A robust test of warm glow giving and spiteful pleasure in a "real donation" experiment with and without earned endowments. [*]

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Abstract

Behavioral research provides evidence consistent with individuals enjoying kind acts (Crumpler and Grossman, 2008) and with individuals enjoying harmful acts (Abbink and Herrmann, 2011). This paper reports on an experiment designed to test if kind or harmful acts are an artefact of the experimental design. We investigate this question using a "real donation" laboratory experiment (Eckel and Grossman 1996) in which participants make a dictator allocation decision and are paired with an actual charity. We use a 2x3 design to vary the action set (only give to charity, or, give to or take from charity) and the source of the endowment (house money, earned endowment, or earned charity endowment). The experiment is designed so that a pure altruist has no incentive to donate or take. In the context of the "real donation" experiment, we observe very few participants taking money from charity. We find that giving persists when the endowment is earned, and when participants are given the option to take. The results are consistent with a warm glow motivation for giving.

Keywords: Warm glow; spiteful pleasure; charitable giving; lab experiment.

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1. Introduction

   In behavioral economics there are two conflicting lines of research. One focuses on what motivates individuals to contribute to charitable organizations. Results from laboratory experiments investigating this question are generally consistent with a warm glow motivation for giving (Andreoni 1989, 1990). In the warm glow model, the act of contributing is a consumption good, independent of the aggregate provision of a public good. If individuals have warm glow preferences, then neither the contributions of other individuals nor the government are perfect substitutes for one's own contribution. An individual may reduce her contribution in response to another's contribution, but this reduction is less than dollar-for-dollar, a result known as incomplete crowd-out. A direct test of the warm glow giving hypothesis is reported by Crumpler and Grossman (2008). In the experiment, each participant selects one charity from a list, and this charity will be the recipient in a variant of the dictator game. The initial allocation is $10 for the participant, and $10 for the selected charity. Each participant is given an opportunity to contribute from her endowment to the charity of her choice, however, any contribution reduces the contribution given by the experimenter dollar-for-dollar, so charity will receive $10 regardless of the amount contributed. Contributing money reduces one's own earnings without increasing the amount received by charity. Thus, the only motivation for giving in this context is purely for warm glow. The authors find that nearly 60% of participants choose to contribute to a charity in these circumstances, and the average donation was 20% of the endowment.

   The second line of research focuses on individuals' willingness to do harm to others even though their actions provide themselves no material gain (see, for example, Zizzo and Oswald, 2001, Zizzo 2003, Abbink and Sadrieh, 2009, and Abbink and Herrmann, 2011). Players receive

what might be called spiteful pleasure[1], a positive benefit to themselves from making someone else worse off.[2]

The objectives of this paper are to determine if warm glow giving and spiteful pleasure taking are robust to the experimental design. Specifically, our players can both give to and take from the charity and the endowments are house money or earned. List (2007) and Bardsley (2008) find reduced giving if the decision space is made symmetric by allowing dictators to take money as well as give, and Cherry et al. (2002) and List (2007) find that giving in dictator experiments is drastically reduced when participants earn their endowment in a pre-game task.

Following Crumpler and Grossman (2008), we investigate these questions using a "real donation" laboratory experiment (Eckel and Grossman 1996) in which participants select a charity from a list provided by the experimenter. The charities cover a variety of charitable services and range from international, national, to local organizations. The initial allocation is again $10 each for the participant and the selected charity. In the treatment that allows for warm glow only, participants are told that any amount they pass to charity will reduce their own earnings and that the amount passed will be completely offset by an equal reduction by the experimenter so the selected charity will receive only $10. In the treatment that allows for warm glow and spiteful pleasure, participants are told that they may pass money to their selected charity as above. Alternatively, they may take from their selected charity and that any amount taken from the charity will be completely offset by an equal reduction in their own endowments so that they will earn only $10 and that the amount taken will reduce the charity's earnings.

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[1] The word "spite" may have a slightly different connotation in other contexts, such as the ultimatum game, in which an action reduces other's and own payoffs. Throughout this paper, we refer to spiteful pleasure as the benefit from reducing another's payoff without a material cost (or benefit) to oneself.
[2] Such spiteful behavior could be motivated by inequality aversion (see, for example, Fehr and Schmidt, 1999, and Charness and Rabin, 2002), but the other player harmed does not necessarily have to have higher income or wealth.

We employ a 2 x 3 experimental design. Along one dimension we vary the feasible decision space between only giving to and either giving to or taking from the charity. Along the other dimension we vary the earnings associated with a pre-game task, either a small bonus independent of the endowment used in the dictator game, the entire dictator game endowment, or the amount donated by the experimenter to the charity. As a further control, we run one additional session without the real-effort task; a replication of Crumpler and Grossman's (2008) experiment. In all treatments, a non-trivial subset of participants pass a positive amount to charity, and the mean dollar amount passed is a significant portion of the endowment. Only a small subset of participants take from their designated charities.

2. Literature review

Much of the empirical literature on warm glow preferences examines public good crowd out, which is the response of individual contributions to those made by the government financed by taxes. Because an agent with warm glow preferences receives utility from the act of contributing, she will reduce her voluntary contribution by less than one dollar if the government taxes that individual a dollar and contributes the proceeds to a public good. Although the evidence from field studies is mixed, generally these studies find incomplete crowd out (see, for example, Kingma, 1989; Payne 1998; Ribar and Wilhelm, 2002; Manzoor and Straub, 2005; Andreoni and Payne, 2011, and the review by Steinberg, 1991) or even crowd in (an increase in voluntary contributions in response to government contributions, such as Khanna et al., 1995; Khanna and Sandler, 2000; Payne, 2001).

Experimental research generally controls institutional features while changing the tax that finances the public good. Two approaches to estimating crowd out have been taken in laboratory

experiments, public good contribution games and variations of the dictator choice task. Both experimental designs suggest that crowd-out is substantial. The first public good experiment to estimate crowd out is Andreoni (1993), who estimates that voluntary contributions fall by 71.5% of the tax. Chan et al. (2002) show that crowd out increases with the size of the tax, and report a range of crowd out estimates from 64% to 75%. Gronberg et al. (2012), employing a dominant strategy design and maintaining the same decision space in treatments with and without a tax, report 90% crowd out.

Incomplete crowd out in public good games is consistent with warm glow preferences, but generous contributions are consistent with alternate hypotheses such as reciprocity. The dictator experiment offers a more direct means of testing the warm glow giving hypothesis. Such tests often use the "real donation" design of Eckel and Grossman (1996), in which each participant is matched with a charity of their choosing. For example, Eckel, Grossman, and Johnston (2005) do so by varying the degree of fiscal illusion in a real donation dictator experiment. In treatments with no fiscal illusion, participants are told they had begun with an initial allocation of $20, but this had been taxed (either $5 or $2) and the tax amount allocated to their chosen charity. Crowd out is complete (dollar for dollar) under no fiscal illusion, but crowd out is zero with fiscal illusion (no mention of the transfer). The results are consistent with warm glow giving. Crumpler and Grossman (2008) isolate the warm glow giving in a real donation experiment by completely crowding out donations made by participants. Participants are told that the amount received by each charity is pre-set, so that each dollar donated by players is offset by an equal reduction in the contribution of the experimenter. The only motivation to contribute in such a design is warm glow. Crumpler and Grossman (2008) report that

participants donated 20% of their endowment on average, and approximately 57% of the participants made a donation.

List (2007) and Bardsley (2008) adapt the basic Dictator Game giving the passive second participant an endowment. They then compare results from the treatment with dictator giving only to the treatment with the expanded action set; where the dictator can either give or take from the second participant. They find that expanding the action set significantly reduces dictator giving.

List (2007) and Cherry et al. (2002) illustrates the impact on giving when the dictator's endowment is earned as opposed to being house money. List has both participants earn their endowments but the dictator earns a larger endowment that the second participant. Cherry et al. have a subset of their players play a two-stage game. In stage one, players earned money by successfully answering quiz questions. These players were then assigned the role of dictator and were paired with players who had not played stage one of the game. In a baseline treatment, players did not engage in the money earning stage. Dictators in the two earned endowment treatments were significantly less generous and approximately three times more likely to make a $0 offer than dictators in the baseline treatment.

None of these studies, however, uses the real donation design, where preferences for giving to a public good or charity could be expressed.

Grossman and Eckel (2012) report the results of a real donation experiment with an expanded action set. In their Split$20 treatment, endowments are split evenly between the player and a charity. The player can give from his share of the endowment or take from the charity's share of the endowment. They find that giving and taking balance out. Examining their data more carefully, if their takers are assumed to be nongivers in a standard Dictator game and their taking

truncated at $0, the distribution of giving is virtually identical to the distribution of giving in their Self$20 treatment (i.e. when the endowment is assigned all to the player) suggesting no effect on dictator giving.[3]

A number of experimental studies offer evidence that people receive spiteful pleasure from making others worse off. In the Money Burning Game, a pregame activity creates a wealth distribution (Zizzo and Oswald, 2001). A randomly chosen subset of players is then provided additional money and this information is public knowledge. The game allows players to pay to burn (eliminate) other player's money. Zizzo and Oswald report that two-thirds of the players burned other players' money. The pattern of burning indicates that players who do not receive additional money were more likely to burn their advantaged fellow players.

In Zizzo and Oswald's (2001) game, everybody can burn everybody else. As such, the decision to burn money is conditioned on the expectation of money burning by others. Zizzo (2003) amends the game design; he has all players make money burning decisions but the decision of only one player is implemented. Removing the threat of retaliation reduces the level of money burning but does not eliminate it.

Abbink and Sadrieh's (2009) Joy-of-Destruction Game has two paired players simultaneously deciding how much of the other player's endowment to destroy. Decisions are either anonymous or public information and the game is played over eight periods. The frequency of destruction is almost 40% and quite stable in the anonymous treatment. Abbink and Herrmann's (2011) one-shot Joy-of-Destruction game eliminates the fear of retaliation that might affect players in a multi-period game. They report 26% destruction in the anonymous destruction treatment.

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[3] Unlike List (2007) and Bardsley (2008), Grossman and Eckel (2012) report no significance difference in average giving, the percentage of nongivers, and the percentage who give all.

3. Experimental design

   We use a 2 by 3 design matrix for the treatment sessions (see Table 1, which includes summary statistics). Along one dimension we vary whether or not participants can take money from a charity. Along the second dimension, we vary the relationship between a pre-game task and the endowment. In the *house money* treatments, successfully completing the task (discussed below) results in the participant earning $3, while the participant's and charity's $10 endowments used in the real donation dictator game are bestowed by the experimenter. In the *earned endowment* treatments, successfully completing the task results in the participant earning $13, $10 of which is put up as the participant's endowment in the dictator experiment; the charity's $10 endowment is bestowed by the experimenter. Finally, in the *earned charity endowment* treatments the participant's successful completion of the task results in her earning $3 for herself and $10 for her chosen charity's endowment. Her own $10 endowment is bestowed by the experimenter. As an additional control, we also include one *baseline* treatment comparable to the original design on Crumpler and Grossman (2008), which excludes the real effort task, the endowment is house money, and in which participants can only give.

<div align="center">(Table 1 about here).</div>

   All treatment sessions of the experiment followed a standard three-part procedure, designed to maintain comparability among treatments and to ensure participant anonymity. Informed consent forms were read to and signed by participants. Packets containing written instructions and a slip of paper printed with a random five-digit code number were distributed. An urn containing the five digit code numbers was shown to participants, and one participant drew a number from the urn. The number selected a monitor at random to observe and assist in conducting the experiment. The monitor received a flat fee of $15.

Part 1 of the experiment is the real effort task.[4] The task was designed to require all participants to exert some effort but simple enough to ensure that all participants successfully completed it.[5] Participants were asked to count the number of zeros in row of numbers. Successfully completing the task involved correctly counting all 15 rows. If any participant made a mistake, the experimenter marked the mistake and the participant could attempt the incorrect rows again. Successful completion of the task resulted in earning $3 for oneself (house money treatments), $13 for oneself (earned endowment treatments), or $3 for oneself and $10 for the selected charity (charity endowment treatments).

Instructions for Part 2 of the experiment were then read. The instructions informed participants in the *warm glow* treatment that any amount passed to the charities would reduce their own earnings and any amount passed to the charities would be offset by an equal reduction by the experimenter so that the selected charities would receive neither more nor less than $10. Subjects in the *warm glow* treatment cannot take money from charity. In the *spiteful pleasure* treatment, the instructions informed participants of the effects of passing money to the charities as in the *warm glow* treatment. Additionally, participants in the *spiteful pleasure* treatment were informed that money taken from their selected charities would reduce the amount received by the charities although their own earning would not increase. Thus, a pure altruist would neither give nor take money in the experiment; a person who received spiteful pleasure would never give but would take money when able. If giving to charity as reported in Crumpler and Grossman (2008)

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[4] The *baseline* treatment did not include the task described in Part 1. A $3 show-up fee was paid, and the session consisted of only Parts 2 and 3.

[5] Eighty-four percent of the participants completed the task successfully on the first try.

is an artefact of the experimental design where participants feel the need to "do something"[6], then we should observe roughly equal amounts of giving and taking.

After reading the instructions, a questionnaire was administered to ensure participants knew how their choices would affect their own earnings and the amounts received by their selected charities. Once all questionnaires were answered correctly, the charity selection sheets were distributed (see Figure 1a for the decision sheet in the *house money/warm glow* treatment; see Figure 1b for the decision sheet in the *earned endowment/spiteful pleasure* treatment). The charity selection sheet is a list of ten charities with a brief description of the services provided by the charities. After reading a summary of the instructions for Part 2, a participant selected one charity. This charity received $10 from the experimenter (*house money* and *earned endowment treatments*) or $10 from the efforts of the participant on the counting zeros task (*earned charity endowment* treatments). At the bottom of the sheet, a participant indicated how she wished to allocate her $10, or if applicable, how much of the $10 to take from charity. The instruction made clear that giving to the charity would not increase the amount the charity received, and that taking money would not increase the participant's earnings.

(Figure 1a about here.)

(Figure 1b about here.)

While earnings were tabulated, participants were given a survey to complete as Part 3 of the experiment. The survey collected demographic information, and also contained manipulation check questions as well as the open-ended questions "Please indicate what you believe the experimenters were testing for and explain what motivated you to make the decision you made" and "Please indicate what you intend to do with the money you have earned in today's

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[6] Dreber et al. (2012) find that giving and taking in dictator experiments is insensitive to the labeling of the strategies.

experiment in general terms." The open-ended questions elicited few useful comments. A few

participants (5 of 206) indicated they would give a portion of their earnings to different charities.

All participants were invited to witness the mailing of checks to charities. Earnings envelopes

with the five digit code numbers were placed on a table near the front of the room, and

participants collected their envelopes as they exited the room. The donations to the charities were

totaled, checks were written, and the monitor and experimenter walked the envelopes to the

nearest mailbox and posted them. Responses to survey questions suggest that participants

believed that the charities would receive the donations, that their own decisions were

anonymous, and that the instructions were clear. Using a Likert scale from 1 (strongly disagree)

to 5 (strongly agree), the mean response to each of these questions is over 4 (see Table 2).

(Table 2 about here.)

4. Results

Participants were recruited from undergraduate classes at (withheld for review) State

University. 206 participants took part in the experiment, excluding those selected as monitors.

Each session lasted between 45 minutes to one hour.

The baseline *house money/warm glow, no task* treatment is the most similar to the design

reported by Crumpler and Grossman (2008), whose results we qualitatively replicate. In our

baseline treatment, 16 of 35 participants (46%) passed a positive amount to charity although it

was common information that any money passed would be offset by an equal reduction by the

experimenter. We can reject the null hypothesis implied by the pure altruist model of a zero

contribution rate ($Z = 4.55$, p-value < 0.001). Positive contributions are consistent with the

predictions of the warm glow model. The mean contribution to charity was $1.69. Conditional on giving, the mean contribution to charity was $3.69.

Figure 2 displays the histogram of choices in the treatment sessions. Visual inspection of Figure 2 suggests that giving persists when participants earn the endowment (either their own or the charity's endowment), when participants can take money from charity, or both.

(Figure 2 about here.)

We begin by examining if earning the endowment or having the option to take affects giving. We use the nonparametric Kruskal-Wallis test to test the null hypothesis that all samples are drawn from parent populations with the same arithmetic mean. This null hypothesis is rejected at the 1% level ($X^2 = 13.94$, p-value $= 0.0075$) which suggests at least one sample distribution is significantly different.

To determine which treatments differ, we compare the distribution of contributions in each treatment using the Wilcoxon rank-sum test. The null hypothesis is that each pair of samples is drawn from populations with the same distribution. Table 3 displays the Wilcoxon test results. The *house money/spiteful pleasure* and *earned charity endowment/spiteful pleasure* treatments generally differ from the other distributions, and are not significantly different from each other. The one exception to this is the absence of a significant difference between the *house money/spiteful pleasure* and *house money/warm glow* treatments. Earning the endowment, for oneself or for the charity, does not reduce giving relative to the baseline *house money/warm glow, no task* or the *house money* treatments. The option to take does reduce giving.

(Table 3 about here.)

An important question in dictator experiments is if observed generous behavior is an artefact of the experimental design. Dictators may pass money out of altruism for the experimenter or

because participants may believe they are expected to "do something". If this were the case, we would expect to observe taking from charity as well as donating to charity. Indeed, an own-money motivated participant would prefer to take from charity because doing so not only "does something" and reduces the total payments made by the experimenters, but also taking accomplishes these objectives without reducing own earnings. We find that the option to take reduces, though does not eliminate, charitable giving as measured by the proportion of dictators making positive donations despite the fact that donations are completely crowded out by the experimenter. Of the 86 participants in sessions with the option to take money from charity, only 2 did so. Giving is lowest in the *house money/spiteful pleasure* and *earned charity endowment/spiteful pleasure* treatments, in which 80% of participants either give zero or take money from charity. Nevertheless, 20% of participants making positive contributions in these two treatments is significantly different from the prediction of zero contributions in each treatment (*house money/spiteful pleasure* treatment: $Z = 2.36$, *p*-value = 0.0092; *earned charity endowment/spiteful pleasure* treatment: $Z = 2.99$, *p*-value = 0.001). Although the option to take reduces the proportion of participants making positive donations, it does not reduce the mean donation conditional on giving (see Table 1). In the *house money* treatments, the mean donation conditional on giving is 37.3% of the endowment in the *warm glow* treatment, and 30% in the *spiteful pleasure* treatment. In the *earned endowment* and *earned charity endowment* treatments, the conditional mean is higher when participants have the option to take: 40.6% *earned endowment/warm glow*, 48% *earned endowment/spiteful pleasure*; 37% *earned charity endowment/warm glow*, 41.3% *earned charity endowment/spiteful pleasure*.

Additional insight is provided by examining the determinants and likelihood of giving. Because data are censored at the upper and lower limits, we run Tobit models with the amount

passed to charity as the dependent variable. The two participants who took money from charity are coded as non-givers. Results are shown in Table 4.

(Table 4 about here.)

The first model, shown in column 1 of Table 4, controls for the treatment using the baseline *house money/warm glow, no task* treatment as the omitted variable. Unconditional giving is significantly lower in the *house money/spiteful pleasure* and *earned charity endowment/spiteful pleasure* treatments relative to the baseline treatment. The second model decomposes the treatment effects by the source of the endowment (*house money* is omitted), the option to take (*warm glow* treatment is omitted), and whether or not the effort task was included in the experiment. Donations are significantly higher with earned own endowments relative to the house money sessions, while donations are significantly lower in the *spiteful pleasure* sessions relative to the warm glow sessions. Model 3 includes characteristics of the selected charities. Some charities were selected rarely (for example, the local YMCA was selected by 2 of the 206 participants), while the most commonly selected charity, the American Cancer Society (ACS), was selected by one-third of all participants. We created an indicator variable which is equal to 1 if the participant selected the ACS, and a separate indicator equal to 1 if a participant deemed the efficacy of their charity a 4 or 5 on the Likert scale. Again we find significantly higher donations if one's endowment is earned, and significantly less giving when presented with the option to take. Those who select the ACS donate significantly more than those who select other charities. The fourth model includes the following demographic characteristics: age; gender (1 if male); church attendance (1 if attend regularly); race (1 if non-white); academic major (1 if not business or economics major); number of economics classes taken; and self-reported grade point average (1 if 3.0 or higher on a 4.0 scale). When controlling for selecting the ACS, the perceived

efficiency of the charity, and the demographic characteristics, the same design and charity variables are significant. Additionally, those who attend church services regularly and are non-white are more likely to give. Note that participants in the *house money/spiteful pleasure* and *earned charity endowment/spiteful pleasure* treatments, however, were less likely to select the ACS (27.0% of participants in these two sessions, compared to 36.4% in all other sessions), less likely to attend church regularly (42.9% versus 60.1%), and were more white (30.2% non-white versus 37.8% non-white) relative to the other treatments.

5. Conclusion

Given the complex nature of people and social environments, it is not surprising that individuals are at times charitable while at other times spiteful. Controlled laboratory experiments provide evidence of both charitable behavior (Crumpler and Grossman, 2008) and spiteful behavior (Abbink and Herrmann, 2011) when such actions provide no material gain for the decision maker. However, List (2007) and Bardsley (2008) highlight the importance of providing a symmetric action space for participants in experimental research. Context has also been shown to affect behavior in experiments (Eckel and Grossman, 1996, and Eckel, Grossman, and Johnston, 2005).

This paper revisits the test of the warm glow giving hypothesis as reported by Crumpler and Grossman (2008), in which donations made by participants are offset (i.e., completely crowded out) by the experimenter. Rather than allocate money to an anonymous participant, context is provided by pairing dictators with a charity of their own choice. The treatment sessions employ a real effort task which either earns $3 for the participant, separate from the $10 used in the real donation experiment (*house money* treatments), earns $10 for the participant to be used in the

real donation experiment (*earned endowment* treatments), or earns the charity of her choosing $10 (*earned charity endowment* treatments). For each source of the endowment, we ran separate treatments in which participants can pass any or all of their endowment to charities of their choosing (*warm glow* treatments) or could pass or take money from their selected charities (*spiteful pleasure* treatments).

We find that warm glow giving persists when the endowment earned, and when the action set is expanded to include taking money from the charity. We observer virtually no "joyful destruction" (2 of 86 participants took money). The lowest proportion of participants give (20%), and the lowest mean contribution conditional on giving (30% of the endowment) occur with house money and the option to take. The highest proportion of participants give when the endowment is earned and participants can only give to charity - 59.3% give, and the average donation conditional on giving is slightly over 40% of the endowment. A striking result is that the highest mean donation conditional on giving is in the treatment with earned own endowments and the option to take from charity (48% of the endowment). In the context of a real-donation dictator experiment in which participants are paired with a charity, we also find much lower rates of spiteful destruction (2 of 86 participants took money) than Abbink and Sadrieh (2009) and Abbink and Herrmann (2011).

A censored regression model estimates a significant and positive effect of earned endowments on giving. Greater donations to charity with an earned endowment suggest that people receive more warm glow from giving their own money than giving house money. We also estimate a significant and negative effect of taking. We observe very little destruction of surplus, but the option to take makes people more comfortable giving less. Expanding the action

set from giving only, to giving or taking alters the reference point.[7] When subjects can only give, then donating to charity is the action that contributes to warm glow. When subjects can take money from charity, the act of not taking may be the action that contributes to warm glow, and thus dampens observed giving.

The almost total absence of taking in our experiment suggest that spiteful pleasure is not a universal motivation. Instead it appears to depend on the characteristics of the other party. Doing harm to an anonymous, other player who may be little different from you may give a degree of spiteful pleasure. But when the other player is someone who is most likely less well off than you, there appears to be little pleasure received from being spiteful.

Our results represent a lower bound on warm-glow giving. A participant could give to any charity outside of the experiment at a lower cost, as the donation would not have been offset by the experimenter. Of the 206 participants in the experiment, only 5 mentioned giving to charity in the post-experiment survey, and of these, 3 contributed $0 in the experiment. Nevertheless, we find a significant proportion of subjects give to charity and the subjects who give contribute non-trivial amounts. A pure altruist, who is concerned only with the final allocation, would neither give to nor take from a charity in our experiment because any amount passed or taken is known to be offset by the experimenter. In the context of charitable giving, where prosocial preferences are more likely to be expressed relative to giving to anonymous participants, our results are consistent with a warm-glow motivation for giving; (some) individuals receive a private benefit from the act of contributing.

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[7] See Grossman and Eckel (2012).

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Table 1. Summary of experimental design with summary statistics.

Source of Endowment	House Money			Earned Own		Earned Charity	
Action Set	Warm Glow (no task)	Warm Glow	Spiteful Pleasure	Warm Glow	Spiteful Pleasure	Warm Glow	Spiteful Pleasure
% Donating	46%	40.7%	20.0%	59.3%	43.5%	54.8%	21.0%
Mean Donation (unconditional)	$1.69	$1.52	$0.60	$2.41	$2.09	$2.03	$0.87
Mean Donation (conditional)	$3.69	$3.73	$3.00	$4.06	$4.80	$3.70	$4.13
n	35	27	25	27	23	31	38

Table 2. Mean response to manipulation check questions.

Question	Warm Glow treatments	Spiteful Pleasure treatments
The procedure followed in this experiment preserved your anonymity.	4.575	4.756
The instructions for the experiment were clear and easy to follow.	4.475	4.105
The charities selected will receive a donation from the experimenter.	4.733	4.733
The charity you selected efficiently uses donations for their stated cause.	4.542	4.465

Table 3. Two-sample Wilcoxon rank sum test.

	house money/ warm glow, no task	house money/ warm glow	earned endowment/ warm glow	earn charity endowment /warm glow	house money/ spiteful pleasure	earned endowment/ spiteful pleasure
house money/ warm glow	0.338 (0.7357)	--	--	--	--	--
earned endowment/ warm glow	-1.050 (0.2936)	-1.234 (0.2173)	--	--	--	--
earn charity endowment / warm glow	-0.826 (0.4088)	-1.086 (0.2776)	0.261 (0.7942)	--	--	--
house money/ spiteful pleasure	2.045** (0.0409)	1.615 (0.1063)	2.809*** (0.0050)	2.660*** (0.0078)	--	--
earned endowment/ spiteful pleasure	-0.166 (0.8683)	-0.489 (0.6249)	0.682 (0.4951)	0.469 (0.6392)	-1.911* (0.0560)	--
earned charity endowment/ spiteful pleasure	2.291* (0.0220)	1.844* (0.0651)	3.085*** (0.0020)	2.881*** (0.0040)	0.216 (0.8287)	2.069** (0.0385)

Test statistic z, with $pr > |z|$ in parentheses.
   * pr |z| < 10%
  ** pr |z| < 5%
*** pr |z| < 1%

Table 4: Tobit model results.

	(1)	(2)	(2)	(3)
Treatment variables	Yes	No	No	No
Design variables	No	Yes	Yes	Yes
Charity characteristics	No	No	Yes	Yes
Demographics	No	No	No	Yes
House Money Warm Glow	-0.50 (1.596)			
Earned Money Warm Glow	1.71 (1.540)			
Earned Charity Warm Glow	0.86 (1.491)			
House Money Spiteful Pleasure	-3.82** (1.837)			
Earned Money Spiteful Pleasure	0.54 (1.653)			
Earned Charity Spiteful Pleasure	-3.13** (1.585)			
Earned Own Money		3.14** (1.288)	3.11** (1.264)	2.31* (1.283)
Earned Charity		1.03 (1.231)	0.89 (1.208)	0.40 (1.233)
Spiteful Pleasure		-2.87*** (1.018)	-2.66*** (0.999)	-2.63** (1.020)
Task		0.69 (1.463)	0.577 (1.437)	-0.15 (1.476)
American Cancer Society			2.00** (0.940)	2.31** (0.944)
Efficient Organization			-0.088 (0.588)	-0.33 (0.598)
Age				0.39 (0.257)
Gender				1.36 (0.943)
Church				1.62* (0.948)
Non-white				1.94** (0.950)
non-Business				-0.25 (0.909)
Economics Classes				0.14 (0.418)
GPA				-0.23 (0.942)
Constant	-0.77 (1.075)	-1.47 (1.072)	-1.720 (2.805)	-10.36 (5.805)
Log-likelihood	-314.823	-315.590	-313.296	-308.093
Observations	206	206	206	206

Dependent variable is amount passed to charity. Standard errors are in parentheses.
  * Significant at 10% level.
 ** Significant at 5% level.
*** Significant at 1% level.

Figure 1a. Decision sheet for house money/warm glow treatment.

Code Number_____

CHARITY SELECTION SHEET

For this study, each of you will be paired with a charity of your choice. Following is a list of ten possible charities. Please select the **ONE** charity you wish to be paired with by placing an X in the box next to your choice.

	American Cancer Society Provides many services to cancer patients and their families such as information, medical equipment, transportation to treatment locations, and a support system
	American Red Cross Offers blood donation information and services, disaster relief, many helpful educational classes, as well as HIV/ AIDS support groups
	Big Brothers Big Sisters Provides one-to-one mentoring for youth and children residing in a one parent family for the purpose of creating caring, confident and competent young adults
	Doctors Without Borders Doctors and nurses volunteer to provide urgent medical care in some 70 countries to civilian victims of war and disaster regardless of race, religion, or politics
	Feed The Children One of Americas most effective charities providing food, clothing, medical care, education, and emergency relief to children in the United States and overseas since 1979
	Mississippi Coalition Against Domestic Violence The Mississippi Coalition Against Domestic Violence advocates for battered women. The coalition provides technical assistance to domestic violence shelters, community and professional education and other related assistance to victims of domestic violence.
	Mississippi HeARTS Against AIDS Mississippi HeARTS Against AIDS is a non-profit, 100% volunteer organization. The annual art auction benefit in Jackson is the largest fundraiser in Mississippi for HIV/AIDS related issues.
	Oxfam America Invests privately raised funds and technical expertise in local organizations around the world that hold promise in their efforts to help poor move out of poverty; committed to long term relationships in search of lasting solutions to hunger, poverty, and social inequities
	Sierra Club The Sierra Club has been instrumental in preserving wilderness, wildlife and nature's most splendid wild places for over 100 years.
	YMCA Provides parent visitation monitoring services and physical fitness services

Of your **$10.00**, how much do you wish to keep for yourself, and how much do you wish to pass to your charity of choice?

Keep for Self: $_____

Pass to Charity: $_____

Total: $__**10.00**____

Figure 1b. Decision sheet for earned own endowment/spiteful pleasure treatment.

Code Number_____

CHARITY SELECTION SHEET

For this study, each of you will be paired with a charity of your choice. Following is a list of ten possible charities. Please select the **ONE** charity you wish to be paired with by placing an X in the box next to your choice.

	American Cancer Society Provides many services to cancer patients and their families such as information, medical equipment, transportation to treatment locations, and a support system
	American Red Cross Offers blood donation information and services, disaster relief, many helpful educational classes, as well as HIV/ AIDS support groups
	Big Brothers Big Sisters Provides one-to-one mentoring for youth and children residing in a one parent family for the purpose of creating caring, confident and competent young adults
	Doctors Without Borders Doctors and nurses volunteer to provide urgent medical care in some 70 countries to civilian victims of war and disaster regardless of race, religion, or politics
	Feed The Children One of Americas most effective charities providing food, clothing, medical care, education, and emergency relief to children in the United States and overseas since 1979
	Mississippi Coalition Against Domestic Violence The Mississippi Coalition Against Domestic Violence advocates for battered women. The coalition provides technical assistance to domestic violence shelters, community and professional education and other related assistance to victims of domestic violence.
	Mississippi HeARTS Against AIDS Mississippi HeARTS Against AIDS is a non-profit, 100% volunteer organization. The annual art auction benefit in Jackson is the largest fundraiser in Mississippi for HIV/AIDS related issues.
	Oxfam America Invests privately raised funds and technical expertise in local organizations around the world that hold promise in their efforts to help poor move out of poverty; committed to long term relationships in search of lasting solutions to hunger, poverty, and social inequities
	Sierra Club The Sierra Club has been instrumental in preserving wilderness, wildlife and nature's most splendid wild places for over 100 years.
	YMCA Provides parent visitation monitoring services and physical fitness services

PASS

If you want to pass some of the $10.00 you earned by successfully completing the task in Part 1, how much do you wish to keep for yourself, and how much do you wish to pass to your charity of choice?

Keep for Self: $_____

Pass to Charity: $_____

Total: $__**10.00**____

TAKE

If you want to take some of your designated charity's **$10.00**, how much do you wish to take for yourself, and how much do you wish to leave for your charity of choice?
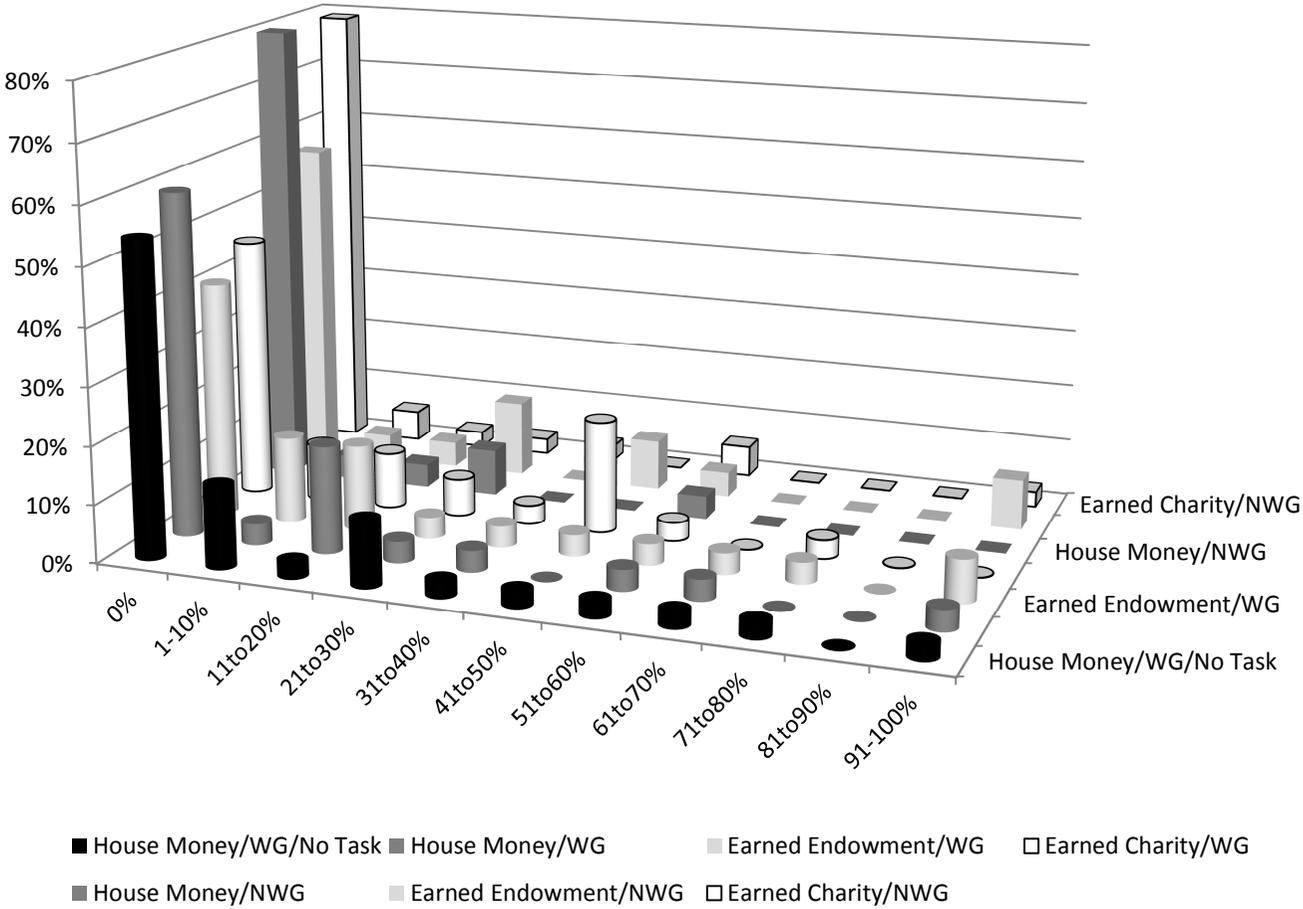
Take for Self: $_____

Leave for Charity: $_____

Total: $__**10.00**__

NEITHER PASS
  NOR TAKE

_____

Place X here

Figure 2. Distribution of donations as a percentage of the endowment.*

Notes: * Two participants took money in the *earned charity endowment/spiteful pleasure* treatment. For the purpose of this histogram, these participants are coded as contributing zero. The Warm Glow (WG) treatments are displayed as cylinders; the Spiteful pleasure (SP) treatments are displayed as boxes.