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Does perceived unfairness affect charitable giving? Evidence from the dictator game

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ABSTRACT

We use a modified version of the dictator game to study whether perceived unfairness affects giving. To earn money, dictators first had to take a test. Our treatment group had participants taking tests of different difficulty levels while the control group had all participants taking a test of the same difficulty level. We found that participants who were in an environment where everyone faced the same challenge to earn money were less generous than participants in an environment where some people had an advantage while others had a disadvantage.

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1. Introduction and background

Charitable giving in many countries is a major part of the economy. For example, in 2007 alone, U.S. citizens gave \$306 billion in charitable donations (Philanthropy News Digest, 2008). To put this in perspective, the charitable giving of U.S. citizens exceeded the 2007 GDP of all but 32 countries (CIA, 2009) and was over 2% of U.S. GDP (Martin and Randal, 2009). To discover what factors affect a person's decision to give and the amount he/she gives, much recent research has been conducted.

List and Lucking-Reiley (2002) varied the amount of seed money raised to purchase a \$3000 computer. They found that both the participation rate and mean contributions increased dramatically when \$2000 was raised for seed money relative to only \$1000 or \$300. Karlan and List (2007) looked at the effect of matching offers in charitable giving. They found that when charitable donations would be matched by another party, both the number of people who contributed and the contribution per person increased. However, they found no effect that the size of the match mattered.

While there has been some research examining how emotions affect charitable giving, it is still relatively sparse. Andreoni (1990) found that people do not always give to simply provide utility to

others, but also donate to charities to obtain a “warm glow effect”. Martin and Randal (2009) find that the donations can increase on Sundays, all else equal. Other research has found that contributions to charity increase if the potential giver(s) perceives the recipient as industrious and decrease if the recipient is perceived as being lazy (Fong, 2003).

One possibility of how emotions affect giving that has received sparse attention in economics literature is a concept that is discussed by many philanthropists, religious leaders, and humanitarians—the concept of systemic injustice or that different people have different levels of difficulty in living a reasonable life. It is the idea that some people have an inherent advantage relative to others based on traits predetermined by genetics or birth: race, gender, nationality, wealth of parents, etc.

We examined people's generosity in environments that differ based on how difficult it is to earn money. We used laboratory experiments where participants earned money by competing against each other in a multiplication quiz. The control groups had all participants taking the same quiz. However, the other groups were given multiplication questions of three different levels of difficulty. The top 50% of performers in the contest earned money, while the bottom 50% did not. We then matched winning and losing subjects and had them play the dictator game (e.g., see Buitrago et al., 2009), where winning subjects decide how much money, if any, they would like to give to their anonymous losing counterpart. The results provide insight into how advantages or perceived unfairness affects giving.

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Table 1
Overview of sample and contributions decisions.

	Total number of dictators	Percentage of dictators who gave any money to their counterpart	Percentage of dictators who gave \$1 or more to their counterpart	Mean amount given	Mean amount given from those who gave
Overall	78	29.5%	20.5%	\$0.41	\$1.39
Easy test (control group)	18	17%	6%*	\$0.08	\$0.47
Easy test (in treatment where three different tests were distributed)	32	31%	16%**	\$0.35	\$1.13
Medium test	23	35%	35%	\$0.67	\$1.91
Difficult test	5	40%	40%	\$0.70	\$1.75
Female	27	37%	26%	\$0.53	\$1.43
Male	51	25%	18%	\$0.34	\$1.36
Earned \$10	40	28%	15%	\$0.34	\$1.21
Earned \$5	38	32%	26%	\$0.48	\$1.50

* Statistically different than the amount given from participants in the treatment groups at the 5% level using a *t*-test.

** Statistically different than the amount given from participants who took the medium-level or most difficult test at the 5% level using a *t*-test.

2. Experimental design

To test the impact of how perceived unfairness affects contributions, we used a dictator game similar to those conducted in Hoffman et al. (1996) and Cherry et al. (2002). The dictator game is played between two players, where one player initially receives some amount of money. This player then has an opportunity to give none, some, or all of the money to the second player. The initial player dictates what is given, and the receiving player must accept whatever amount, if any, is given. The predicted Nash equilibrium of the dictator game is that a dictator should give no money away to the receiving player. However, initial experimental research found a large percentage of dictators were giving the receiver money (see discussion in Hoffman et al., 1996). The different results found by theory and experimental evidence were explained by experiments reported in Hoffman et al. (1996) and Cherry et al. (2002). Hoffman et al. (1996) showed that the level of anonymity between participants mattered. However, even with complete anonymity, a sizeable minority of dictators (over 35%) still chose to give, which is incompatible with the Nash equilibrium. Cherry et al. (2002) used the same level of anonymity but had participants take an exam to “earn” their initial endowment. With this design, Cherry et al. (2002) found that over 95% of participants gave nothing, an outcome consistent with the theoretically predicted Nash equilibrium in our study, the pairings in the groups were done anonymously and participants had no way of viewing anyone else’s decision. Our experiments also had dictators earn their money by taking a test.

We conducted the experiment on six groups of undergraduate students, with an average of 26 participants in each group. Participants were told that they would be taking a two-minute multiplication test and their scores would determine their payoffs. Those whose tests scores were in the top quartile of the participants would receive \$10, those whose tests scores were in the second quartile would receive \$5, and those whose tests scores were in the bottom two quartiles (bottom half) would receive nothing. Participants were also told that those who earned money would later have a chance to share some portion of it.

Two groups were designated as control groups. In these two groups, everyone was given the same test. In the other four groups, the participants were informed that not everyone would be receiving the same test, and that some tests were more difficult than others. The tests were randomly distributed to participants, and each participant had a 1/3 chance of receiving the easy, medium, or difficult test. The easy test had students multiplying two numbers that were between zero and nine,² the medium test had students multiply two numbers that were between one and fifteen, and the

difficult test had students multiply two numbers that were between two and twenty.³ Participants were given two minutes to complete as many of their eighty multiplication questions as possible.

After two minutes, all participants had to stop writing and hand in their tests. Monitors graded the tests and divided the results into the three groups—top quartile, second quartile, and bottom half. The results were written on the board so that participants could view the range of scores for each quartile. Those in the groups receiving the experimental treatment also saw how many participants taking each of the three tests fared. For example, the top quartile might have scores from 6 participants who took the easy test, 2 participants that took the medium difficulty test, and 0 participants who took the difficult test.

After participants had sufficient time to view the results, they were divided into two groups. The participants who scored in the top two quartiles were separated from participants whose test scores were in the bottom two quartiles. After these groups were separated, the top-scoring participants were informed that they would be receiving either \$10 or \$5, based on the quartile in which they finished. The money was distributed in envelopes containing the participants’ ID numbers that they had been assigned for the experiment. The envelopes contained their payoff in (four or nine) \$1 bills and four quarters to allow the winning participants to give as much or as little as they pleased. Participants were told that they must return the envelopes to the experiment monitor, but could take out all the money from the envelope or anonymously share some (or all) of their payoff with a randomly assigned partner in the other half of the group. To give money, they simply needed to leave whatever amount they wished to give in the envelope. Regardless of whether or not someone wanted to donate, everyone returned the envelopes to ensure anonymity.

After the envelopes had been collected, the ones containing money were taken over to the half of the class that did not earn money and were randomly distributed to the participants there. At the end of the experiment, all participants were asked to fill out a short survey which asked a number of demographic questions.

3. Results

Unconditional results are presented in Table 1 examining the percentage of dictators who gave any money to their counterpart, the percentage of dictators who gave at least \$1 to their counterpart, and the mean amount given. Within the treatment group, we find that those who received the easy test were less likely to give at least \$1—indicating those who received the easy test were less generous despite their advantage in earning money. Those who received

² Those who were in the two control groups received the easy test.

³ The tests can be found at (author’s website).

Table 2

Probit model examining the probability a person contributed \$1 or more in the dictator game (dependent variable = 1 if the person contributed \$1 or more). *N* = 78 (value of Chi-square statistic in parentheses).

Variable	(1)	(2)
Intercept	-1.50*** (7.86)	-1.74*** (5.66)
Participant was in the control group	-1.48** (5.93)	-1.86** (6.47)
Participant was in treatment group and received easy test	-0.48 (1.46)	-0.66 (1.73)
Female	0.13 (0.12)	0.26 (0.36)
Importance of religion	0.18** (5.34)	0.23** (5.26)
Very liberal		1.27 (2.60)
Somewhat liberal		0.55 (0.96)
Very conservative		0.72 (0.79)
Somewhat conservative		-0.66 (1.42)
In fraternity/sorority		-7.00 (0.00)
Earned \$10		-0.02 (0.00)

* Statistically significant at the 10% level using a chi-squared test.
 ** Statistically significant at the 5% level using a chi-squared test.
 *** Statistically significant at the 1% level using a chi-squared test.

the two more difficult tests, despite having a more-difficult task at earning money, were more generous. This is consistent with research that indicates that those who “self-made” their wealth were more generous than those who inherited wealth (*Giving and Volunteering Research – National Giving Statistics, 2009*). We also find large and statistically significant differences in giving between those in the control group relative to those in the treatment group as those in the control group gave less. Thus, simply being in an environment where there people had asymmetric opportunities to earn money increased contributions.

We further examine what prompts individuals to give in *Tables 2 and 3*. In *Table 2* we use a probit model to examine the probability that that an individual would contribute at least \$1 to their counterpart. In *Table 3* we run a tobit model to determine what influences the amount people gave.

Confirming the unconditional results, the probit results in *Table 2* show that a dictator was less likely to contribute at least \$1 if he/she was in the control group that had tests with the same level of difficulty and more if the group that had tests with varying levels of difficulty. The results in *Table 3* show a person in the group with tests of varying levels of difficulty was likely to give more. Simply being placed in an environment with asymmetric probabilities of success provides evidence that injustice in the opportunity to earn money led to higher giving. The magnitude of these differences is large. The coefficients of -1.37 and -1.57 indicate that, out of \$5 or \$10, a participant in a control group that all received tests with the same difficulty level gave between approximately 15–30% less than others. This higher giving occurred regardless of how difficult it was for the dictator to earn \$5 or \$10.

In *Table 3*, we find evidence that if someone considered their political views as “very liberal”, they gave significantly more money to their counterpart. The only other variable that exhibited a statistically significant effect (in both models) was the importance of religion, which was based on a question in the survey that asked participants to rank the importance of religion and/or spirituality in their lives on a scale of one to ten. A person who placed a greater importance on religion in his/her life was both more likely to give

Table 3

Censored regression (tobit) model (dependent variable is the amount the person contributed in the dictator game). *N* = 78 (Chi-square statistic in parentheses).

Variable	1	2
Intercept	-1.73** (4.54)	-1.93** (4.70)
Participant was in the control group	-1.37* (3.14)	-1.57* (3.74)
Participant was in treatment group and received easy test	-0.16 (0.08)	-0.25 (0.16)
Female	0.52 (0.92)	0.57 (1.13)
Importance of religion	0.17 (2.78)	0.19 (3.55)
Very liberal		1.90** (4.16)
Somewhat liberal		0.85 (0.74)
Very conservative		0.31 (0.07)
Somewhat conservative		0.23 (0.14)
In fraternity/sorority		-11.0 (0.00)
Earned \$10		-0.07 (0.01)

* Statistically significant at the 10% level using a chi-squared test.
 ** Statistically significant at the 5% level using a chi-squared test.

and likely to contribute a great amount. This finding is consistent with other research that those who are more religious give more to charity (*Brooks, 2003; Schortgen, 2006*).

4. Conclusion and discussion

While charitable giving is a major part of the U.S. economy, much is still not known about what prompts someone to give. We used a dictator game to examine how perceived unfairness in the ability to earn money affects an individual’s decision to contribute in a dictator game. We found greater generosity from people who were placed in a situation where some were faced with more obstacles to earning money than others, with average donations that were over 15% greater.

Many individuals and groups focus on unequal opportunities when trying to increase charitable giving (*Office for Social Justice, 2009; Children International, 2009*). Our results provide evidence that this could be an effective way to solicit donations, as asymmetric opportunities increased giving in our sample. Further, there was no evidence that those who had a more-difficult time to earn money gave less. This indicates that campaigns that focus on asymmetric opportunities to obtain wealth in life could indeed be effective, even amongst individuals who overcame significant obstacles to earn his/her wealth.

While these results provide insight into giving behavior, future research on this topic would be useful. A field experiment in which a charitable organization varied their messages across donors to experimentally test the effectiveness of appealing to systemic injustice would provide insight into the generalizability of the findings in this paper.

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