur in the TG but not in the GG. In the TG, men behave purely selfish while women behave as egalitarians.

We sought to replicate their study with German students at the OWL University of Applied Sciences and Arts using the same design as Chowdhury et al. (2017).

2 Replication study

Based on the (original) experiment by Chowdhury et al. (2017), we conducted laboratory experiments in several sessions in 2018 and 2022 at the OWL University of Applied Sciences and Arts in Lemgo, Germany in order to replicate their findings. The experiment was programmed and run with the experiment software z-Tree (Fischbacher 2007) and z-Tree unleashed (Duch et al. 2020). We translated the original instructions by Chowdhury et al. (2017) into German (see supplementary materials for the back-translation of the instructions we used). We also used euros instead of pounds, such that the overall endowments were 10 EUR instead of 10 pounds.¹ Participants were invited to the experiment electronically, with great care being taken that the participants did not know what the experiments were about. In line with Chowdhury et al. (2017), we played two treatments, i.e. Giving Game (GG) and Taking Game (TG), whereby each session included only one treatment. Each participant was randomly assigned to the treatment and to the role, i.e. dictator or recipient. In total, 274 participants took part in our experiment, 137 of them were randomly assigned the role of the dictator, and the

¹There are numerous studies that have conducted dictator games (see Engel, 2011). These have shown that the absolute value was hardly decisive for the result. Incidentally, the exchange rate has been quite similar in recent years: 1 GBP = 1.1744 EUR (2017); 1 GBP = 1.1347 EUR (2018); 1 GBP = 1.1180 EUR (2019); 1 GBP = 1.1817 EUR (2020); 1 GBP = 1.1399 EUR (2021); 1 GBP = 1.1814 EUR (2022).

Table 1: Replication vs. Original Results of Average (Standard Deviation) Allocation to Recipient

Study	Data	Giving Game	Taking Game	Mann-Whitney test (Giving vs. Taking)
Replication	All (69/68 obs./treatment)	3.751 (2.218)	3.427 (2.410)	No difference $p = 0.924$
Original	All (70 obs./treatment)	2.066 (1.734)	2.130 (2.394)	No difference $p = 0.583$
Replication	Male (37/37 obs./treatment)	3.746 (2.580)	3.203 (2.531)	No difference $p = 0.725$
Original	Male (35 obs./treatment)	2.117 (1.530)	0.997 (1.589)	Different at 1% $p = 0.001$
Replication	Female (32/31 obs./treatment)	3.757 (1.749)	3.694 (2.268)	No difference $p = 0.927$
Original	Female (35 obs./treatment)	2.014 (1.938)	3.263 (2.543)	Different at 5% $p = 0.039$
Replication	Mann-Whitney test (Male vs. Female)	No difference $p = 0.699$	No difference $p = 0.665$	
Original	Mann-Whitney test (Male vs. Female)	No difference $p = 0.594$	Different at 1% $p = 0.0001$	

other half acted as recipients. 69 of these pairs took part in the GG, 68 pairs participated in the TG.²

Table 1 shows our results (replication) in comparison to the results of Chowdhury et al. (2017) (original). For all participants, the average amount allocated to the recipient was €3.75 in the GG and €3.43 in the TG. According to the Mann-Whitney test, dictators in our study did not allocate significantly more in the GG. These results are in line with Chowdhury et al. (2017); they find no significant differences between the amounts allocated to the recipients in the TG versus the GG across all participants. Furthermore, dictators in the original study allocated slightly lower shares of the overall amount, with averages of £2.07 (which equals 21% of the overall sum as compared to 38% in our study) in the GG and £2.13 (or 21%, in comparison to 34% in our study) in the TG.

For the male participants, the average amounts allocated to the recipients were €3.75 in the GG and €3.20 in the TG, well above the results reported by Chowdhury et al. (2017). In our TG, the male dictators allocated about three times more money to the recipients as compared to the male dictators studied by Chowdhury et al. (2017). We also found no significant difference for male participants between treatments. On the contrary, Chowdhury et al. (2017) found

²Ex post power tests on the basis of the original effect sizes and standard deviations yield power estimates of 84% for the male sample and 62% for the female sample.

that male dictators allocated significantly more in the GG than in the TG (£2.117 – £0.997 = £1.12).

In case of the female participants, the average amount allocated to the recipients in the GG was €3.76, while in the TG it was €3.69. According to the Mann-Whitney test, there were no significant differences between the treatments for female dictators (p -value = 0.93). These results also differ from the findings reported in Chowdhury et al. (2017), as they find that female dictators allocated significantly more in the TG (£3.26) than in the GG (£2.01).

Overall and in line with Chowdhury et al. (2017), we find no statistical difference in the GG between gender (p -value = 0.70). However, contrary to Chowdhury et al. (2017) we find no gender differences in the TG (p -value = 0.67).

OLS regression results confirm the findings reported in Table 1. Table 2 shows OLS regression results reported in Chowdhury et al. (2017) as compared to our results. First, dummy variables were included to test gender and framing effects separately. While a gender effect is detected in Chowdhury et al. (2017) ($b = 1.097$, p -value < 0.001), we find no significant effect of gender on the amount allocated to the recipient. In line with Chowdhury et al. (2017), we find no significant framing effect on the amount allocated to the recipient.

In a second step, we included dummies to account for gender-specific framing effects. While Chowdhury et al. (2017) report significant positive effects for females in the TG ($b=2.262$, p -value<0.01), females in the GG ($b =1.084$, p -value < 0.05) as well as men in the GG ($b = 1.155$, p -value < 0.05) as compared to men in the TG, we find no significant interaction effects. Third, we ran different regressions for male and female participants. Chowdhury et al. (2017) find that women tend to allocate significantly less money in the giving rather than the taking frame ($b = -1.186$, p -value < 0.05). Again, we find no significant framing effects for men and women. Furthermore, while Chowdhury et al.'s (2017) findings suggest that men allocate more money to the recipient in the giving frame as compared to the taking frame ($b = 1.159$, p -value < 0.01), our results indicate that men – like women – tend to allocate almost the same amount of money in both the giving and the taking frame. In line with Chowdhury et al. (2017), we do not find age³ effects.

We additionally tested whether framing and gender was related to the dictators' decision to allocate nothing.⁴ Logistic regressions results indicate that these extreme cases of selfishness were significantly less likely in the GG than in the TG and significantly less likely for female participants. We find a significant framing effect for male participants, such that male dictators are significantly less likely to allocate nothing in the GG, as compared to male dictators in the TG. Our results also suggest that female dictators in the GG are more likely to donate nothing, as compared to male dictators in the TG. However, our results do not provide support for an asymmetric framing effect for female participants because female dictators, in general, are less likely to allocate nothing, as compared to men, but this effect does seem not depend on the framing.

³According to Chowdhury et al. (2017) we used an age dummy (Age = 1 if age ≤ 21).

⁴We would like to thank Mario Mechtel for suggesting the additional analysis.

Table 2: Replication vs. Original Results Regression of Amount Allocated to Recipient

	Replication	Original	Replication	Original	Replication	Original	Replication	Original
	Total	Total	Total	Total	Male	Male	Female	Female
Intercept	3.332*** (0.367)	0.720 (0.738)	3.218*** (0.415)	0.242 (0.721)	3.411*** (0.486)	0.164 (0.765)	3.448*** (0.449)	2.588** (1.150)
Giving Game	0.319 (0.399)	-0.004 (0.345)			0.483 (0.599)	1.159*** (0.373)	0.071 (0.51)	-1.186** (0.552)
Female	0.259 (0.406)	1.097*** (0.342)						
TG* Female			0.497 (0.571)	2.262*** (0.464)				
GG* Male			0.539 (0.545)	1.155** (0.465)				
GG* Female			0.559 (0.566)	1.084** (0.467)				
Age ₂₁	-0.053 (0.413)	0.037 (0.029)	-0.041 (0.414)	0.033 (0.028)	-0.550 (0.640)	0.036 (0.031)	0.476 (0.51)	0.029 (0.047)
Obs.	137	140	137	140	74	70	63	70
Adj. R^2	-0.014	0.059	-0.019	0.133	-0.006	0.109	-0.018	0.051

Note: Standard errors in parentheses; ***, ** and * indicate significance at the 1%, 5% and 10% level.

Furthermore, we did not find gender or framing effects for highly generous dictators, i.e., participants who allocated more than half of the sum to the other player. Therefore, even though we were unable to replicate the linear effects reported in the original study, our results regarding highly selfish dictators correspond to Chowdhury et al.'s (2017) finding that male dictators tend to allocate less in the TG rather than in the GG.

3 Concluding remarks

In our study, we sought to replicate Chowdhury et al.'s (2017) asymmetric framing effects for male versus female dictators in a dictator game. In line with Chowdhury et al. (2017), our results indicate that there are no general framing effects, such that, on average, participants tend to allocate slightly more in the giving rather than the taking game but this effect is statistically insignificant. Chowdhury et al. (2017) find that females are more egalitarian in the taking frame than in the giving frame, while men act more selfishly in the taking game but less so in the giving frame. In general, our results do not provide support for significant differences between men and women in both the taking and the giving game, but additional analyses indicate that men are more likely than women to allocate nothing in the TG rather than in the GG. Thus, our results are partly consistent with Chowdhury et al.'s (2017) findings.

Table 3: Logistic Regression of Recipients Allocating Nothing

	Total	Total	Male	Female
Intercept	0.865 (1.961)	0.828 (1.961)	2.238 (2.124)	-3.844 (3.968)
Giving Game	-1.375** (0.553)		-1.216 (0.650)	-1.833 (1.232)
Female	-1.005* (0.565)			
TG*Female		-0.874 (0.648)		
GG*Male		-1.227* (0.644)		
GG*Female		-2.647** (1.063)		
Age	-0.074 (0.086)	-0.074 (0.085)	-0.137 (0.094)	0.100 (0.182)
Obs.	137	137	74	63
Pseudo R^2	0.096	0.097	0.081	-0.093

Note: We employed robust standard errors.

There may be various reasons for why our results deviate from Chowdhury et al.'s (2017) findings. In particular, cultural differences may explain why we obtained different results as compared to Chowdhury et al. (2017). We applied the same experimental design and subjects were students in both cases, but the participants in the original study attended a University in the UK, while our students are mainly from Germany. Cultural differences may influence framing effects as gender stereotypes associated with egalitarianism and selfishness may vary in different cultural backgrounds. Yet future research needs to explore how gender stereotypes differ in content and strength in the UK as compared to Germany and other countries.

The fact that, by and large, we were not able to replicate the asymmetric framing effects reported by Chowdhury et al. (2017) and the overall inconclusive findings from other studies call for more research on gender differences regarding the framing effect in dictator games. In particular and in accordance with Chowdhury et al. (2017), we suggest that future research should explore further why and under which conditions 'giving is not equivalent to not taking' and what role gender plays in explaining these differences.

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