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Altruism, Anticipation, and Gender

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JEL classification codes
C91, D64, D84, J16
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Dictator-game, Altruism, Anticipatory belief, Gender

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1. Introduction

The existing experimental literature elicits divided opinion regarding the effects of gender on altruism. Some studies show females being more altruistic, but certain other studies find no such pattern. It is however never investigated whether any of the gender related observations are robust under income effects. Studies regarding anticipation, i.e., expectations regarding physical outcomes that affect ones utility, about altruism and its interplay with gender are also less than adequate. In this article we use a dictator game to investigate if individuals behave and anticipate the same way as a donor and as a receiver in the course of changing income, and whether gender plays a role in their decisions.

The literature on the effects of gender on altruistic behavior is well-established but dissented.[1] In a first attempt at investigation into this area, Bolton and Katok (1995) find no effect of a dictator's gender on the amount given. Eckel and Grossman (1998) find that women donate more money than men. Furthermore, this gender difference is much more stable when the recipient is an actual charity rather than another anonymous student. Later studies (Selten and Ockenfels, 1998; Dickinson and Tiefenthaler, 2002) support these observations. Gong et al. (2009), however, report the opposite result for a matrilineal society in China. Dufwenberg and Muren (2004) find no gender difference in giving; but irrespective of the gender of the dictator, female recipients receive more when gender is revealed. On the contrary, Ben-Ner et al. (2004) show that female dictators give less to female recipients (compared to male or unknown gender recipients), but that male dictators do not exhibit such discriminatory behavior. Brañas-Garza et al. (2013) find that exposure to fetal hormones ('Second-to-Fourth Digit Ratio'), has a systematic effect on the altruistic behavior of males but not on females. In a survey Croson and Gneezy (2009) describe gender differences in various preferences, including altruism. They argue that "*the cause of these conflicting results is that women are more sensitive to subtle cues in the experimental context than are men.*" This was later supported in Miller and Ubeda (2012), among others. The meta study by Engel (2010) shows females, ceteris paribus, to be more altruistic than their male counterparts.

Anticipation plays a major role in the overall wellbeing of economic agents (Frey and Stutzer, 2002). Theoretical studies (such as Loewenstein, 1987; Kőszegi, 2010) show the relationship between anticipation, various decision making procedures, and corresponding

[1] It is true also for other experiments. Huyck and Battalio (2002) observe no gender differences in a prisoner's dilemma type game, while Charness & Rustichini (2011) find males to be less cooperative. Gneezy et al. (2003) notice that competitive environment makes only males more productive. However, Gneezy et al. (2009) show that men in a patriarchal society are more competitive than females, while it is opposite in a matriarchal society.

utility. But existing experimental research on anticipatory beliefs regarding altruism is sparse, and a specific focus on gender is almost non-existent. Aguiar et al. (2009) study recipient willingness to match with a male or a female dictator and find that females are more willing to be matched with female dictators as they anticipate females to be more generous. McBride (2010) shows in a laboratory experiment that, ceteris paribus, high expectations result in lower satisfaction.[2] Ellingsen et al. (2010) employ anticipation to test guilt aversion. They reveal recipient anticipation to the dictator but find no effect of the same on dictator giving. Iriberri and Rey-Biel (2012) find introspective anticipatory behavior by the dictator in the sense that dictators who give more (less) anticipate others will give more (less) as well.

Nevertheless, the only studies on the issue of recipient anticipation regarding amount given are run by Brañas-Garza (2009) and Rigdon and Levine (2011). Brañas-Garza (2009) focuses on the anticipation (termed as 'expectation', but we continue to use 'anticipation' to avoid any confusion with statistical expectation) of dictators regarding the amount given by other dictators, and also incentivizes the recipients to guess the possible amount given to them. Treatments run in Spain and Mexico consistently show that dictators anticipate a near bimodal (zero and equal split) distribution of giving, whilst giving into the interior of the distribution themselves. Recipients robustly anticipate more than the Nash equilibrium with an average anticipation of around 40% of the endowment. Rigdon and Levine (2011) run a 'Secret Santa' (*a.la.* Andreoni and Vesterlund, 2001) dictator game in which subjects play both the roles of dictator and of recipient and various dictator choices are run through a strategy method. A baseline in which the giving amount is drawn randomly is also run. The anticipation task regarding the giving of other dictators is not incentivized. Females give more than males when price of giving is high, and males give more otherwise. However, these differences disappear in the baseline. It is concluded that the gender difference in altruism is a result of the gender difference in anticipation.

These studies, however, are not designed to investigate the effects of varying income and its interplay on gender. Chowdhury and Jeon (2012) show that, in theory, alternative explanations of altruism are sensitive to an income effect. However, in a dictator game experiment an increase in the common show-up fee is accompanied by a higher level of altruism.[3] Hence, it is natural to expect gender effects in donation and anticipation behavior when income changes. Our experiment is designed to test this particular issue. In a standard

[2] Using field data Stevenson and Wolfers (2009) show that over time the income and life standards of females have improved in terms of objective measures, but subjective well-being of the females have seen declining.
[3] Applications of this can be seen in anthropology (Holland et al., 2012) and economic history (Hoffmann, 2011). Brañas-Garza (2006), Konow (2010) and Korenok et al. (2012, 2013) also study income effects on altruism.

dictator game (Forsythe et al., 1994), we provide the same show-up fee to the dictator and the recipient, but in different treatments we vary the common show-up fee. The dictator is then asked to divide an extra amount between him/herself and the recipient. We further incentivize recipients to anticipate the possible amount which will be given to them.

Consistent with the existing results, we find female subjects to be more altruistic than their male counterparts. However, this is driven by the higher show-up fee treatments. Hence, we reaffirm that females are not more generous universally, but only under certain conditions. We also find substantially higher anticipation than the Nash equilibrium predicts. Adding to the existing literature, we find no effects of changing the show-up fee on anticipation by the recipients. Gender, however, does affect anticipation differently. Male subjects on average anticipate not only more than both what the females anticipate, but also more than what they give as dictators. Female subjects do not show such a pattern.

2. Experimental Design and Hypotheses

We ran 5 treatments with 3 sessions in each treatment. There were 16 subjects in each session, and each subject could participate in at most one session. The subjects were students at the University of East Anglia, UK and were recruited through the CBESS Experimental Online Recruitment System (ORSEE; Greiner, 2004). The treatments differed only through a common show-up fee that varied (50p, £5, £10, £15 and £20) depending on the treatment. In each session, subjects were randomly and anonymously placed into pairs and assigned the role as either a dictator or a recipient. Each subject played only one role and the roles remained the same until the end of the session. Subjects were not informed about their partners' gender. They received salient information about the common show-up fees, which was the same for all subjects in a given session. Dictators had access to an additional £10 and had the choice to allocate it between themselves and the recipient. See Table 1 for a summary.

[Table 1 about here]

Each session consisted of two parts. In the first part, dictators were asked to allocate the additional £10 between themselves and the recipient, in denominations of 1 penny. In the second part, recipients had to guess the amount they would receive from the dictator. If the absolute difference between the actual amount given and the guess was within 50 pence, then the recipient received an extra £1. The instructions for the second part was given only after the decisions in the first part were made. It was mentioned in the instruction of the first part that the recipient's decision was payoff irrelevant to the dictator. This was done to avoid any

possible strategic interaction between dictator giving and recipient anticipation. Demographic information such as gender, age, nationality, subject area of each participating subject was also collected after the experiment. The instructions are included in the Appendix.

Given the existing literature and the design of the current study, the following testable hypotheses are stated regarding altruism, anticipation and gender.

Hypothesis 1: (*Gender-effects on altruism*). Male and female dictators give the same amount.

As discussed earlier, existing results regarding the effect of gender on altruism are inconclusive. Hence, our null hypothesis is gender indifference in dictator giving. The alternative hypothesis, given a set of existing studies, is to predict females to be more altruistic.

Hypothesis 1A (Female altruists): Females give more than their male counterparts.

Hypothesis 2: (*Anticipated Warm-glow*). Anticipated amount increases with the show-up fee.

This hypothesis is extended from the results of Chowdhury and Jeon (2012) in which abiding with the predictions of the warm-glow theory, giving increases with an increase in the show-up fee. Alternatively, if anticipation does not follow the warm-glow mechanism, this monotonic relationship between show-up fee and anticipated amount will not hold.

Hypothesis 3: (*Gender-effects on anticipation*). Both genders anticipate the same amount.

Similar to null Hypothesis 1, here we hypothesize gender indifference in recipient anticipation. The alternative to this will be a combination of existing results of possible context effects on females and overconfidence of males.

Hypothesis 3A: (*Context effects on females and overconfidence of males*). Females anticipate less than what is anticipated by their male counterparts.

Hypothesis 4: (*Comparison of altruism and anticipation*). Dictators give and recipients anticipate the same amount, overall and across gender.

We predict dictators and recipients to behave the same way. It can be tested (see Table 4) that the relative size of the incentive did not have an effect on correct guesses across treatments. Furthermore, if there is no effect of gender in giving, then there should be no effect of gender in anticipation either. However, given the studies outlined in the literature, the alternative hypotheses would be:

Hypothesis 4A: (*context effects on females*). Females anticipate less than what they give.

Hypothesis 4B: (*overconfidence of males*). Males anticipate more than what they give.

4. Results

To test the hypotheses stated above, we first present the descriptive statistics before running formal tests. Table 2 shows the mean and median of amount given, number of subjects giving zero and giving £5 (half of the additional endowment), by each show-up fee amount for all subjects, and separates results into males and females. It shows in the outset that the central tendency for the amount given by female dictators to be higher in every treatment compared to their male counterparts. Below we report the first result.

[Table 2 about here]

Result 1. Female dictators tend to be more generous, in the sense of amount given, than their male counterparts. This is specifically true in the case of higher common show-up fees.

[Figure 1 about here]

[Table 3 about here]

Support. From Figure 1 and Table 2, observe that for a show-up fee of £10 and above, females give more on average than males do. The number of dictators giving zero for each show-up fee is higher for males and the number of subjects giving half or more is higher for females. Table 3 shows OLS and Tobit regression results for amount given on show-up fee, gender and other control variables.[4] In Table 3, a dummy variable indicating female turns out to be positive and significant in predicting amount given under various specifications and controls. Mann-Whitney tests show that females give more than males overall, but this result is driven by the amount given in the treatment where the show-up fee is £20. □

Engel (2010) in his meta-study reports that females are more generous overall in terms of giving than males. We find support for the same. However, this is driven by the high show-up fee treatments: when the common show-up fee is too low, male and female dictators behave in similar manner. This is in line with the findings that females are more responsive to social conditions and experimental treatments than men (Ben-Ner et al., 2004; Croson and Gneezy, 2009).[5] This, however, is different to the results obtained by Andreoni and Vesterlund (2001) and Rigdon and Levine (2011). These studies show females to be more altruistic than males when the relative opportunity cost of altruism (relative price of giving) is

[4] It is also possible to use treatment dummies, as it captures the same effect. But it has less predictive power since instead of the differential show-up fees in different treatment, the dummies only indicates a binary value.
[5] This also is similar to the results that females' altruistic decisions (Andreoni and Vesterlund, 2001) and decision to trust (Cox and Deck, 2006) vary with the size of the pie more than it does for males'.

high. But as females in the current study give more when the show-up fee is higher, this means females are being more altruistic when the opportunity cost of altruism is lower, and the effect of warm-glow is higher.

Next we investigate the effects of varying show-up fee on anticipation. Note that since anticipation is incentivized, show-up fee might have had a systematic effect on correct guesses, since the fixed incentive (£1) for a correct guess declines relatively as show-up fee increases. We did not find such evidence.[6] We did not find any effect on the amount either.

Result 2. Show-up fee does not have a significant effect on the amount anticipated by the recipients in general and also separately for males and females.

Support. Table 4 shows the descriptive statistics for amount anticipated with changing show-up fee for all subjects and for female and male subjects. Observe that there is no monotonic pattern between amounts anticipated and show-up fee in any of the specifications. Table 5 shows OLS and Tobit regression results for amount anticipated on show-up fee and other controls.[7] Show-up fee is not significant in any specification for overall data as well as separately for males and females. Mann-Whitney tests also confirm the same result. □

[Table 4 about here]

[Table 5 about here]

Result 3. Although females give more than their male counterparts (Result 1), males anticipate higher amounts than what females anticipate, but not significantly so.

[Figure 2 about here]

Support. Comparing Table 2 and Table 4, we observe that males consistently anticipate higher amounts being given to them than females for every show-up fee amount. Figure 2 summarizes the result.[8] The regression in Table 5 supports this fact as the coefficient on the female indicator variable has a negative sign. However, the variable is not significant at the 10% level. Mann-Whitney tests also show no differences in male and female anticipation. □

[6] For show-up fees 50p, £5, £10, £15 and £20 the correct guesses were 2, 9, 7, 6, and 5 respectively.

[7] One of the controls used is the ratio of females to males in a session, excluding the subject concerned. Hence for subject i in session t this ratio would be (Number of female in session $t - I_{it}$)/ (Number of male in session $t - I_{it}$) where I_{it} is an indicator variable that takes a value 1 for the gender of subject i, and 0 otherwise. This variable is introduced to control for possible observed gender effect in a session, but it did not come out to be significant.

[8] This result uncovers a general 'dovish' nature of female subjects that is also observed in other studies. For example, Rigdon and Levine (2011) observe similar outcome when dictator giving is not random. Eckel and Grossman (2001) find women significantly more likely to accept lower offers in an ultimatum game than men.

Finally, we compare giving and anticipation behaviors. It is clear, from the descriptive statistics and Figure 2 and Figure 3, that overall recipients anticipate more than what dictators actually give. A Mann-Whitney test supports this result. However, more interesting results are obtained by considering the effects of gender.

Result 4. For each show-up fee level, male recipients anticipate higher amount being given to them compared to the amount the male subjects give as dictators. Females do not show such significant pattern.

Support. Comparing Table 2 and Table 4, observe that on average males anticipate higher amounts being given to them than what they give to a recipient themselves for each and every show-up fee level. However, no such result is observed for females. Mann-Whitney tests support both observations. Figure 3 and Figure 4 summarize the result in diagrams. □

[Figure 3 about here]

[Figure 4 about here]

This does not occur due to risk aversion, as both male and female on average guess the same amount across show-up fees. Males, however, consistently guess higher amounts than females. This result reconfirms that males are on average overconfident compared to females (Deaux and Farris, 1977; Barber and Odean, 2001; Belafoutas et al., 2012), but often wrong as a result (Lundeberg et al., 1994; Barber and Odean, 2001). We term these two contrasting features of Result 4 jointly as the *Baldwin Conjecture*, named after Stanley Baldwin, the former Prime Minister of the United Kingdom who famously quoted – "*I would rather trust a woman's instinct than a man's reason.*"

5. Discussion

We study and compare the amount given by dictators and anticipated by recipients in a dictator game in which the common show-up fee is varied, but the amount to be shared is kept constant. It is known from existing studies that altruism is positively correlated with a pure income effect. However the interaction of the same with gender and the corresponding effects in anticipation behavior are not investigated. Our aim in this investigation is two-fold. First, we aim to contribute to the literature on the varied and disputed effects of gender on altruism. Second, we seek to understand the differential effects of gender on giving and anticipating behavior. This is highly relevant and important since anticipation plays an important role in the general wellbeing of an economic agent. Using survey data, Stevenson

and Wolfers (2009) show that female anticipation has increased in recent years and is correlated with their relative unhappiness. However, there exists no controlled test to compare male and female anticipation. We address this omission within this experiment.

Our study can be used as a first attempt to understand gender difference in anticipatory beliefs regarding altruism across income levels. This, in turn, can be explored further to understand the relationship between expectation and overall wellbeing. We find that dictators give more as the common show-up fee increases, but that there is no effect of the show-up fee on recipients' anticipation regarding the possible amount received. This is true in general and separately for both male and female. This result asserts that the recipients do not follow a particular pattern due to the income effect. They rather follow some type of rule of thumb and expect an average of a quarter of the endowment.

Complying with the results of several existing studies, female dictators give more than their male counterpart. But closer investigation shows that this is driven by the cases of high show-up fees. This supports the fact that females may be more generous than their male counterparts under certain conditions. But, this contradicts existing studies that show that females give more when the relative price of giving is lower. In our case, females give more when the common show-up fee is higher, i.e., the opportunity cost of giving is lower.

Finally, we observe that although on an average male dictators give less than females, male recipients anticipate more being given to them compared to female recipients. They also anticipate higher amounts being received compared to what the male dictators actually give. Females do not show such a pattern. Hence, overall females are better at introspecting the amount given to them, compared to males. These results can be explained in part by the fact that female behavior is more context-driven than male bahvior (Croson and Gneezy, 2003); females also expect lower payoffs in various situations. These results also shed further lights on the issues of overconfidence in males previously assessed in the literature.

It would be possible to introduce interesting features such as allowing subjects to earn the show-up fee and/or the endowment (real effort tasks), inducing in-group out-group features among subjects, and revealing gender information in the current set-up to address further questions. It is also possible for us to use the current structure to understand the issues of gender stereotypes (Grossman and Lugovskyy, 2011; Grossman, 2013). We leave these issues for future research.

References

Aguiar, F., Brañas-Garza, P., Cobo-Reyes, R., Jimenez, N., and Miller, L.M. (2009). “Are women expected to be more generous?” Experimental Economics 12: 93–98.

Andreoni, J. (1990). “Impure altruism and donations to public goods: A theory of warm glow giving.” Economic Journal 100: 464–477.

Andreoni, J., and Vesterlund, L. (2001). “Which Is The Fair Sex? Gender Differences in Altruism,” Quarterly Journal of Economics 116: 293-312.

Barber, B., and Odean, T. (2001). “Boys will be boys: gender, overconfidence and common stock investment,” Quarterly Journal of Economics 116: 261–292.

Belafoutas, L., Kerschbamer, R., and Sutter, M. (2012). “Distributional preferences and competitive behavior,” Journal of Economic Behavior & Organization 83: 125-135.

Ben-Ner, A., Kong, F., and Putterman, L. (2004). "Share and Share Alike? Gender-pairing, Personality, and Cognitive Ability as Determinants of Giving." Journal of Economic Psychology 25: 581-589.

Bolton, G.E., and Katok, E. (1995). “An experimental test for gender differences in beneficent behaviour.” Economics Letters 48: 287-292.

Brañas-Garza, P. (2006). "Poverty in Dictator Games. Awakening Solidarity." Journal of Economic Behavior & Organization 60: 306-320.

Brañas-Garza, P. (2009). “Expected Behavior in the Dictator Game.”, Mimeo.

Brañas-Garza, P., Kovarik, J., and Neyse, L. (2013) “Second-to-Fourth Digit Ratio Has a Non-Monotonic Impact on Altruism.” PLoS ONE 8(4): e60419.

Camerer, C. (2003). “Behavioral game theory: Experiments in strategic interaction.” Princeton University Press.

Chowdhury, S.M., and Jeon, J. (2012). “Income Effect and Altruism,” University of East Anglia Centre for Behavioural and Experimental Social Science Working Paper 2012-04.

Croson, R., and Gneezy, U. (2009). “Gender differences in preferences.” Journal of Economic Literature 47: 448-474.

Cox, J., and Deck, C. (2006). “When Are Women More Generous Than Men?” Economic Inquiry 44: 587-598.

Deaux, K., and Farris, E. (1977). “Attributing Causes for One’s Own Performance: The Effects of Sex, Norms, and Outcome,” Journal of Research in Personality 11: 59–72.

Dickinson, D.L., and Tiefenthaler, J. (2002). “What is Fair? Experimental Evidence,” Southern Economic Journal 69: 414-428.

Dufwenberg, M., and Muren, A. (2004). “Discrimination by Gender and Social Distance.” Working Paper, University of Arizona

Eckel, C.C., and Grossman, P.J. (1998). “Are Women Less Selfish than Men? Evidence from Dictator Experiments,” Economic Journal 108: 726-735.

Eckel, C.C., and Grossman, P.J. (2001). “Chivalry and Solidarity in Ultimatum Games,” Economic Inquiry 39: 171-188.

Ellingsen, T., Johannsesson, M., Tjotta, S., and Torsvik, G. (2010). “Testing guilt aversion.” Games and Economic Behavior 68: 95-107.

Engel, C (2010). “Dictator games: a meta study.” Experimental Economics 14: 583-610.

Forsythe, R., Horowitz, J., Savin, N., and Sefton, M. (1994). "Fairness in Simple Bargaining Experiments," Games and Economic Behavior 6: 347-69.

Frey, B.S., and Stutzer, A. (2002). "What can economists learn from happiness research?" Journal of Economic Literature 40: 402–435.

Gong., B., Yan, H., and Yang, C. (2009). "Gender Differences in the Dictator Experiment: Evidence from the Matrilineal Mosuo and the Patriarchal Yi," Mimeo.

Grossman, P.J., and Lugovskyy, O. (2011). "An Experimental Test of the Persistence of Gender-Based Stereotypes." Economic Inquiry 49: 598–611.

Grossman, P.J. (2013). "Holding Fast: The Persistence and Dominance of Gender Stereotypes." Economic Inquiry 51: 747-763.

Hoffmann, M. (2011). "Does higher income make you more altruistic?", Review of Economics and Statistics 93: 876-887.

Holland J., Silva A.S., and Mace, R. (2012). "Lost Letter Measure of Variation in Altruistic Behaviour in 20 Neighbourhoods." PLoS ONE 7(8): e43294.

Iriberri, N., and Rey-Biel, P. (2012). "Elicited beliefs and social information in modified dictator games: What do dictators believe other dictators do?" mimeo

Loewenstein, G. (1987). "Anticipation and the valuation of delayed consumption." Economic Journal 97: 666–684.

Konow, J. (2010). "Mixed feelings: Theories of and evidence on giving" Journal of Public Economics 94: 279-297.

Korenok, O., Millner, E.L., and Razzolini, L. (2012a). "Are dictators averse to inequality?" Journal of Economic Behavior & Organization 82: 543-547.

Korenok, O., Millner, E.L., and Razzolini, L. (2013). "Impure Altruism in Dictators' Giving." Journal of Public Economics 97: 1–8.

Kőszegi, B. (2010). "Utility from anticipation and personal equilibrium." Economic Theory 44: 415–444.

McBride, M. (2010). "Money, happiness, and aspirations: An experimental study." Journal of Economic Behavior & Organization 74 (2010) 262–276

Miller, M., and Ubeda, P. (2012). "Are women more sensitive to the decision-making context?" Journal of Economic Behavior and Organization 83: 98-104.

Lundeberg, M.A., Fox, P.W., and Punccohar, J. (1994). "Highly Confident but Wrong: Gender Differences and Similarities in Confidence Judgments," Journal of Educational Psychology 86: 114–121.

Rigdon, M.L., and Levine, A.S. (2011). "The Role of Expectations and Gender in Altruism," Mimeo.

Selten, R., and Ockenfels., A. (1998). "An Experimental Solidarity Game," Journal of Economic Behavior and Organization 34: 517-539.

Stevenson, B., and Wolfers, J. (2009). "The paradox of declining female happiness," American Economic Journal: Economic Policy 1: 190-255.

Figures and Tables

Figure 1. Show-up fee - average amount given

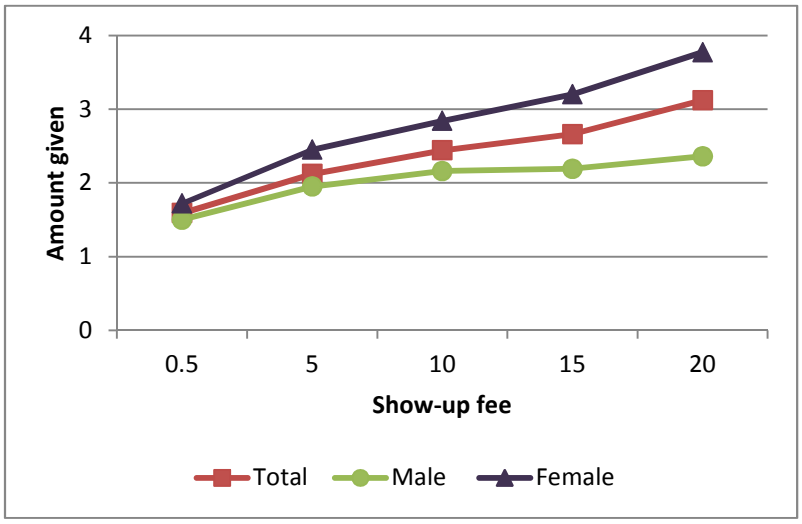

Figure 2. Show-up fee - average amount anticipated

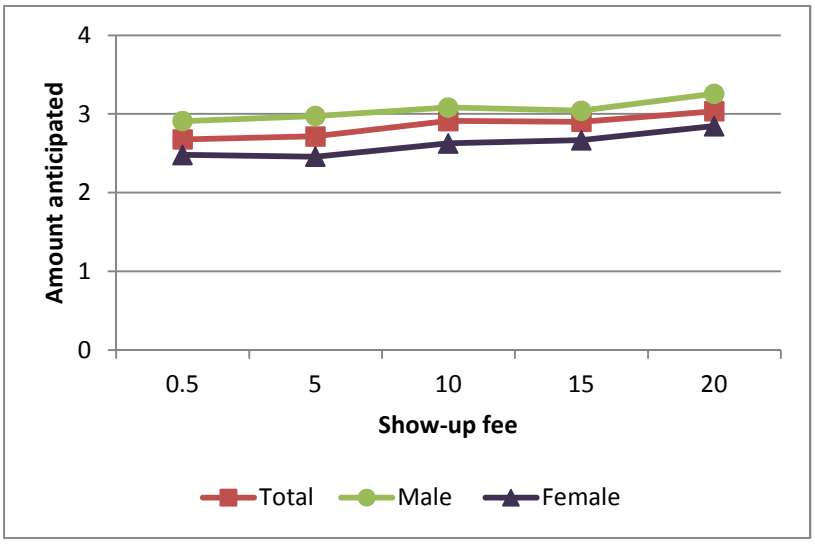

Figure 3. Amount given and amount anticipated: Male

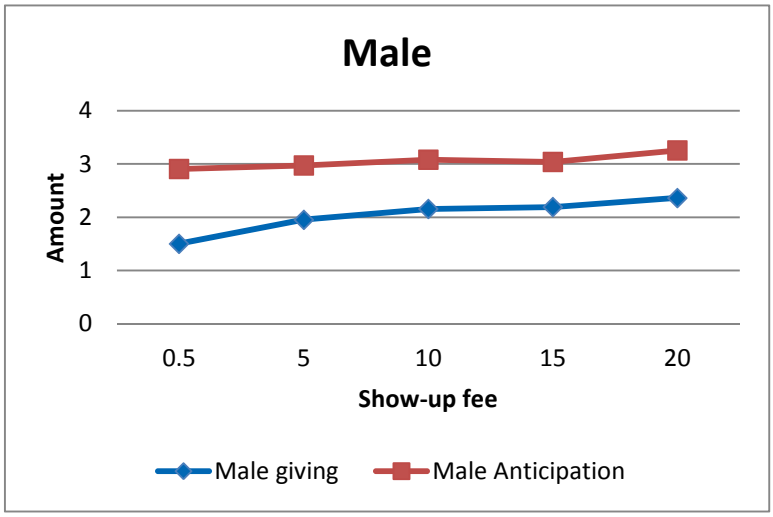

Figure 4. Amount given and amount anticipated: Female

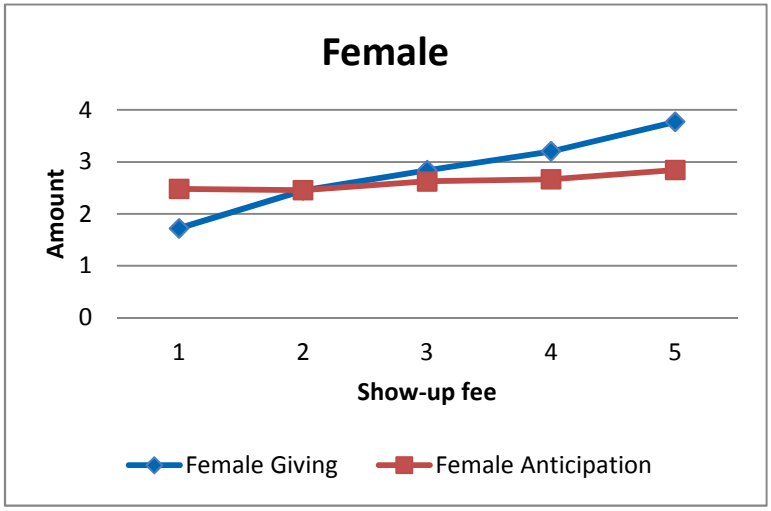

Table 1. Treatment table

Treatment	Common show-up fee	Additional amount to be divided	Number of subjects per session	Number of sessions	Number of independent observations
Treatment ½	£0.50	£10	16	3	24
Treatment 5	£5	£10	16	3	24
Treatment 10	£10	£10	16	3	24
Treatment 15	£15	£10	16	3	24
Treatment 20	£20	£10	16	3	24

Table 2. Descriptive statistics of amount given

	Show-up fee																	
	0.5			5			10			15			20			Total		
	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female
Mean	1.59	1.50	1.72	2.12	1.95	2.45	2.44	2.16	2.84	2.66	2.19	3.20	3.12	2.36	3.77	2.39	2.02	2.88
Median	1.25	1.25	1.25	2	2	1.75	2.25	1.35	3	3	2	4	3.50	2	5	2	2	3
Zero	5	4	1	5	4	1	5	3	2	3	2	1	3	2	1	21	15	6
0<giving<5	18	10	8	15	10	5	14	8	6	15	9	6	12	7	5	74	44	30
Half	1	0	1	4	2	2	5	3	2	6	2	4	8	2	6	24	9	15
Total Observations	24	14	10	24	16	8	24	14	10	24	13	11	24	11	13	120	68	52

Table 3. Regression of amount given on Show-up fee, gender and other controls

Dependant variable :amount given	Total (OLS)	Male (OLS)	Female (OLS)	Total (Tobit)	Male (Tobit)	Female (Tobit)
Intercept	1.266616***	1.166664***	2.063792***	0.8956948**	0.7249235	1.913858***
	(0.3479256)	(0 .4220459)	(0 .5267522)	(0.4107834)	(0.5217148)	(0.5627604)
Show-up Fee	0.0732416***	0 .0559124*	0.107633***	0.0817927***	0.069362*	0.1114985***
	(0.0244419)	(0 .0318948)	(0.0380333)	(0.0284185)	(0.038737)	(0.0404423)
Female	0.6908118**			0.811671**		
	(0. 3380908)			(0.3920066)		
Age $\leq$ 21	0.5069182	1.293339**	-0.6404722	0.6370411	1.537463**	-0.6357242
	(0 .4305727)	(0 .5323937)	(0.703568)	(0.5002493)	(0.6441721)	(0.7450812)
UK	-0.2143025	-0.1811699	-0.017692	-0.2423196	-0.2497014	0.0063305
	(0 .4110213)	(0 .4936502)	(0.6910195)	(0.4786901)	(0.5987043)	(0.732602)
ECO	-0.0578649	0.0110077	-0.7934443	-0.0445018	0.1101575	-0.8550458
	(0.5588928)	(0 .7447672)	(0.8617882)	(0.6476515)	(0.8954777)	(0.9191158)
# of Observations	120	68	52	120	68	52
Adjusted R^2	0.0863	0.0649	0.1042			
Chi^2 test				0.0106	0.0925	0.0778

Standard errors are in parentheses; ***,** and * indicates significance at the 1%, 5%, and 10% level respectively.

Table 4. Descriptive statistics of amount anticipated

	Show-up fee																	
	0.5			5			10			15			20			Total		
	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female
Mean	2.68	2.91	2.48	2.72	2.98	2.46	2.91	3.08	2.63	2.90	3.04	2.67	3.03	3.26	2.85	2.85	3.05	2.60
Median	3	3	3	3	3.5	2.75	3	3	3	3	3.43	2.5	3.17	3.33	3	3	3	3
Zero	2	1	1	3	2	1	1	1	0	0	0	0	1	0	1	7	4	3
0<giving<5	18	7	11	16	7	9	20	12	8	21	14	7	16	6	10	91	46	45
Half	4	3	1	5	3	2	1	0	1	3	1	2	6	4	2	19	11	8
> 5	0	0	0	0	0	0	2	2	0	0	0	0	1	1	0	3	3	0
Total observations	24	11	13	24	12	12	24	15	9	24	15	9	24	11	13	120	64	56

Table 5. Regression of amount anticipated on Show-up fee, gender and other controls

Dependant variable :amount anticipated	Total (OLS)	Male (OLS)	Female (OLS)	Total (Tobit)	Male (Tobit)	Female (Tobit)
Intercept	2.572867***	2.5933***	2.131974**	2.538935***	2.493025**	2.175391**
	(0.6901721)	(0.965555)	(0.924648)	(0.706981)	(0.9737412)	(0.9177362)
Show-up fee	0.0195546	0.0155984	0.0256577	0.0225586	0.0212323	0.0264042
	(0.022906)	(0.0360473)	(0.0308768)	(0.0235236)	(0.0364226)	(0.0307642)
Female	-0.3784436			-0.3765658		
	(0.3175737)			(0.3259672)		
Observed gender ratio	0.0827235	0.1224986	0.0989894	0.0302787	0.1113045	-0.0184633
	(0.5723478)	(0.7894537)	(0.9259526)	(0.5866764)	(0.7968798)	(0.9207637)
Age $\leq$ 21	0.283911	0.3073294	0.2704976	0.3076993	0.3358043	0.295603
	(0.3608878)	(0.5148026)	(0.5576804)	(0.370719)	(0.5223706)	(0.5538963)
UK	0.1537301	0.0477057	0.2210905	0.1500342	0.0427819	0.2204056
	(0.3533564)	(0.5162503)	(0.5233618)	(0.3631014)	(0.5237406)	(0.519213)
ECO	0.0297984	0.2526178	-0.221266	0.0350062	0.219598	-0.1604263
	(0.4552424)	(0.6696915)	(0.6725001)	(0.4672468)	(0.6785347)	(0.6675115)
# of Observations	120	64	56	120	64	56
Adjusted R^2	-0.0165	-0.0699	-0.0669			
Chi^2 test				0.6604	0.9566	0.9030

Standard errors are in parentheses; ***,** and * indicates significance at the 1%, 5%, and 10% level respectively.

APPENDIX

Instructions for the experiment (Baseline case: £10 of participation fee)

General Instruction

This is an experiment in the area of economic decision making. Various research agencies have provided funds for this research. The instructions are simple. If you follow them closely, then depending on your decision and the decision of the others, you can earn an appreciable amount of money. The experiment has two parts. At the end of today's experiment, you will be paid in private and in cash. Your identity and your decisions will also remain private. 16 participants are in today's experiment.

It is very important that you remain silent and do not look at other people's work. If you have any questions, or need assistance of any kind, please raise your hand and an experimenter will come to you. If you talk, laugh, exclaim out loud, etc., you will be asked to leave and you will not be paid. We expect and appreciate your cooperation.

Your Decisions

You have already received a £10.00 participation fee. This experiment contains the decision problem that requires you to make economic choices that determine your earnings over and above your participation fee.

At the beginning of the experiment, you will be randomly and anonymously placed into one of 8 groups (groups 1, 2, 3, 4, 5, 6, 7, and 8). Each group consists of 2 types of participants '**Participant A**' and '**Participant B**'. Again you will be randomly assigned either as a '**Participant A**' or a '**Participant B'** in your group. Both the group name and your type will be written in a card given to you at the start of the experiment. Other participants will not know your group number or your type (A or B).

Both '**Participant A**' and '**Participant B**' are paid £10 each as their respective participation fee. Every Participant A will receive an additional amount of £10.

Part I. Participant A

Participant A will make the decision to allocate this additional £10 between himself / herself and the Participant B in his/her group. Participant A can decide to give any amount in British Pounds, between 0.00 and 10.00 (up to two decimal points), to Participant B. Suppose Participant A gives X to Participant B. Then Participant A will have the remaining Y= £10.00 - X. The total earnings of Participant A will be the participation fee plus the share of the additional £10. Hence, earnings of Participant A = £10 + Y. Earnings of Participant B = £10 + X. See the following examples for clarification. All the numbers are in British Pounds:

Example 1. Suppose Participant A decides to give 7.29 to Participant B. Then the total earnings of Participant B is (participation fee + share of the additional amount) = 10 + 7.29 = 17.29. And the total earnings of the Participant A is = 10 + (10 - 7.29) = 10 + 2.71 = 12.71.

Example 2. Suppose Participant A decides to give 3.37 to Participant B. Then the total earnings of Participant B is (participation fee + share of the additional amount) = 10 + 3.37 = 13.37. And the total earnings of the Participant A is = 10 + (10 - 3.37) = 10 + 6.63 = 16.63.

Every participant will get a card at the start of the experiment. **Line 1** of the card indicates your group number. **Line 2** indicates your role in the experiment. **Line 3** shows your participation fee. **Line 4** shows the participation fee of the other participant in your group. **Line 5** shows the additional amount (£10.00) given to Participant A to be allocated between himself/herself and the Participant B in the same group. The next lines are different for Participant A and Participant B.

Participant A's card looks like the one given below. In **Line 6**, Participant A will write a number between £0.00 and £10.00 (up to 2 decimal points) in the blank space. This is the amount given to Participant B. In **Line 7**, Participant A will calculate the amount left for him/her. To calculate this, Participant A will subtract the amount written in line 6 from £10. **Line 8** shows Participant A's total earnings. This will be the participation fee plus the share of the additional £10. Hence, Participant A will **add line 3 and line 7 and write the number in line 8**. Finally, in **line 9**, Participant A calculates the total earnings of Participant B, which is the **sum of line 4 and line 6**.

1. Your group number: **8**
2. Your role: **Participant A**
3. Your participation fee: £**10**
4. Participation fee of Participant B: £**10**
5. Additional amount to be allocated: £**10**
6. Amount given to Participant B (between 0.00 and 10.00): X =_____
7. Amount left for you: £10 - X = _____
8. Your total earnings: **£10 +** _____ **=** _____
9. Participant B total earnings: **£10 +** ____ **=** ____

Here is an **example** that draws numbers from Example 1 in page 2.

1. Your group number: **8**
2. Your role: **Participant A**
3. Your participation fee: £**10**
4. Participation fee of Participant B: £**10**
5. Additional amount to be allocated: £**10**
6. Amount given to Participant B (between 0.00 and 10.00): X = £7.29
7. Amount left for you: £10 - X = £2.71
8. Your total earnings: **£10** + £2.71 = £12.71
9. Participant B total earnings: **£10** + £7.29 = £17.29

Here is another **example** that draws numbers from Example 2 in page 2.

1. Your group number: **8**
2. Your role: **Participant A**
3. Your participation fee: £**10**
4. Participation fee of Participant B: £**10**
5. Additional amount to be allocated: £**10**
6. Amount given to Participant B (between 0.00 and 10.00): X = £3.37
7. Amount left for you: £10 - X = £6.63
8. Your total earnings: **£10** + £6.63 = £16.63
9. Participant B total earnings: **£10** + £3.37 = £13.37

Participant A will get 2 minutes to make his/her decision. After making the decision, each Participant A will put his/her card inside the envelope given and seal the envelope.

To summarize, if you are Participant A, make your decision and fill out the card. But if you are Participant B, you do not have to do anything in this part of the experiment. The total earnings of Participant A will be the sum of the participation fee, and the residual amount from the additional £10 (after giving an amount to Participant B), as calculated in **line 8**. Participant A's earnings will not be affected by the decisions of participant B in the next round. This will conclude the first part of the experiment. **Are there any questions?**

Part II. Participant B

Participant B's card looks like the one given below. **Line 6** indicates participant B's guess about the amount offered to Participant B by Participant A. Line 7 shows the total guessed earnings of Participant B, which is the sum of line 3 and line 6.

1.	Your group number: **8**
2.	Your role: **Participant B**
3.	Your participation fee: £**10**
4.	Participation fee of Participant A: £**10**
5.	Total amount to be divided: £**10**
6.	Your guess about the amount offered to you (between 0.00 and 10.00): **____**
7.	Your guess about your total earnings: **£10 + ____ = ____**

In the previous part of the experiment, Participant A decided to give any amount between £0.00 and £10.00 (up to two decimal points) to Participant B. In this part of the experiment, Participant B will have to guess the amount Participant A has given to him/her. If the guess is close enough to the actual amount given by Participant A, then Participant B will get an extra reward of £1.

Suppose Participant A has given X to Participant B. Participant B guesses that the amount is Z. If the difference between X and Z is less than or equal to 50 Pence, then Participant B will get the £1 reward over and above the participation fee and the amount given by Participant A.

Example 1. Suppose Participant A decides to give £7.29 to Participant B. If Participant B rightfully guesses an amount which is in between £6.79 and £7.79, then Participant B will get the reward of £1. This is because £7.29 - £0.5 = £6.79 and £7.29 + £0.5 = £7.79. If Participant B guesses numbers outside this range, then he/she will not get the reward.

Example 2. Suppose Participant A decides to give £3.37 to Participant B. If Participant B rightfully guesses an amount which is in between £2.87 and £3.87, then Participant B will get the reward of £1. This is because £3.37 - £0.5 = £2.87 and £3.37 + £0.5 = £3.87. If Participant B guesses numbers outside this range, then he/she will not get the reward.

Participant B will write the guess in **Line 6**. He/she will also need to write the total earnings in **line 7**. This will be the **sum of line 3 and line 6**. Participant B will get 2 minutes to make his/her decision. After making the decision, each Participant B will put his/her card inside the envelope given and seal the envelope. The total earnings of Participant B will be the sum of the participation fee, amount given to him/her by Participant A, and the £1 reward (if won). This will conclude the second part of the experiment. **Are there any questions?**