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The Role of Expectations and Gender in Altruism

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Abstract

A central question in the study of altruism has been whether there is a systematic gender difference in giving behavior. Most experimental economics research has found that women are more generous than men. Evidence also suggests that gender differences depend upon the price of giving: males are more altruistic when the price of giving is low, while females are more altruistic when the price of giving is high. However, in the modified dictator game, a key variable in one's decision to give is what one expects to receive. Systematic differences in those expectations may well contribute to systematic differences in altruistic behavior. We show that these expectations drive an important and widely reported result. When these expectations are homegrown, we replicate the finding. When expectations of receiving are uniform rather than homegrown, gender differences in price sensitivity disappear: males and females give equal amounts. This suggests that it is gender differences in *expectations about others' giving* — not differences in tastes for fairness — that explains the previous results.

JEL: C91, D00, L14

1 Introduction

Which is the fairer sex? A central question in the study of altruism is whether there is a systematic gender difference in charitable giving behavior (Kaplan and Hayes, 1993; Belfield and Beney, 2000; Hall, 2004; Havens, *et al.*, 2006; Vesterlund, 2006; Simmons and Emanuele, 2007). With women now controlling more than half of the private wealth in the United States and expected to inherit 70% of the

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$41 trillion in intergenerational wealth transfer over the next 40 years, women's influence on the practice of philanthropy cannot be ignored (Taylor and Shaw-Hardy, 2005; Women's Philanthropy Institute, 2009). From a philanthropic perspective, understanding differences in male and female contribution decisions is crucial for non-profit organizations designing strategies for fund raising. Defining altruistic behavior as the act of giving up something of value to improve the well-being of another, this paper utilizes a laboratory experiment to examine the extent to which males and females differ in their "demands for altruism".

As with prior research on altruistic behavior, we use the dictator game (DG) played between a dictator and a recipient to model the basic environment of a charitable contribution decision (Forsythe, *et al.*, 1994). In this game, a dictator is endowed with M dollars and must decide on an amount to keep and an amount to transfer to the recipient, determining the final allocation between the two players. There is a Hold Value (HV) for every dollar she keeps and a Pass Value (PV) for every dollar she transfers. Together these determine the relative price of giving. For example, if $HV = PV = 1$, then the price of giving is equal to 1 — a case where 1 unit donated aids the recipient by 1 unit. This represents a scenario where a person makes a donation to a charitable cause, but does not write off the amount on taxes. When the price of giving is 1, experimental research has consistently found that female dictators are more generous than male dictators (Eckel and Grossman, 1998; Selten and Ockenfels, 1998; Dickinson and Tiefenthaler, 2002; Eckel and Grossman, 2006; Rigdon, *et al.*, 2009).[1] If instead $HV = 1$ and $PV = 2$, then the price of giving is $\frac{1}{2}$ and hence giving is relatively inexpensive. This represents a scenario where a donor has offered a matching gift; that is, a conditional commitment to match the contributions of others at a specific rate (Eckel and Grossman, 2003; Davis, *et al.*, 2005; Bekker, 2005; Eckel and Grossman, 2006; Karlan and List, 2007; Meier, 2007). The standard finding about the relationship between gender differences and the price of giving is that when giving is relatively less expensive, males are more generous than females; when giving is more expensive, females are more generous than males (Andreoni and Vesterlund, 2001). This has been replicated in similar studies (Dickinson and Tiefenthaler, 2002) and is a widely reported result (Croson and Gneezy, 2008; Eckel and Grossman, in press; Andreoni, *et al.*, 2008).[2]

Giving environments, both naturally occurring and those in the laboratory, are also possible receiving environments: those making contribution decisions know that they may also, with some probability,

[1] Bolton and Katok (1995) find no significant differences in dictator behavior across gender; though their experiment used a restricted message space for giving options of either zero or half of the endowment.

[2] Interestingly, Meier (2007) found no gender differences in price sensitivity in a randomized field experiment on matching and charitable giving.

be the beneficiary of someone else's giving decision. Thought of from this broader perspective, a decision of how much to give may well be a function, in part, of the donor's expectation of receiving. Suppose, for example, that a donor knows she will also be the beneficiary of someone else's giving decision, but does not know what that decision will be. Instead, she has some expectation about it. She may give less if she expects that she will get less when in a beneficiary role. Of course, sometimes the expectation of receiving is ≈ 0. This is the case in standard DG environments in laboratory studies: by implementing a one-shot standard DG where half of the participants are dictators and the other half are recipients, there can be no expectation by dictators of receiving and hence expectations of receiving cannot influence giving decisions (Eckel and Grossman, 1998; Selten and Ockenfels, 1998; Eckel and Grossman, 2006; Rigdon, *et al.*, 2009). Our point is that this is a special case and that, generally speaking, people who expect others to be more/less generous may be more/less willing to donate money in part because they expect to receive more/less. People with different expectations of receiving may make different donation decisions. The key here is that — when making their decisions as dictators — people also have different homegrown expectations over what they may receive and a dictator's decision about how much to give may be a function of those expectations.

The role expectations of receiving play in decisions of charitable giving, especially in the literature reporting different price sensitivity of giving across gender, has been overlooked. In these experiments, donors are on both the giving *and* receiving side: each donor makes allocation decisions across a variety of budgets knowing that she will also be on the receiving end of someone else's allocation decision (Andreoni and Vesterlund, 2001; Dickinson and Tiefenthaler, 2002).[3] Our point is that in these modified DG environments, expectations of receiving are neither trivial nor controlled for. Donors have homegrown expectations over what they will receive and a donor's decision about how much to give may be a function of those. Ignoring expectations as a variable entering a donor's decision-making assumes that any differences in expectations are uniform across genders. However, if there is gender variance in expectations, that variance may well influence observed giving behavior. As a result, it may be that males and females have different priors about other people's giving and this differentially influences their own giving decisions.

Our experiment aims to address this question: is the apparent different price sensitivity of giving across genders instead a reflection of differences in expectations of receiving? To do so we manipulate the price of giving across budget sets in a modified DG in a laboratory setting. In the baseline

[3] We discuss the general environment in more detail in Section 2.

condition, we let subjects appeal to their homegrown expectations of receiving (as in Andreoni and Vesterlund (2001)). In the treatment condition, we exogenously control expectations of receiving in a non-trivial, uniform way using a random device to determine dictator decisions of one-half of the subjects. The results are striking: when donors' expectations of what others might give them are allowed to be homegrown, we replicate the previous findings; however, when expectations are exogenously determined, *all* gender differences in giving disappear. So, which is the fairer sex, males or females? The answer is that it depends crucially on their expectations.

The next section defines the features of the modified DG, which is equivalent in nature to the familiar Western holiday tradition affectionately known as "Secret Santa". We highlight three reasons why this is an important environment to study. Section 3 discusses the experimental design, including our experimental protocol and the mechanism for exogenously imposing expectations of receiving. Section 4 presents the results and Section 5 concludes.

2 Secret Santa Dictator Game

Imagine you have been invited to a Secret Santa party with $2n$ people. For the party, every person *buys* a gift costing no more than M for exactly one other person. Additionally, every person *receives* a gift from exactly one other person. Receivers never find out who their Givers are so that gift giving is completely anonymous. A further constraint is that there are no 2-person Giver–Receiver cycles. This is a modified DG and is an (almost) random network of the $2n$ people.[4]

A natural question once you decide to attend is how much of the feasible amount M you should spend on the gift. There are three potential components to your decision: preferences, expectations, and the price of giving. First, you have a *ceteris paribus* preference for giving some amount of M. Perhaps you are the type who would prefer to spend as little as possible (*Homo Economicus*) or perhaps you are the type who has social preferences, having a preference for the well-being of others (*pure altruism*) or you receive a good feeling from giving (*warm glow altruism*). Second, you form an expectation of getting some amount of someone else's M in the form of a gift. As a result, you might update your preference in light of your expectation. For example, if you think everyone else is going to buy Boggle, you might not want to spend very much of your M, regardless of your preference for giving. This expectation of what you might receive as a gift directly impacts your giving decision. A

[4]One feature that may be present at a Secret Santa party is that guests open their gifts and everyone has the opportunity to see what was given. This is not the case in our modified DG as it is completely anonymous, with donation rates never being made public.

third component is the price of giving (P). You begin with M and any amount you do not spend you hold (X). Let α be the value to you of holding X — the Hold Value. The price of your earnings, p_D, is calculated as the inverse of HV. Whatever amount you spend on a gift, you have passed to the recipient (Y). Let β be the value to the recipient of passing Y — the Pass Value. The price of the recipient's earnings, p_R, is calculated as the inverse of PV. The ratio of these two prices, $\frac{p_R}{p_D}$, is the relative price of giving (P). It is possible that the observed differences in giving behavior by males and females across relative prices are due directly to changes in the relative price of giving. However, it is also possible that males and females have different homegrown expectations about what they might receive when in the role of recipient. Our experiment directly controls for the subjects' homegrown expectations about what they might receive, varying both P and budgets, to see if giving behavior still varies across genders.

Why is the Secret Santa DG interesting? There are at least three reasons. First, it models a common aspect of giving contexts outside of the laboratory. When choosing whether to donate to a charity, you do so knowing that there is some chance that you will benefit from others' generosity to a possibly different charity (for instance, because there is some chance of a natural disaster). Second, the game has been widely utilized in studies on social preferences and giving behavior (Harbaugh and Krause, 2000; Andreoni and Vesterlund, 2001; Andreoni and Miller, 2002; Dickinson and Tiefenthaler, 2002; Carpenter, 2005; Fisman, *et al.*, 2005).[5] It is therefore methodologically relevant. Third, in implementing an environment like the Secret Santa DG in the laboratory, every subject makes allocation decisions and those decisions are appropriately incentivized. In the standard DG, an experimentalist only obtains decisions by the dictators, and hence obtains $\frac{N}{2}$ observations per session, where N is the total number of participants paid. In the modified DG, an experimentalist obtains N observations per session since all participants make decisions in the role of dictator. Therefore, the method of role reversal is viewed as an efficient way to collect data about giving behavior. It is an empirical question though the degree to which the nature of the decision-making environment influences giving behavior.[6]

3 Experimental Design and Procedures

The baseline condition (BASE) is the Secret Santa DG, and allows dictators to have endogenous expectations. It will serve as a replication of previous experiments reporting gender variation across price

[5] The game was first introduced as a modified DG with role reversal by Andreoni and Miller (2002).

[6] Iriberri and Rey-Biel (2009) find that role uncertainty in the DG — which serves a similar purpose as role reversal — generates significantly higher altruism than a DG with role certainty.

of giving.[7] Our treatment condition (TREAT) imposes exogenous expectations, directly controlling a dictator's expectations of receiving when in the role of recipient. This is accomplished using a random device to determine dictator decisions of one-half of the subjects.

3.1 Allocation Decision Task

The allocation decision task is the same across the two conditions. Appendix A provides a copy of the decision sheet the dictators completed. Dictators make eight allocation decisions, dividing up an endowment of tokens between themselves and a recipient across eight budget sets.[8] The budgets differ in the number of tokens to be divided and the number of points a token is worth to each subject. The endowment of tokens are worth either 40, 60, 75, or 100. Tokens are worth either 1, 2, or 3 points each and points are worth $0.10 cents at the end of the experiment. Table 1 lists all eight allocation decisions. Consider the first decision: passing a token raises the Recipient's payoff by 3 points, and reduces the Dictator's payoff by 1 — the price of the Recipient's payoff is 0.33 and the price of the Dictator's payoff is 1. Thus, the first allocation decision is one where the $P = 0.33$, and hence, low. The last decision involves dividing the same number of tokens, but has a Hold Value of 3 points and a Pass Value of 1 point, resulting in $P = 3$. Here the relative price of giving is high.

3.2 Baseline

In BASE, all subjects were instructed to complete a decision sheet with the eight allocation decisions. Appendix B provides a copy of the instructions. The decision sheets were collected and shuffled, and each subject randomly paired with another subject. One of the decisions was randomly selected for money payoff by rolling an eight-sided die at the front of the room. The number rolled corresponded to the decision used for payoff: one of the subjects received the points they allocated in the Hold portion of that decision, and the other subject in the pair received the points allocated in the Pass portion of that decision. Each subject was then paired again with a different subject in the experiment. One of the other subject's eight decisions was randomly chosen to be carried out for money payoff: one subject in the pair receives the points in the Hold portion of the decision, and the other received the points in the Pass portion. In this way, each subject plays the role of dictator and also the role of recipient.

[7]The baseline will be conducted with instructions and procedures identical to Andreoni and Vesterlund's.

[8]There were four versions of the decision sheet in each session with a different ordering of the decisions.

Budget	Tokens	HV	PV	P_D	P_R
1	40	1	3	1.00	0.33
2	60	1	2	1.00	0.50
3	75	1	2	1.00	0.50
4	60	1	1	1.00	1.00
5	100	1	1	1.00	1.00
6	60	2	1	0.50	1.00
7	75	2	1	0.50	1.00
8	40	3	1	0.33	1.00

Table 1: Allocation Decision Task

3.3 Treatment

In contrast to BASE, the allocation decision task in TREAT took place in two stages. In the first stage, half of the subjects made dictator decisions on the decision sheet across budget sets. All of the dictator decision sheets were collected, shuffled, and paired with one recipient. One of the decisions was randomly selected for money payoff by rolling an eight-sided die at the front of the room. The dictator received the points allocated in the Hold portion of that decision, and the recipient received the points allocated in the Pass portion. In the second stage, the other half of the subjects played the role of dictator and those who were dictators in the first stage played the role of recipient. In this stage, rather than having a subject decide on the amounts to Hold and Pass, a random device was used. One of the budget sets was randomly selected for money payoff by rolling an eight-sided die at the front of the room. Bingo balls numbered $0, 1, 2, \ldots, N$, where N was the total amount of tokens to be divided in the selected decision, were placed into a bingo cage at the front of the room. One ball was drawn by the experimenter. The number on the ball indicated the Pass amount for the dictator, and the Hold amount was N minus the Pass amount. In this way, the dictator's decision was determined by a random draw from a bingo cage. As a result, all dictators in the first stage have the same expectations of receiving — namely, expectations based on a uniform distribution.

Note that by using this mechanism we guarantee that all dictators in the first stage have the same expectations of receiving — namely, expectations based on a uniform distribution. We did not merely ask dictators to report their expectations about what they would receive. That would give us a measure of what subjects report they expect to receive not necessarily what they expect to receive, and it is an empirical question whether and to what extent reports of those expectations to an experimenter track those expectations reliably.

3.4 Procedures

The experiment followed standard procedure. Subjects received a $5 show-up payment. At the start, one subject was randomly chosen to serve as a monitor for the session and was paid a flat-fee of $20 for participation. The payment amount was private information to the monitor. The monitor's task was to ensure all procedures were followed as described in the instructions and to ensure double-blind anonymity for the subjects. Upon entering the laboratory, subjects were seated at a computer terminal with privacy dividers and signed a consent form. Each subject received a set of instructions and a decision sheet along with a claim check number attached. The experimenter read the instructions aloud and subjects were given an opportunity to ask any questions. Once there were no more questions, the subjects participated in one of the experimental conditions. When the experiment was finished, subjects were asked to complete a demographic questionnaire.[9] Payoff calculations were completed and subjects claimed their earnings in private by handing the monitor their claim check number.[10] This completed the session.

The sessions were run at the Robert Zajonc's Laboratory in the Institute for Social Research at the University of Michigan. Each session had an even number of participants with at least 16 subjects and no more than 20. As with Andreoni and Vesterlund (2001), we did not recruit subjects specifically to have sessions with all men or all women. Instead, our goal was to achieve a mix of genders for each experimental session. A session took less than 1 hour to complete.

3.5 Subject Pool

Subjects were recruited using a subject pool of undergraduates at the University of Michigan. A total of 62 subjects, 30 males and 32 females, participated in BASE. A total of 57 subjects, 26 males and 31 females, participated in TREAT. Table 2 provides a summary of the socioeconomic characteristics of our sample. The majority of the subjects were at least juniors in college with only a small fraction reporting a major of business or economics.

[9]The questionnaires were numbered so that they matched the claim check number on the decision sheet, allowing subjects' personal information to be paired with their decisions.

[10]It is worth noting that the experimenter never collected decision sheets or questionnaires from subjects, nor handled payments, and therefore we have no way to match up decisions or personal information with a particular subject.

Males	47.06%
Freshman	10.17%
Sophomore	22.88%
Junior	20.34%
Senior	37.29%
5^{th} Yr	9.33%
Economics/Business	10.08%

Table 2: Summary Statistics

4 Results

We start by reporting the results from Andreoni and Vesterlund (2001) and compare the from BASE to what they found. Our results largely replicate their statistically significant results. Then we discuss the contribution decisions made by dictators in the treatment, and demonstrate that there are no significant gender differences as the price of giving changes once expectations in receiving are properly controlled for in the Secret Santa DG.

Table 3 reports results from Andreoni and Vesterlund (2001) for each of the eight allocation tasks. The first column is income, which is calculated as the dictator's earnings if she holds all of the tokens. The second column is the relative price of giving, which is the ratio between price of the dictator's payoff and the price of the recipient's payoff ($\frac{p_R}{p_D}$). The third (fourth) column reports the mean payoff to the recipient if the dictator was a male (female). Mean payoff is calculated as the number of tokens passed times the pass value. The fifth column reports the p-values as reported by Andreoni and Vesterlund (2001) — these values are based on one-tailed tests — and the next column is the substantive result based on this test. Notice that in the first three decisions when $P < 1$, males are more generous than females. In the next two decisions when $P = 1$, females are more generous than males.[11] For the last three decisions $P > 1$, and in this range giving is expensive, females are more generous than males. These are the gender differences as reported by Andreoni and Vesterlund (2001). The final two columns report the p-value and result if a two-tailed test is applied to Andreoni and Vesterlund's data. Given that there is not an *a priori* directional alternative hypothesis about gender differences in giving for a particular relative price, we conduct statistical tests on our data using a two-tailed alternative. Therefore, in Table 3, we also report Andreoni and Vesterlund's results were a two-tailed alternative to be applied. Notice that most of the conclusions remain the same, *except* the observed

[11] This result replicates the observed gender difference in the standard DG.

Income	Price	Males	Females	p-value†	Result	p-value‡	Result
\$4	$\frac{1}{3}$	4.18	3.01	0.026	M>F	0.052	M>F
\$6	$\frac{1}{2}$	4.30	3.49	0.07	M>F	0.14	M=F
\$7.50	$\frac{1}{2}$	5.00	4.03	0.063	M>F	0.126	M=F
\$6	1	1.36	1.91	0.013	M<F	0.026	M<F
\$10	1	2.33	2.92	0.079	M<F	0.158	M=F
\$12	2	1.21	1.82	0.020	M<F	0.040	M<F
\$15	2	1.42	2.29	0.010	M<F	0.020	M<F
\$12	3	0.67	1.32	0.002	M<F	0.004	M<F
Average		2.56	2.60	0.240	M=F	0.480	M=F
N		95	47				

† p-value based on one-tailed test
‡ p-value based on two-tailed test

Table 3: Mean Payoff to Recipient — Data from Andreoni and Vesterlund

gender difference that males are more generous than females when $P < 1$ essentially disappears. This is important to note as we turn to discussing our results from the baseline.

Next, turning to our results, Table 4 reports the results from both conditions, BASE and TREAT. Comparing the results in BASE with those by Andreoni and Vesterlund, notice that we easily replicate two results: (i) females are more generous than males when $P = 1$ and (ii) females are more generous than males when it is expensive to give (i.e. when $P > 1$). What about when $P < 1$? If we use the more conservative two-tailed test, notice that we essentially replicate their findings — there are essentially no statistically significant gender differences when giving is less expensive. We therefore argue that our baseline serves as a reasonable replication.

So we turn now to comparing the results in BASE and TREAT. Notice that for TREAT — regardless of the relative price of giving — there are no significant gender differences in donations (Result column). The significant gender difference found that females are more generous than males in the range of neutral and expensive giving completely disappear in TREAT. There are no longer any gender differences in generosity for any of the allocation tasks.

In order to better understand the nature of charitable giving and to directly show that the effect of gender is statistically distinct across BASE and TREAT, we estimate the following regression model:[12]

[12] Results from the Hausman specification test suggest our model does not meet the key assumption of the random-effects model. As a result, we report regression results from a standard regression with clustered errors.

Income	Price	Baseline Males	Baseline Females	Baseline p-value†	Baseline Result	Treatment Males	Treatment Females	Treatment p-value†	Treatment Result
$4	$\frac{1}{3}$	2.95	3.31	0.6901	M=F	2.35	1.54	0.3013	M=F
$6	$\frac{1}{2}$	3.53	3.41	0.8990	M=F	2.32	1.92	0.6358	M=F
$7.50	$\frac{1}{2}$	3.64	4.07	0.7028	M=F	2.65	2.23	0.6602	M=F
$6	1	0.80	1.59	0.0338	M<F	0.98	1.13	0.6902	M=F
$10	1	1.01	2.53	0.0094	M<F	1.81	1.68	0.8172	M=F
$12	2	0.67	1.45	0.0441	M<F	0.75	1.15	0.3150	M=F
$15	2	0.55	2.00	0.0028	M<F	1.31	1.39	0.8938	M=F
$12	3	0.32	0.87	0.0362	M<F	0.59	0.84	0.4297	M=F
Average		1.68	2.40	0.0306	M<F	1.60	1.49	0.5165	M=F
N		30	32			26	31		

† p-value based on a two-tailed test

Table 4: Mean Payoff to Other Party in BASE and TREAT

$$Contribution_{ij} = \beta_0 + \beta_1 \times Endowment_{ij} + \beta_2 \times Price_{ij} + \beta_3 \times Gender + \beta_4 \times Treat + \beta_5 \times Interact + \epsilon_{ij}$$

The variables are defined as follows: *Contribution* is the dollar value of contribution received by the recipient conditional on the price of giving being larger than one[13]; *Endowment* is the dollar value of the endowment ($4, $6, or $7.50); *Price* is the price of giving $1 to the charity ($0.33, $0.50, $1.00, $2.00, or $3.00); *Gender* is a dummy variable for gender of the participant (male= 1, 0 otherwise); *Treat* is a dummy variable for the treatment (TREAT= 1, 0 otherwise); *Interact* is *Gender* × *Treat*. We also estimated a model with controls for demographic characteristics: *Major* is a dummy variable (Economics/Business major = 1, 0 otherwise); *YrCollege* is a dummy variable for the year in college (Freshman= 1; Sophomore= 2, etc.); *FamInc* is a dummy variable for the family's income (< 60K= 0; 60–100K= 0.33; 100–160K= 0.67; > 160K= 1). Results from both specifications are reported in Table 5. The important thing to notice about these specifications is that the interaction term between gender and the treatment is significant ($p = 0.10$). This provides further evidence that the effect of gender is different across the two conditions.

Using the results, we also calculated the marginal effect of gender in both conditions (Brambor, *et al.*, 2006).

[13] Results are similar when all ranges of the price of giving are used.

	Dependent Variable Contribution (Y)	
Intercept	0.87	1.16**
	(0.34)	(0.43)
Endowment	0.02***	0.02***
	(0.003)	(0.003)
Price	−0.08	−0.08
	(0.07)	(0.07)
Gender	−1.02**	−1.07
	(0.36)	(0.37)
Treat	−0.45	−0.56
	(0.41)	(0.39)
Interact	0.87*	0.87*
	(0.53)	(0.53)
Major		−0.69**
		(0.36)
YrCollege		0.12
		(0.45)
FamInc		−0.44
		(0.42)
Number of observations	595	580
Prob > F	0.000	0.000
R^2	0.0880	0.1153

*** ≤ 99% significance ** 95% significance
* 90% significance

Table 5: Standard Regressions with Clustered Errors

$$\frac{\partial Y}{\partial X} = \beta_3 + \beta_5 \, Treat$$

This represents the change in average giving for a male respondent relative to a female respondent. The marginal effect of gender in the baseline is −1.07: the donation amount decreases by $1.07 when the dictator is male instead of female. The marginal effect of gender in the treatment is −0.20: the donation amount decreases by a much smaller amount $0.20 when dictator is male instead of female. The 95% confidence intervals are below zero in the baseline, but include zero in the treatment. This provides further evidence that there is no statistically significant gender effect in the treatment but there is in the baseline. Overall, then, these regression results supporting our main findings in Table

4: the differences in altruistic behavior between males and females when expectations of receiving are allowed to be endogenous disappear when we provide tight experimental control over them in TREAT.

5 Conclusions

This paper contributes to a better understanding of the relationship between gender and giving behavior. One key variable in donor's decision to give is what one expects to receive. Systematic differences in those expectations may well contribute to systematic differences in altruistic behavior. In particular, we show that these expectations drive an important and widely reported result. When these expectations are homegrown, we replicate the existing finding that males tend to be more generous than females when the price of giving is low while females tend to be more generous than males when the price of giving is high. However, when expectations of receiving are uniform rather than homegrown, gender differences in price sensitivity disappear: males and females give equal amounts. This suggests that it is gender differences in expectations about others' giving, not differences in tastes for fairness, that explains the previous results.

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A Allocation Decision Task

DECISION SHEET

Directions: Please fill in all the blanks below. Make sure the number of tokens listed under *Hold* plus the number listed under *Pass* equals the total number of tokens available. Remember, all points are worth $0.10 to all subjects.

1. Divide 40 tokens: *Hold* ____________ @ 3 points each, and *Pass* ____________ @ 1 point each.
2. Divide 40 tokens: *Hold* ____________ @ 1 point each, and *Pass* ____________ @ 3 points each.
3. Divide 60 tokens: *Hold* ____________ @ 2 points each, and *Pass* ____________ @ 1 point each.
4. Divide 60 tokens: *Hold* ____________ @ 1 point each, and *Pass* ____________ @ 2 point each.
5. Divide 75 tokens: *Hold* ____________ @ 2 points each, and *Pass* ____________ @ 1 point each.
6. Divide 75 tokens: *Hold* ____________ @ 1 point each, and *Pass* ____________ @ 2 points each.
7. Divide 60 tokens: *Hold* ____________ @ 1 point each, and *Pass* ____________ @ 1 point each.
8. Divide 100 tokens: *Hold* ____________ @ 1 point each, and *Pass* ____________ @ 1 point each.

B Instructions for Baseline

INSTRUCTIONS

Welcome

This is an experiment about decision making. Each of you has earned $5 for showing up on time; any additional earnings will be added to this amount. You will be paid for participating, and the amount of money you will earn during the experiment depends on the decisions that you and the other participants make. If you make good decisions, you stand to earn a considerable amount of money.

The entire experiment should be complete within an hour. At the end of the experiment you will be paid privately and in cash for your decisions.

Your Identity

You will never be asked to reveal your identity to anyone during the course of the experiment. Neither the experimenters nor the other subjects will be able to link you to any of your decisions. In order to keep your decisions private, *please do not reveal your choices to any other participant.*

Claim Check

At the top of this page is a number on a yellow piece of paper. This is your Claim Check. Each participant has a different number. You may want to verify that the number on your Claim Check is the same as the number on the top of *page 4*.

You will present your Claim Check to a monitor at the end of the experiment to receive your cash payment.

Please remove your claim check now and put it in a safe place.

THIS EXPERIMENT

In this experiment you are asked to make a series of choices about how to divide a set of tokens between yourself and one other subject in the room. You and the other subject will be paired randomly, and you will not be told each others identity.

As you divide the tokens, you and the other subject will each earn points. Every point that subjects earn will be worth 10 cents. For example, if you earn 58 points you will make $5.80 in the experiment.

Each choice you make is similar to the following:

Example: Divide 50 tokens: *Hold* ________@ 1 point each, and *Pass* ________ @ 2 points each.

In this choice you must divide 50 tokens. You can keep all the tokens, keep some and pass some, or pass all the tokens. In this example, you will receive 1 point for every token you hold, and the other player will receive 2 points for every token you pass. For example, if you hold 50 and pass 0 tokens, you will receive 50 points, or $50 \times \$0.10 = \$5.00$, and the other player will receive no points and $0. If you hold 0 tokens and pass 50, you will receive $0 and the other player will receive $50 \times 2 = 100$ points, or $100 \times \$0.10 = \$10.00$. However, you could choose any number between 0 and 50 to hold. For instance, you could choose to hold 29 tokens and pass 21. In this case you would earn 29 points, or $29 \times \$0.10 = \$2.90$, and the other subject would receive $21 \times 2 = 42$ points, that is $42 \times \$0.10 = \$4.20$.

Here is another example:

Example: Divide 40 tokens: *Hold* ________ @ 3 points each, and *Pass* ________ @ 1 point each.

In this example every token you hold earns you 3 points, and every token you pass earns the other subject 1 point. Again, each point you earn is worth $0.10 to you, and each point the other subject earns is worth $0.10 to the other subject.

Important Note: In all cases you can choose any number to hold and any number to pass, but the number of tokens you hold plus the number of tokens you pass must equal the total number of tokens to divide. Please feel free to use the calculator provided by the experimenter to calculate points and to assure that all of the tokens have been allocated.

EARNING MONEY IN THIS EXPERIMENT

You will be asked to make 8 allocation decisions like the examples we just discussed. We will calculate your payments as follows:

After all your decisions forms have been collected, we will shuffle the forms and randomly pair your form with that of another subject in this experiment. Using an 8-sided die, we will select one of your decisions to carry out. You will then get the points you allocated in the 'hold' portion of your decision, and the other subject will get the points you allocated on the 'pass' portion of your decision. You will then be paired again with a different subject in the experiment. This time we will randomly choose one of the other subjects eight decisions to carry out. The other subject will get the points in the 'hold' portion of the decision, and you will get the points in the 'pass' portion.

We will then total the points from these two pairings and determine your monetary earnings. These earnings will be placed in your earnings envelope. The monitor chosen at the beginning of the experiment will verify that these procedures are followed.

After all the calculations have been made, the monitor will ask you to bring up your claim check and will hand you your earnings envelope. This will again help to guarantee your privacy.

On the following page are the 8 choices we would like you to make. Please fill out the form, taking the time you need to be accurate. When all subjects are done, we will collect the forms.

Thank you very much. Good luck!

C Instructions for Treatment

INSTRUCTIONS

Welcome

This is an experiment about decision making. Each of you has earned $5 for showing up on time; any additional earnings will be added to this amount. You will be paid for participating, and the amount of money you will earn during the experiment depends on the decisions that you and the other participants make. If you make good decisions, you stand to earn a considerable amount of money.

The entire experiment should be complete within an hour. At the end of the experiment you will be paid privately and in cash for your decisions.

Your Player Role: Player A

Each of you has been randomly selected to either be a PLAYER A (A) or a PLAYER B (B). Each Player A will be paired randomly with a Player B, and you will not be told each other's identity. **You are a Player A.**

Your Identity

You will never be asked to reveal your identity to anyone during the course of the experiment. Neither the experimenters nor the other subjects will be able to link you to any of your decisions. In order to keep your decisions private, *please do not reveal your choices to any other participant.*

Claim Check

At the top of this page is a number on a yellow piece of paper. This is your Claim Check. Each participant has a different number. You may want to verify that the number on your Claim Check is the same as the number on the top of *page 4*.

You will present your Claim Check to a monitor at the end of the experiment to receive your cash payment.

Please remove your claim check now and put it in a safe place.

THIS EXPERIMENT

This experiment will consist of two stages. In the first stage, A's are asked to make a series of choices. Both A and B will earn points, depending on the choices that A makes. Every point that subjects earn will be worth 10 cents. For example, if you earn 58 points you will make $5.80 in the experiment. In the second stage, both A's and B's will have the opportunity to earn more points via a random device that will be explained shortly.

In the first stage, each choice A makes is similar to the following:

Example: Divide 50 tokens: *Hold* ________@ 1 point each, and *Pass* ________ @ 2 points each.

In this choice A must divide 50 tokens. A can keep all the tokens, keep some and pass some, or pass all the tokens. In this example, A will receive 1 point for every token A holds, and B will receive 2 points for every token A passes. For example, if A holds 50 and passes 0 tokens, A will receive 50 points, or $50 \times \$0.10 = \$5.00$, and B will receive no points and $0. If A holds 0 tokens and passes 50, A will receive $0 and B will receive $50 \times 2 = 100$ points, or $100 \times \$0.10 = \$10.00$. However, A could choose any number between 0 and 50 to hold. For instance, A could choose to hold 29 tokens and pass 21. In this case A would earn 29 points, or $29 \times \$0.10 = \$2.90$, and B would receive $21 \times 2 = 42$ points, that is $42 \times \$0.10 = \$4.20$.

Here is another example:

Example: Divide 40 tokens: *Hold* ________ @ 3 points each, and *Pass* ________ @ 1 point each.

In this example every token Player A holds A earns 3 points, and every token Player A passes earns Player B 1 point. Again, each point A earns is worth $0.10 to A, and each point B earns is worth $0.10 to B.

Important Note: In all cases A can choose any number to hold and any number to pass, but the number of tokens A holds plus the number of tokens A passes must equal the total number of tokens to divide. Please feel free to use the calculator provided by the experimenter to calculate points and to assure that all of the tokens have been allocated.

EARNING MONEY IN THIS EXPERIMENT

In the first stage, A's will be asked to make 8 allocation decisions like the examples we just discussed. From these decisions, we will calculate your payments as follows: After all the decision forms have been collected, we will shuffle the forms and randomly pair one of A's forms with the claim check number of a Player B in this experiment. Using an 8-sided die, we will select one of A's decisions to carry out. Player A will then get the points allocated in the 'hold' portion of the decision, and Player B will get the points allocated on the 'pass' portion of the decision.

In the second stage, all players will have an opportunity to earn more points via a random device that does not depend in any way upon the decisions of any subjects in the experiment. Each Player A will be paired again with a different Player B. Unlike the first stage, the payoffs will be determined by a random draw from a bingo cage. Using an 8-sided die, we will first select one of the eight allocation decisions to carry out. Then we will use a random draw from a bingo cage to determine the 'hold' and 'pass' portions. We will place bingo balls numbered $0, 1, 2, \ldots,$ *total number of tokens* into the bingo cage. We will draw one bingo ball. So the outcomes of the second stage will be completely random and equally likely. The number on the bingo ball will indicate the amount Player B will 'pass' to Player A. The 'hold' portion Player B will receive will be the total number of tokens minus the amount passed to Player A. The payments in the second stage will only depend on the bingo draw.

We will then total the points from the two stages of the experiment–first from A's decisions, and second from the random bingo draw–to determine your monetary earnings. These earnings will be placed in your earnings envelope.

The monitor chosen at the beginning will verify that these procedures are followed. After all the calculations have been made, the monitor will ask you to bring up your claim check and will hand you your earnings envelope. This will again help to guarantee your privacy.

On the following page are the 8 choices we would like Player A's to make. Since you are a Player A, please fill out the form, taking the time you need to be accurate. When all Player A's are done, the monitor will collect the forms.

Thank you very much. Good luck!

DECISION SHEET for Player A: First Stage

Directions: Please fill in all the blanks below. Make sure the number of tokens listed under *Hold* plus the number listed under *Pass* equals the total number of tokens available. Remember, all points are worth $0.10 to all subjects.

1. Divide 40 tokens: *Hold* ____________ @ 3 points each, and *Pass* ____________ @ 1 point each.
2. Divide 40 tokens: *Hold* ____________ @ 1 point each, and *Pass* ____________ @ 3 points each.
3. Divide 60 tokens: *Hold* ____________ @ 2 points each, and *Pass* ____________ @ 1 point each.
4. Divide 60 tokens: *Hold* ____________ @ 1 point each, and *Pass* ____________ @ 2 point each.
5. Divide 75 tokens: *Hold* ____________ @ 2 points each, and *Pass* ____________ @ 1 point each.
6. Divide 75 tokens: *Hold* ____________ @ 1 point each, and *Pass* ____________ @ 2 points each.
7. Divide 60 tokens: *Hold* ____________ @ 1 point each, and *Pass* ____________ @ 1 point each.
8. Divide 100 tokens: *Hold* ____________ @ 1 point each, and *Pass* ____________ @ 1 point each.

C.1 Demographic Questionnaire

Code: ______________________
Date: ______________________

Demographic Questionnaire

1. Gender: Male Female 2. Age: __________

3. Which of the following are you attending? (circle one): a. undergraduate college b. graduate school

4. Which year of college or graduate school are you in? 1 2 3 4 5 6 7 8+

5. Major: ___________________________________

6. Country where you were born:

   a. U.S. b. Other (please specify): ___________________________________

7. Country of citizenship:

   a. U.S. b. Other (please specify): ___________________________________

8. How long have you lived in the United States? a. All my life b. ______ year(s)

9. How many of your parents were born in the U.S.? 0 1 2

10. How many of your grandparents were born in the U.S.? 0 1 2 3 4

11. What is the highest educational attainment of your father?

    a. Some high school b. Completed high school c. Some college d. Completed college (bachelor's)

    e. Some post-graduate f. Post-graduate degree (MD, Ph.D., LLB, MS, etc.)

12. What is the highest educational attainment of your mother?

    a. Some high school b. Completed high school c. Some college d. Completed college (bachelor's)

    e. Some post-graduate f. Post-graduate degree (MD, Ph.D., LLB, MS, etc.)

13. What is your occupation?___________________________________

14. What is the income of your immediate family (to the best of your knowledge)?

    a. Less than $60,000 b. $60-100,000 c. $100-160,000 d. more than $160,000

15. If you are an American citizen, permanent resident, or have a green card, what is your racial/ethnic background? If you identify with more than one racial or ethnic group, please circle/write all that apply.

    a. African American b. American Indian c. Asian American d. Hispanic/Latino

    e. White/Caucasian f. Others (please specify): ___________________________________

16. If you are not an American citizen, permanent resident, or do not have a green card, what is your ethnic background? If you identify with more than one ethnic group, please write all that apply.

    ____

17. What is/are your native language/s? (the language/s you speak at home) ___________________________________

Thank you for your participation.