Charitable Giving and Breakable Donation Chains: An Experimental Investigation

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I. ABSTRACT

Significant empirical and experimental research has been conducted on the motivations behind charitable giving. Recently charities have unlocked a new key trend in encouraging donations: the “breakable” donation chain. Breakable chains occur when a chain of participants can be effectively “broken” (or discontinued) by a single person’s decision not to participate. While breakable donation chains exist in forms such as “pay-it-forward” chains and kidney donation chains, a recent example is the ALS Ice Bucket Challenge over the summer of 2014. In this instance, the donation chain was both breakable and public. This paper extends the existing literature by testing how breakability affects charitable contributions, in addition to testing the effects of previously studied motivations such as intrinsic and image motivation. The results show that the highest mean donations occur in settings where players donate simultaneously, but that players are more likely to donate any amount under a breakable chain condition. The results imply that people are more inclined to participate if the decision to donate benefits a cause by more than just a person’s single donation, as there may be future donations from subsequent individuals.
II. INTRODUCTION

Over the summer of 2014, the ALS (Amyotrophic Lateral Sclerosis) Association exploded into the foreground of social media. ALS is a disease that deteriorates muscle motor neurons, eventually causing so much damage to the nervous system that a patient may become paralyzed. From diagnosis, life expectancy is three to four years. Through the ALS Ice Bucket Challenge, the ALS Association was able to raise both more funds and awareness than it ever had in such a short time span. Between Facebook and Instagram alone, over 6.1 million videos were uploaded about the ALS Ice Bucket Challenge, according to Townsend of BBC News (2014). The New York Times reported that over $115 million was raised this summer promoting research on the condition\(^1\).

When one opts to complete the Ice Bucket Challenge, she creates a video or social media post of herself dumping a bucket of ice water on her head and generally pledges to donate a sum of money to the ALS Association. Alternatively, she may continue the chain of donations by creating a social media post saying she has decided not to “take the challenge,” but will donate a larger sum of money to the cause instead. In both cases, the participant continues the chain of potential donations by nominating others, and encouraging them to also complete the Challenge, donate, and nominate more people to continue the Challenge. However, should a person decide not to participate in the Challenge, that particular chain of donations stops with her. Because the donations occur in a chain that can be effectively “broken” by a single person’s decision not to participate, not only is a singular donation at stake when one does not accept the Challenge, but also the potential donations of the people that person would have nominated. These “breakable” chains are seen in other instances of prosocial behavior. Another prevalent example is “pay-it-

\(^1\) See the Appendix for a figure showing the growth of total donations and changes in average donations over the course of the ALS Ice Bucket Challenge.
forward” chains, where the recipient of an act of kindness then “pays it forward” by completing a kind act for another person. These chains are sometimes seen in fast food drive-thrus, where someone pays for the meal of the following person, and so on. Kidney donation chains are another example of breakable chains. Typically a patient can only receive a kidney with the promise that someone they know is willing to donate a kidney to another patient in need. These chains may break if someone accepts a kidney without the donation of another kidney. The ALS Ice Bucket Challenge, however, provides one of the first examples of a public breakable donation chain. In a New York Times article (McGugan, 2014), social psychologist Sander van der Linden\textsuperscript{2} claimed much of the success of the Ice Bucket Challenge could be attributed to people’s desire for social prestige, altruism, peer pressure from friends, the specific 24-hour deadline, and the self-sacrifice of dumping cold water on oneself\textsuperscript{3}.

Researchers have extensively studied many of these donation motivations mentioned by van der Linden in the past. Intrinsic motivation, image motivation, peer pressure, and the martyrdom effect have been examined in many experiments that will be outlined further in the Literature Review. This paper seeks to study two of the motivations mentioned by van der Linden and present a third potential factor inspiring the prosocial behavior exhibited in the Ice Bucket Challenge and other public breakable donation chains. Intrinsic motivation, or the personal desire to “do good,” is a factor motivating prosocial behavior of any kind. Intrinsic motivation is a combination of pure altruism (the desire to benefit the recipient) and “warm glow” giving (utility derived from the positive self-image associated with giving). In addition, image motivation, which is the desire to be perceived as “doing good” by others (Ariely et al.,

\textsuperscript{2} Some of Sander van der Linden’s work (2011) focuses on the psychological aspects of charitable giving. He posits that personal moral opinions are a driver for giving behavior.

\textsuperscript{3} When pain or effort increases prosocial behavior, this motivation is known as the martyrdom effect.
2009) could be a motivating factor for participants in the Ice Bucket Challenge. Because of the social media aspect of the Challenge, one’s decision to participate or not to participate is visible to that person’s social group. A person who may not donate under normal circumstances may feel pressured to donate because not doing so would look bad. Similarly, someone who usually would be motivated through altruism may be further motivated to donate because of the added prestige they receive for appearing generous.

In addition to intrinsic motivation and image motivation, people may also be moved to donate because they recognize that more than just their donation is at stake when donating. As mentioned above, if one does not either donate and/or complete the Challenge, that particular chain of donations ends, or is “broken,” with that person. A participant may consider that the decision to donate benefits the cause by more than just his or her donation, as there may be future donations from later nominated individuals. While support has been found in the past that more donations are collected and people are more likely to give when they are given public recognition, the ALS Ice Bucket Challenge is unique in creating this public “breakable” chain of donations.

While this breakable chain is new, economists have studied sequential donation chains before. One prevalent example of sequential donation chains is telethons. When telethons are televised or in some way publicized, donors can see what those before them have donated. Masclet, Willinger, & Figuieres (2007) find that sequentiality alone has no effect on contributions; however, the sequential chain in this experiment cannot be broken by a person’s decision not to participate. A person that decides not to donate in a telethon (or sequential giving of a similar sort) remains anonymous and the donation chain continues. Similarly, “pay-it-forward” chains, as mentioned above, are a form of sequential breakable chain that remains
anonymous. In pay-it-forward chains, a person may complete an act of kindness benefitting another person. Instead of repaying the initial action directly, the original recipient then “pays forward” the act of kindness to a third party (or parties). Should someone decide not to pay a kind act forward, he or she anonymously breaks the chain. Alternatively, with the Ice Bucket Challenge, the decision not to donate is public, since the lack of participation is visible on social media. While anonymous sequentiality may have no effect on donation behavior, it is possible that “breakable sequentiality” does affect donation behavior, even more so if the decision is public.

In order to test for and interpret the separate effects of these factors and their impacts on donation behavior, this paper will consist of an experiment on donation behavior. The remainder of this paper will be divided into four sections: Section III, Section IV, Section V, and Section VI concludes. Section VII is the Appendix, and Section VIII contains the works cited.
III. LITERATURE REVIEW

Because the ALS Ice Bucket Challenge is a unique fundraiser and occurred recently, there is no empirical research specifically analyzing the immediate success or long-term effects of the campaign. Little research has been completed on breakable chain prosocial behavior, and public breakable chains have yet to be explored. In general, there is an incredible amount of research on charitable giving and prosocial behavior though. Researchers have explored various angles on the motivations behind donation behavior in lab experiment, field experiments, and empirical research. Many of the papers that are important in this field provided insight into constructing the experimental design for this paper. This paper supplements the existing literature by providing experimental insight into how public recognition and a breakable chain giving condition may affect giving behavior.

One of the most thoroughly studied motivations for charitable giving is altruism. Altruism provides the baseline against which other motivations are tested. Altruism is pure when people act prosocially with the sole purpose of benefiting a public good. The “crowding out” effect in relation to prosocial behavior, which is closely associated to pure altruism, occurs when a person reduces his or her own contribution to a good because another actor has increased his or her contribution to the good (Meier 2006, Bekkers and Wiepking 2007, Ferrara 2014).

According to Bekkers and Wiepking, it is unlikely in reality that people reduce their contributions according to the economic model of pure altruism. This is because people are motivated by more than just the desire to benefit a recipient when donating. Impure altruism arises when an agent derives some intrinsic benefit from acting prosocially, sometimes referred to as a “warm glow” (Andreoni, 1989). Andreoni develops a utility model that includes both altruism and personal benefit. His model predicts that crowding out is not as complete as pure
altruism would suggest; gifts from others only partially crowd out the contributions of an individual.

Andreoni’s model has been widely accepted, so more recent literature tends to label the combination of pure and impure altruism as intrinsic motivation. Meier (2006) describes intrinsic motivation as, “Purely internal, derived from the donor’s own knowledge of his prosocial behavior...various underlying motivations – such as self-reward, negative-state relief, or guilt reduction – may cause the ultimately egoistic warm glow,” (6). More succinctly, Meier recognizes intrinsic motivation as a person’s desire to have a positive self-image. Ariely, Bracha, and Meier (2009) describe intrinsic motivation as, “private preferences for others’ well-being,” (544). Harbaugh (1998) explains the definition as any benefit a donor may get that is solely due to the donor’s personal knowledge that he or she has contributed.

While intrinsic motivation may provide the basis for donating, people attain utility from external signals as well. In addition to the desire for positive self-signaling, people also want to seem generous in the eyes of others. There are many contexts where one’s decision to donate is visible to others, and researchers have studied publicity as a motivation behind donation in many contexts, including both field and laboratory experiments. Andreoni and Petrie (2004) find that revealing identity alone does not affect donation amount, but revealing identity in conjunction with showing donation amount for that person positively affects donation amounts. Furthermore, while few participants choose to remain anonymous, giving participants the option to remain anonymous increases contributions. Their research also discovers that carefully constructed giving brackets (i.e. donating >$100 is the gold bracket, donating >$500 is the platinum bracket, etc.) can increase donations. The authors find clustering at these threshold amounts, which means that people may increase their donations to be in a higher category, but also that some
people may lower their donation to the minimum amount for a category. Ariely, Bracha, and Meier (2009) explore how the visibility of a prosocial act interacts with intrinsic motivation and extrinsic rewards. Through a field experiment and a lab experiment, they find support for two hypotheses: the image motivation hypothesis and the effectiveness hypothesis. Respectively, increasing the visibility of a charitable act in turn increase the level of prosocial activity and extrinsic motivation (in this case money) is not as effective when prosocial activity is more visible. The authors posit that people do not want to diminish their generosity in the eyes of others by receiving tangible benefits from the charitable action. In other words, extrinsic rewards would be a better source of motivation in private than in public settings. Karlan and McConnell (2013) complete a lab experiment and a telethon field experiment to test image motivation as stimulation for prosocial behavior. They find that merely mentioning public recognition for a donation increases donations, and write, “Social status, not pure altruism, is an important driver of charitable giving,” (13). Harbaugh (1998) completes his research using a data set of law school donations, and finds that reporting exact donation amounts increases donations 25-35% compared to not reporting. In two different papers, Soetevent explores how visibility of a donation can affect donation amount in two field experiments. In the first experiment, Soetevent (2005) varies the method of collecting offerings in thirty churches between closed offering bags and open baskets. The added benefit of this field experiment is that he can, “Observe the effect of removing anonymity on contribution decisions made by individuals in their natural habitat,” (2). Though an individual’s donation is only locally visible to the people next to him or her, the more visible collection basket increases offerings to external

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4 An extrinsic reward is a tangible gift for donating. For example, some charities offer “free” gifts for donating a certain amount of money (i.e. if you donate $25, you may receive a coffee mug). Some authors do not require extrinsic motivation to be a tangible item (for instance praise would be an extrinsic reward), but I distinguish extrinsic motivation from image motivation.
charities the church gives to, though the effect of the publicity on donations dampens over time. In another field experiment testing how various payment options affect door-to-door donations, Soetevent (2011) finds that those who donate using a debit card contribute more than those who contribute in cash (though people prefer to donate in cash), supporting the image-motivation theory. Because if a debit card is used, the donator must tell the collector exactly the amount he or she wishes to donate, there is a greater level of visibility in using a debit card.

Researchers have also explored the effects of sequentiality on donations. One hypothesis that has been explored by multiple economists is the influence motivation hypothesis, or the desire to affect others’ donation behavior through one’s donation. Karlan and McConnell (2013) conduct a laboratory experiment, and do not find statistically significant evidence that people give in an effort to influence others’ donations. Masclet, Willinger, and Figuieres (2007) conduct a sequential public goods experiment, in which subjects donate one at a time in a randomly ordered sequence, to test this same leadership effect Karlan and McConnell studied. They find that sequentiality alone without information regarding donation amount does not affect contributions. However, the authors find significant results supporting that average contributions increase when donations are sequential and earlier donation amounts are visible. The experimenters also find that subjects later in the sequence donate less than those earlier in the sequence, which is consistent with the leadership hypothesis. Houser and Kurzban (2003) conduct a sequential public goods game laboratory experiment to test how subjects change their contributions based on the contributions of others. They find evidence for their “persistence of type” (POT) hypothesis as well as their “types affect outcome” (TAO) hypothesis. People are either conditional cooperators or free riders and behave consistently as their type predicts. In addition, the numbers of conditional cooperators and free riders in a group affects the donation
behavior of the group; more conditional cooperators results in higher group contributions to the public good.

In addition to studying how people may try to influence others’ donation behavior, economists have investigated how expectations about others’ behavior may influence an individual’s behavior. Meier (2006) studies reciprocity and conditional cooperation, and finds that people react to others’ prosocial behavior by increasing their personal level of prosocial behavior. He writes, “Evidence in favor of conditional cooperation can show that expectations about the behavior of others is positively correlated with one’s own behavior,” (10). These findings could be supported in my research if subjects align their donations with their prior predictions of other group members’ donations. Dana, Cain, and Dawes (2006) conduct a laboratory experiment with a modified form of a dictator game. The authors posit that dictators in these games may give just because their partner expects them to rather than due to altruism. In the experiment, dictators are given the option of exiting the dictator game for $9 (dictator game is to split $10) under the condition that their partner would be unaware that a dictator game had been played. About one third of the participants decided to exit the game for $9. These findings suggest that people seemingly acting out of altruism may in fact be acting according to expectations they believe others have.

The literature on breakable chains is relatively recent and mostly geared towards kidney donation chains. Rees et al. (2009) discuss a chain of ten kidney donations started by an altruistic, un-matched donor. They report that usually an unpaired donor eventually breaks a chain of donations. They also find that reneging is a risk once a recipient has received a kidney, so donations generally must occur simultaneously. Ausubel and Morrill (2014) challenge the conception that kidney transplantations must occur simultaneously and provide a theoretical
model that removes reneging risk. It is rare that a person in need of a kidney has a compatible donor, so often these donor-recipient pairs are matched with other donor-recipient pairs to facilitate transplantation. The authors suggest that instead of short chains of donations, longer chains could occur if the donations did not have to be simultaneous. The authors propose a model where the donor must donate a kidney prior to the recipient receiving a kidney. This removes the risk of a donor reneging once his or her donor has already received a transplant, so these chains would be incentive compatible. If a donor without a recipient donates the first kidney, these chains can extend until there is a recipient without a donor.

Though not explored in my research, a concept both vital to research on charitable giving and relevant to the Ice Bucket Challenge is the martyrdom effect. Olivola and Shafir (2013) complete five experiments to test how pain and effort affect donations to charities. Counter-intuitively, the authors find support that donations are higher when effort is required. For example, people donate more to participate in a run than to attend a picnic. This effect is especially true if the fundraising method is “compatible” with the cause. In the case of the ALS Ice Bucket Challenge, the suffering associated with dumping ice water on your head is compatible with ALS, a painful disease.

These research papers are each important to the field of research in charitable giving. Public recognition as a motivation for prosocial behavior has been confirmed multiple times, as evidenced in the studies above. Connecting donation behavior with peoples’ identities has also proven a successful tactic in positively motivating donations. In addition, sequentiality has been studied and found to alone not have a significant effect on donation behavior. However, in conjunction with identity, people may try to influence later participants with generous donations.

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5 If the cause is associated with pain (like a disease), a compatible fundraising method is one that is also associated with pain or effort (like a 5k run).
Others’ expectations have similarly been shown to increase donations. This paper seeks to expand the existing literature by exploring the interaction between sequential giving chains and revealing identities. This paper will explore the link between expectations about others’ giving behavior in conjunction with one’s own giving behavior. Furthermore, it will test whether participants feel additional motivation to donate because the ability of future participants to donate is dependent on one’s decision to contribute.
IV. EXPERIMENTAL METHODOLOGY

A. Overview

This experiment tests how public image motivation and chain giving may factor in to one’s decision to make charitable donations. The experiment is a between-subjects design, consisting of six treatments\(^6\), each of which contains two parts. In the most simplified description of the experiment, each subject is endowed with $5 at the beginning of each experiment part to either donate to the Make-A-Wish Foundation\(^7\) or to keep for herself. Donations must be in increments of $1, so there are six giving options for each participant:

a) Donate $0 (keep $5)
b) Donate $1 (keep $4)
c) Donate $2 (keep $3)
d) Donate $3 (keep $2)
e) Donate $4 (keep $1)
f) Donate $5 (keep $0)

As mentioned above, the experiment consists of six total treatments, across which the “sequentiality” varies. There are three distinct treatments: simultaneous, sequential unbreakable chain, and sequential breakable chain. Each treatment consists of two parts: public and private. In one of these parts, the subjects make their decisions anonymously. The other participants in a subject’s group see his or her dollar donation amount, but do not know the identity of the donator. In the other part, donation decisions are public in the sense that each participant’s name is tied with his or her donation decision\(^8\). When the dollar donation amounts are displayed, the

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\(^6\) Due to budgetary constraints only five treatments were completed. The Data and Results section provides more information about the treatments conducted. The only treatment not conducted was the simultaneous private first treatment.

\(^7\) The Make-A-Wish Foundation is a non-profit dedicated to providing children with life-threatening illnesses experiences they would not otherwise have. These include wishes such as a family trip to Disney World, being a police officer for a day, and many more.

\(^8\) Subjects entered their name into a text box provided at the beginning of the public part of the experiment. While subjects could enter any name into this box, all of the names provided were in
name of each subject is displayed next to his or her donation amount. The instructions are read prior to each part, so the subjects are aware if their donation is private or public⁹. For each of the three main treatments, the private part is first and the public part is second and vice versa, hence the total of six treatment groups.

<table>
<thead>
<tr>
<th></th>
<th><strong>Simultaneous</strong></th>
<th><strong>Sequential</strong></th>
<th><strong>Breakable Chain</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Private</strong></td>
<td>All donations displayed at once</td>
<td>Donations displayed between each player</td>
<td>Donations displayed between each player</td>
</tr>
<tr>
<td></td>
<td>Player number displayed</td>
<td>Player number displayed</td>
<td>Chain discontinued with donation &lt;$2</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Player number displayed</td>
</tr>
<tr>
<td><strong>Public</strong></td>
<td>All donations displayed at once</td>
<td>Donations displayed between each player</td>
<td>Donations displayed between each player</td>
</tr>
<tr>
<td></td>
<td>Player name and number displayed</td>
<td>Player name and number displayed</td>
<td>Chain discontinued with donation &lt;$2</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Player name and number displayed</td>
</tr>
</tbody>
</table>

Table 1: Treatment Breakdown

One potential complication in the experimental setup is order effects; subjects may systematically alter their actions based on past actions or information from the previous round. In order to attempt to correct for this, there are three precautions built into the experimental design. First, subjects are informed at the beginning of the experiment that there are two parts of the experiment. They are also cognizant that just one of the parts is randomly selected to determine their payout. As discussed above, payout from the donation decision is equal to the endowment minus the donation. Hopefully this encourages participants to make their donation decision detached from their donation decision in the other part. Next, the experimenter reads the instructions for each part prior to that specific round instead of reading the instructions for both parts at the beginning of the experiment. This preserves at least the integrity of the donation decision in the first part, as subjects do not know what follows. Finally, while subjects are either in the simultaneous, sequential unbreakable chain, or sequential breakable chain treatment group fact the true names of the subjects participating. No subject attempted to donate anonymously by providing a fake name or typing “Anonymous” into the text box.⁹

⁹ A sample set of instructions can be found in the Appendix.
depending on the experiment session they attend, the order of the parts (private or public) vary in each experiment. In conjunction with the prior step, this ensures that data for the first part of each experiment group is not exposed to order effects. As the publicity of the first part varies, reliable data is collected for both the private and public parts in the simultaneous, sequential unbreakable chain, and sequential breakable chain treatments.

B. Treatments

The experiment was programmed and conducted with the experiment software z-Tree (Fischbacher, 2007), and the experiment was conducted in the Experimental Economics Laboratory at Haverford College. The subjects for the experiment were recruited using the ORSEE human subject recruitment system (Greiner, 2003). In each treatment group, the participants enter the laboratory and are seated at computer monitors. Partitions are placed between the monitors to ensure that participants cannot see the screens of other participants. The instructions are printed and read to participants prior to each part of the experiment. In the instructions, the subjects are informed that they receive a $5 participation fee regardless of their decisions within the experiment. The subjects are also told that one of the two parts of the experiment is randomly selected to determine payment. Beyond these initial procedures, the instructions varied according to the treatment group.

The baseline treatment group is the simultaneous donation decision. For both the public and private parts, the goal of this treatment is to establish a baseline for giving behavior. The simultaneous donation decision shows the amount a subject gives due to intrinsic motivation. Intrinsic motivation may be a combination of altruism and image motivation. Before each part begins, the participants are randomly split into groups of four and assigned a random player number (i.e. First Participant, Second Participant, etc.). These groups and player numbers are
reassigned before the second part as well, and, in both instances, players are informed of their player numbers. Prior to making a donation decision, each participant is asked to predict the dollar amount she believes others in her group will donate out of their $5 endowment. A screen displays input boxes beneath each possible donation amount for the other players in a participant’s group for the player to enter probabilities.

Figure 1: Probability Entry Screen

The participant is then endowed with $5 and asked to divide the money between the Make-A-Wish Foundation and herself. Under this treatment condition participants make the donation choice simultaneously. After each member of a group makes her donation decision in the private part of the experiment, a display screen shows the dollar amount donated next to each group member’s player number. While group members know the amounts donated by the other members of their group, they do not know the identities of the other group members.

Figure 2: Private Action Display Screen
At the beginning of the public part of the simultaneous treatment, the participants are asked to enter their first and last name. The procedure is the same except that the display screen shows each participant’s name next to the amount donated and player number.

<table>
<thead>
<tr>
<th>First Participant</th>
<th>Buster Baxter</th>
<th>2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Second Participant</td>
<td>Francine Frensky</td>
<td>5</td>
</tr>
<tr>
<td>Third Participant</td>
<td>Muffy Crosswire</td>
<td>0</td>
</tr>
<tr>
<td>Fourth Participant</td>
<td>Arthur Read</td>
<td>0</td>
</tr>
</tbody>
</table>

Figure 3: Simultaneous Public Action Display Screen

The participants are paid based on their donation decisions as well as their predictions (as outlined in part C of this section).

The sequential treatment differs from the simultaneous treatment in two ways: players donate one at a time instead of simultaneously, and action screens are displayed between each player instead of at the end of the part. Based on position (player number), participants make the decision whether or not to donate sequentially one at a time. The lower a participant’s position (1 being lowest), the earlier she makes the decision. Each participant has the opportunity to donate sequentially. Between each group member’s donation decision, a display screen shows the dollar amount donated next to each group member’s player number. In the public part of the sequential treatment, each participant’s name is displayed next to her amount donated and player number.
Figure 4: Sequential and Breakable Chain Public Action Display

The breakable chain treatment is identical to the sequential treatment with one exception. Should a participant elect not to donate at least $2 out of $5 endowment, the sequence does not continue (the chain “breaks”), and participants ranked later in the sequence do not have the opportunity to donate. After the first person donates, the person in the second Position has the opportunity to donate, and so on unless a group member donates less than $2. Should a group member donate less than $2, group members later in the sequence automatically keep their $5 endowment and donate $0 to charity. The action display screens are the same as those in the sequential treatment.

C. Calculating Payments

All subjects are paid a $5 for showing up to participate in the experiment. Throughout the experiment, subjects have opportunities to receive more money through their donation decisions and predictions. As mentioned above, one of the two parts is randomly selected in each treatment to determine payment based on donation decision. Depending on which part is picked, one of the three predictions a subject makes during that part determines the payment.
from predictions. The payment from the donation decision is equal to a subject’s original $5 endowment less the subject’s donation amount.

The payment from predictions is determined using the Quadratic Scoring Rule formula.\(^\text{10}\)

Most basically, this formula means that subjects earn the most when they honestly report their best estimations about the likelihood of each of the different possible outcomes. Using this formula, each subject receives somewhere between $0-4 for her predictions depending on the accuracy and level of certainty the subject expresses. Taking all three of these sources into consideration, the total payment for any given player equals the show-up fee plus the payment from the donation decision plus the payment from predictions.

Figure 5: Payment Information Screen

\[^{10}\text{More information on using this formula to calculate the payments for predictions can be found in the Appendix.}\]
V. DATA AND RESULTS

A. Summary Statistics

A total of 64 subjects\textsuperscript{11} participated over five sessions. Of the participants, 35 were female, and 29 were male. All of the participants were between the ages of 18 and 22. The main variables of interest are the values for private and public contributions under each treatment. Subjects’ contribution amounts are classified by publicity, treatment, rank within the group, and the opportunity to donate\textsuperscript{12}. Comparing donation amount and propensity to donate across treatments shows the effect that the various treatments have on a subject’s decision to donate. Looking at the predictions subjects made on others’ donation behavior can also provide insight into how subjects expected others to behave in the different treatments. The analysis focuses on two measures: mean contributions and propensity to donate. Mean contributions (or donations) are the average contribution by treatment, publicity, or player number as specified in the table. Conditional mean contributions are calculated the same as mean contributions but control for the opportunity to donate under the breakable chain treatment, as not all players make a donation decision in that treatment. Standard deviations are included in the tables in parentheses, unless otherwise noted. Propensity to donate is a dummy variable with a value of one for all nonzero donations. In the breakable chain treatment, propensity to donate is conditional upon the opportunity to donate.

\textsuperscript{11} Twelve subjects participated in the simultaneous private second treatment, sixteen subjects in the sequential private first treatment, twelve in the sequential private second treatment, twelve in the breakable chain private first treatment, and twelve in the breakable chain private second treatment. As mentioned previously, due to budgetary constraints, the simultaneous private first treatment was not completed.

\textsuperscript{12} The opportunity to donate is classified as a dummy variable that takes the value of 1 if a subject had the opportunity to donate and 0 if not. In the breakable chain round, subjects do not receive the opportunity to donate if a player before them donates less than $2.
Mean donations are highest in the simultaneous treatment; however, only one simultaneous session was conducted. When controls for prior predictions and opportunity to donate were added, subjects expressed the highest propensity to donate in the breakable chain treatment. Donations between private and public parts did not differ as greatly in this experiment as the literature reported. There were slightly higher donations overall in public parts, though private donations were higher in the breakable chain treatments.

As mentioned in the experimental methodology, one potential complication with the experimental design is order effects. Table 2 provides mean contributions for the public and private parts of all treatments based on the order of the private and public parts, with standard deviations in parentheses. Based on the mean donation amounts for private and public contributions order effects appear to be at work in the data. Across all treatments, the mean private contribution is about $.50 higher when the private part of the experiment is first. However there does not appear to be as much disparity in the mean public contribution between the orders.

<table>
<thead>
<tr>
<th></th>
<th>Mean Private Contribution</th>
<th>Mean Public Contribution</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Private First</strong></td>
<td>2.370 (1.57)</td>
<td>2.136 (1.36)</td>
</tr>
<tr>
<td><strong>Private Second</strong></td>
<td>1.875 (1.98)</td>
<td>2.219 (1.84)</td>
</tr>
</tbody>
</table>

Table 2: Mean Contribution Amounts for All Treatments Combined Based on Order of Parts Given the Opportunity to Donate

Even when breaking the data down by treatment, both public and private donations were higher when the private part of the experiment was first. Table 3 shows mean contributions for the public and private parts broken down by treatment and the order of the private and public parts, with standard deviations in parentheses. Overall mean contributions are higher in the breakable chain treatment than in the sequential treatment, when controlling for the opportunity to donate.

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This is applicable only to the sequential and breakable chain treatments, as the private first order was not completed for the simultaneous treatment.
Table 3: Mean Contribution Amounts by Treatment Based on Order of Parts Given the Opportunity to Donate

As order effects seem present, analysis is completed using the complete data set, as well as the contribution amount during the first part of a treatment only. As mentioned in the experimental design, subjects were read the instructions prior to each part of the experiment, so the contribution given in the first part of each experimental treatment is not prone to order effects.

Chart 1: Mean Donation Amounts by Treatment and Order of Parts Given the Opportunity to Donate

Chart 1 is a visual representation of Table 3 and shows both the public and private mean contributions for each experimental condition. The first bar (blue) for each treatment represents the overall mean, the second bar (red) represents the mean when the private part was first, and the third bar (green) represents the mean when the private part is second. The black error bars included in the chart illustrate the standard deviations. The one simultaneous session experiences the highest mean donations overall. In addition, when including all data points, the
The mean for breakable chain contributions is higher than the mean for sequential contributions. Even when only the data for the first part of each treatment is included, the private and public means for breakable chain contributions exceed the means for the corresponding sequential contributions. A t-test shows the difference in mean private contributions between the breakable chain and sequential treatments is significant at the five-percent level. There is no difference between the mean public contributions in the breakable chain and sequential treatments. When considering the data as a whole and controlling for opportunity to donate, the mean for public contributions is about $.08 higher than the mean for private contributions. However, the private donations unexpectedly exceed the public donations by about $.15 when only using data from the first part. Most, if not all, of the literature suggests that revealing identity (especially in conjunction with donation amount) should increase donations. This effect is not exhibited across all treatments in this experiment.

**B. Comparisons Across Treatments**

Mean donations are compared across treatments to test for any effect the treatments may have on amount donated. In addition, the binary decision to donate or not donate is compared across treatments in order to test for the effect the breakable chain treatment has on propensity to donate.

![Simultaneous Treatment Contributions](chart2.png)

**Chart 2: Simultaneous Treatment Contributions by Dollar Amount**
As only one session was run for the simultaneous treatment there is far less data available than for the other two treatments. Chart 2 shows the number of people that donated each dollar amount in the simultaneous treatment. The first bar (blue) for each donation amount represents the number of players donating each amount in the private part, and the second bar (red) represents the number of players donating each amount in the public part. In both the private and public part of the simultaneous treatment, the largest cluster of donations occurs at $5. The simultaneous treatment is the only treatment that experiences a cluster at $5. The mean public donation is slightly higher than the mean private donation under this treatment, but overall donations were quite consistent across both parts.

Charts 3 shows the number of people that donated each dollar amount in the sequential treatments, and Chart 4 shows the number of people that donated each dollar amount in the sequential treatments when only including data from the first part of each session. The first bar (blue) for each donation amount represents the number of players donating each amount in the private part, and the second bar (red) represents the number of players donating each amount in the public part.

Charts 3 (left) & 4 (right): Chart 3 shows the number of participants donating each dollar amount across both sequential treatments. Chart 4 shows the number of participants donating each amount across both sequential treatments, only including the data points for the donation made in the first part of the experiment.
When looking at the data as a whole, the donations for the sequential private treatment are clustered at zero, while the donations in the public part are clustered at one. When only looking at the data from the decision made in the first round of the experiment, private sequential donations are clustered at one and two, and public sequential donations are clustered at zero and one. This shows that when donations are first taken privately, public donations are higher in the second donation. These results mimic those found by Soetevent (2005). Also, when donations are first taken publicly, private donations are lower in the second donation. People seem to feel the burden to donate is lifted once donations are no longer public. If this effect is like the effect Soetevent found though, it likely diminishes over time, as private collection of donations becomes the norm.

Chart 5 shows the number of people contributing each dollar amount in the breakable chain treatments, and Chart 6 shows the number of people that donated each dollar amount in the sequential treatments when only including data from the first part of each session. The frequencies are shown both controlling for the opportunity to donate and for the data overall in both charts. The first bar (light blue) for each donation amount represents the number of players donating each amount in the private part, the second bar (dark blue) represents the number of players that had the opportunity to donate who donated each amount in the private part, the third bar (light red) represents the number of players that donated each amount in the public part, and the fourth bar (dark red) represents the number of players that had the opportunity to donate who donated each amount in the public part. When not controlling for the opportunity to donate, the most visible clusters occur at zero because, because if a subject does not have the opportunity to donate, her donation is automatically zero.
Charts 5 (left) & 6 (right): Chart 5 shows the number of participants donating each amount across both breakable chain treatments. Chart 6 shows the number of participants donating each amount across both breakable chain treatments, only including the data points for the donation made in the first part of the experiment.

In Chart 5 when controlling for the opportunity to donate, private contributions cluster at both two and zero, and public donations cluster at three and zero. When the data is narrowed to only include the donation from the first part in Chart 6, no real pattern emerges for the private contributions, and the two largest clusters occurs at zero and three for the public contributions.

Table 4 displays mean contributions by player number and treatment, with standard deviations in parentheses. The values in the last two rows in the table control for earnings from players’ predictions. The formula for earnings from predictions allowed for the opportunity to earn $4 for a prediction expressing complete certainty for the actual amount donated. In the breakable chain treatment, a player could break the chain and predict with complete certainty the contributions of later players to be $0, as those players would not receive the opportunity to donate. The “Chain Private (<$4)” and “Chain Public (<$4)” rows give the mean donations excluding those players that earned $4 for their predictions.

<table>
<thead>
<tr>
<th></th>
<th>Player 1</th>
<th>Player 2</th>
<th>Player 3</th>
<th>Player 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall Private</td>
<td>2.313 (2.02)</td>
<td>2 (1.51)</td>
<td>2 (1.73)</td>
<td>2.077 (2.10)</td>
</tr>
<tr>
<td>Overall Public</td>
<td>2.625 (1.89)</td>
<td>2.538 (1.27)</td>
<td>1.615 (1.45)</td>
<td>1.833 (1.80)</td>
</tr>
<tr>
<td>Simultaneous Private</td>
<td>2.333 (2.52)</td>
<td>2.333 (2.52)</td>
<td>3.333 (1.53)</td>
<td>3.333 (2.89)</td>
</tr>
<tr>
<td>Simultaneous Public</td>
<td>5 (0)</td>
<td>2.333 (0.58)</td>
<td>1.667 (1.53)</td>
<td>3.333 (2.87)</td>
</tr>
</tbody>
</table>
In Table 4, the disparity between the mean donations of players 1 and 2 and players 3 and 4 in the breakable chain treatments is prominent. When excluding those players that took advantage of the opportunity to gain $4 in predictions earnings, the mean donations of players 1 and 2 in the breakable chain round exceed those of players 1 and 2 in the sequential round and simultaneous rounds (except for player 1 in the simultaneous public round). Players in the breakable chain seem to feel pressure to donate more especially earlier in the chain, when compared with the other two treatments. While there is not enough data to form significant results and the standard deviations are quite large, people appear to feel additional pressure to donate in a breakable chain when compared to the sequential treatment, where later potential donations are contingent upon one’s decision to donate. However, these higher donations in the breakable chain are likely in part due to the $2 minimum donation to continue the chain. Because of this, propensity to donate provides additional insight into subjects’ decision-making behavior.

Propensity to donate explores subjects’ binary donation decision in each treatment. As mentioned above, propensity to donate is a dummy variable that receives the value of one when a player makes a nonzero donation. While the earlier charts and tables illustrate how the mean contribution differs across treatments, this comparison shows how willingness to donate any amount varies across the treatments. As when calculating means earlier, opportunity to donate is controlled for with the breakable chain treatment values.
Table 5 is similar to Table 3, and shows the propensity to donate (rather than donation means) based on the treatment and the order of the parts of the experiment, with sample size in parentheses. Like in Table 4, “Chain Private (<$4)” and “Chain Public (<$4)” in Table 5 show analysis for the breakable chain treatment excluding players who earned the maximum $4 from predictions. In addition, analysis for the breakable chain treatment excluding player 4 is also included. This is because player 4 may not feel the same pressure to donate as earlier players since there is no player ranked lower in the breakable chain treatment.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Propensity</th>
<th>Private First</th>
<th>Private Second</th>
</tr>
</thead>
<tbody>
<tr>
<td>Simultaneous Private</td>
<td>0.75 (12)</td>
<td>N/A</td>
<td>0.75 (12)</td>
</tr>
<tr>
<td>Simultaneous Public</td>
<td>0.8333 (12)</td>
<td>N/A</td>
<td>0.8333 (12)</td>
</tr>
<tr>
<td>Sequential Private</td>
<td>0.6429 (28)</td>
<td>0.875 (16)</td>
<td>0.3333 (12)</td>
</tr>
<tr>
<td>Sequential Public</td>
<td>0.8214 (28)</td>
<td>0.9375 (16)</td>
<td>0.6667 (12)</td>
</tr>
<tr>
<td>Chain Private</td>
<td>0.7895 (19)</td>
<td>0.8182 (11)</td>
<td>0.75 (8)</td>
</tr>
<tr>
<td>Chain Public</td>
<td>0.7143 (14)</td>
<td>0.8333 (6)</td>
<td>0.625 (8)</td>
</tr>
<tr>
<td>Chain Private (No Player 4)</td>
<td>0.8125 (16)</td>
<td>0.8889 (9)</td>
<td>0.7143 (7)</td>
</tr>
<tr>
<td>Chain Public (No Player 4)</td>
<td>0.75 (12)</td>
<td>0.8 (5)</td>
<td>0.7143 (7)</td>
</tr>
<tr>
<td>Chain Private (&lt;$4)</td>
<td>0.875 (16)</td>
<td>0.9 (10)</td>
<td>0.8333 (6)</td>
</tr>
<tr>
<td>Chain Public (&lt;$4)</td>
<td>0.8 (10)</td>
<td>0.8 (5)</td>
<td>0.8 (5)</td>
</tr>
</tbody>
</table>

Table 5: Propensity to Donate by Treatment Type and Order of Parts Given the Opportunity to Donate

Overall, when no controls are considered, propensity to donate is highest in the simultaneous treatment. In addition, propensity to donate is higher for both the sequential and breakable chain treatments when the private part is first. When considering all data points, the propensity to donate in the breakable chain treatment is slightly higher than the propensity to donate in the sequential treatment as well. According to the t-tests conducted, the differences in the public and private propensity to donate across treatments are insignificant. When only analyzing the first data point for each treatment, the propensity to donate in the sequential treatment is slightly

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14 Considering that the private part second produced the lower propensities to donate in all other treatments, it is likely that were the simultaneous private first session completed, overall mean propensity to donate for the simultaneous treatment would be even higher.
higher than in the breakable chain treatment. Excluding player 4 from the data increases overall propensity to donate in the breakable chain treatment. Furthermore, when excluding players that earned $4 from predictions, propensity to donate in the chain treatment was higher than in either the simultaneous or sequential treatments. A t-test shows the difference in the private propensity to donate between the breakable chain and sequential treatments is significant at the ten-percent level when excluding players that earned $4 from predictions. However, the difference in the public propensity to donate is insignificant even in this case. While the sample sizes in the experiment are small, the results suggest that people may be more likely to participate in a breakable chain than in a simultaneous or sequential donation opportunity.

The order in which a player has the opportunity to donate is also important to consider in relation to propensity to donate. This is especially significant under the chain treatment, as the potential donations from future players decrease the later in the chain a person donates. Because of this, the pressure a person feels to donate may diminish the later she is in the breakable chain. Table 6 is similar to Table 4, and shows the propensity to donate by player number and treatment, with sample size in parentheses. Like in Tables 4 and 5, Table 6 provides analysis for the breakable chain treatment excluding players who earned the maximum $4 from predictions in the last two rows.

<table>
<thead>
<tr>
<th></th>
<th>Player 1</th>
<th>Player 2</th>
<th>Player 3</th>
<th>Player 4</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Simultaneous Private Propensity</strong></td>
<td>0.667 (3)</td>
<td>0.667 (3)</td>
<td>1 (3)</td>
<td>0.667 (3)</td>
</tr>
<tr>
<td><strong>Simultaneous Public Propensity</strong></td>
<td>1 (3)</td>
<td>1 (3)</td>
<td>0.667 (3)</td>
<td>0.667 (3)</td>
</tr>
<tr>
<td><strong>Sequential Private Propensity</strong></td>
<td>0.571 (7)</td>
<td>0.714 (7)</td>
<td>0.714 (7)</td>
<td>0.571 (7)</td>
</tr>
<tr>
<td><strong>Sequential Public Propensity</strong></td>
<td>0.714 (7)</td>
<td>0.857 (7)</td>
<td>0.857 (7)</td>
<td>0.857 (7)</td>
</tr>
<tr>
<td><strong>Chain Private Propensity</strong></td>
<td>0.833 (6)</td>
<td>1 (5)</td>
<td>0.6 (5)</td>
<td>0.667 (3)</td>
</tr>
<tr>
<td><strong>Chain Public Propensity</strong></td>
<td>0.667 (6)</td>
<td>1 (3)</td>
<td>0.667 (3)</td>
<td>0.5 (2)</td>
</tr>
<tr>
<td><strong>Chain Private Propensity (&lt;$4)</strong></td>
<td>1 (5)</td>
<td>1 (5)</td>
<td>.75 (4)</td>
<td>.5 (2)</td>
</tr>
<tr>
<td><strong>Chain Public Propensity (&lt;$4)</strong></td>
<td>.75 (4)</td>
<td>1 (2)</td>
<td>1 (2)</td>
<td>.5 (2)</td>
</tr>
</tbody>
</table>

Table 6: Propensity to Donate by Treatment Type and Player Number Given the Opportunity to Donate
It is interesting to note that in all treatments, player 2 has the highest (or equal to highest) propensity of any player to donate. In the breakable chain treatment, players 3 and 4 have lower propensities to donate than the first two players. This suggests that later players feel less pressure to donate. Perhaps this is because the potential for future donations is lower. Finally, when excluding those that had perfect predictions from the sample, the propensity to donate for players 1 and 3 increases in both the public and private parts.

C. Prior Predictions

Prior predictions were collected to provide insight into how players believed other players would act in the different treatments. Chart 7 illustrates the mean expected donation by treatment for each player. The first bar (blue) in each treatment represents the mean expected donation for player 1, the second (red) for player 2, the third (green) for player 3, and the fourth (purple) for player 4. The black error bars included in the chart represent the standard deviations.

Chart 7: Expected Donation by Treatment and Player Number
Overall expected donations are highest in the simultaneous treatment, which mirrors the actual actions taken by players. Mean expected donations in the breakable chain treatment also exceed expected donations in the sequential treatment, which reflects the actual donations of players. The most notable difference between the expected donations and actual donations is the difference between private and public donations. Across all the treatments, players donated slightly more under the public part than the private part, though this was not the case when considering each treatment separately. However, players predicted that public donations would exceed private donations in all treatments. In the breakable chain treatment, players predicted lower donations for players 3 and 4 overall than for players 1 and 2, which also was exhibited in the actual results. The predictions were quite similar to the collected data, which corroborates Meier’s (2006) finding that expectations about others’ behavior are positively correlated with a person’s own behavior.
VI. CONCLUSION

The results of this experiment help further the understanding of the motivations behind donation behavior in various settings. Most notably breakable chains have not been extensively studied in an experimental or field setting, so this experiment sheds light on a newer charitable trend. Through analysis on the differences in donation behavior between treatments, disparities in both willingness to donate and donation amounts were found depending on the setting. Public donations exceeded private contributions in the simultaneous treatment and sequential treatment, but not in the breakable chain treatment. In addition, the mean donations were highest in the simultaneous treatment. However, it is difficult to place too much weight on the results from the simultaneous treatment, as only twelve subjects participated in that treatment.

The most important consideration is how the propensity to donate differs across treatments. Overall propensity to donate was highest under the breakable chain treatment when controlling for opportunity to donate and earnings from predictions. In addition, earlier players in the breakable chain treatments seemed to feel more pressure to donate than later players. This is likely because the earlier in the chain a subject is ranked, the higher the expected future donations are. In conjunction, these findings indicate that a breakable chain increases the likelihood that a player donates, especially when the player is earlier in the chain.

The ALS Ice Bucket Challenge was the largest viral trend of 2014. Since its completion after the summer of 2014, people have been wondering what “the next Ice Bucket Challenge” will be. The Ice Bucket Challenge was successful not because participants donated large sums of money, but because so many people participated. In relation to the ALS Ice Bucket Challenge, the results of this experiment imply that the breakable chain set-up of the Challenge encouraged more people to donate than a simple online campaign would have. Having participants nominate
others to participate in a breakable chain formation encouraged some people to donate who may ordinarily not have. This experiment shows that a person is more likely to donate to or participate in a cause when potential future donations are contingent upon her decision to participate. While the lab setting does not translate perfectly to the real world, the results of this experiment are interesting for charities to consider when creating donation campaigns in the future. This experiment expands the current awareness of factors encouraging people to donate to charities, and provides insight into the success of an extremely effective fundraising campaign.
B. The Quadratic Scoring Rule

The quadratic scoring rule formula is \((1 + 4*p_s - w)\). In this formula, \(p_s\) is the likelihood that the subject expressed for the actual dollar amount donated by a group member and \(w\) is the sum squares of likelihood that the subject attached to each of the possible dollar amounts a group...
member could donate. If a participant expressed complete certainty for the actual amount donated, the participant would earn $4. If a participant expressed complete certainty for an amount that was not donated, the participant would earn $0. With any amount of uncertainty expressed (probability assigned to more than one donation amount), the participant earns somewhere between $0-4. For example, imagine the prediction about the donation of Player 4 is selected for payment for a group member. The group member expressed the likelihoods for each dollar amount as follows:

<table>
<thead>
<tr>
<th>Donation Amount</th>
<th>$0</th>
<th>$1</th>
<th>$2</th>
<th>$3</th>
<th>$4</th>
<th>$5</th>
</tr>
</thead>
<tbody>
<tr>
<td>$p_S$</td>
<td>.1</td>
<td>.1</td>
<td>.1</td>
<td>.1</td>
<td>.6</td>
<td>0</td>
</tr>
</tbody>
</table>

If player 4 donated $4:

a. $p_S = .6$

b. \[w = .1^2 + .1^2 + .1^2 + .1^2 + .6^2 + 0^2 = .4\]

c. \[Earnings\ from\ Prediction = $1 + 4*.6 - .4 = $3.00\]

If Player 4 donated $5:

a. $p_S = 0$

b. \[w = .1^2 + .1^2 + .1^2 + .1^2 + .6^2 + 0^2 = .4\]

c. \[Earnings\ from\ Prediction = $1 + 4*0 - .4 = $.60\]

C. Sample Instructions for Breakable Chain Private First Treatment

Below is a set of instructions for the breakable chain private first treatment of the experiment. The instructions are identical to the instructions provided to the subjects except that the sections on calculating payments for predictions have been removed, as that method is thoroughly explained above.

**Introduction**

We appreciate your time and effort in participating in this experiment. Please follow along closely as the experimenter reads these instructions. Should you have any questions or require further clarification, please raise your hand at any time.

This is an experiment in the economics of decision-making. This research is being conducted to collect data for a senior thesis in Economics. The Economics Department has provided the funds necessary to conduct this research.
In return for your participation in this experiment, you will be paid privately and in cash at the end of this session. Your earnings may depend on your decisions, on the decisions of others, or on chance.

You will receive $5 as a participation fee regardless of your decisions within the experiment. During the experiment, you will have opportunities to gain additional earnings. Instructions on how further earnings may be gained are detailed below.

**Rules**

Throughout the experiment, please remain silent. Do not talk to other participants until you have completed all Parts of the experiment, received your payment, and exited the lab.

Please refrain from using your cell-phone in any capacity (e.g. texting, calling, email, games, etc.).

Do not use the lab computer for anything other than the experiment. Accessing other programs may affect the experiment software.

**Three-Part Experiment**

This experiment is comprised of three parts: Part 1, Part 2, and Part 3. Part 3 is a questionnaire that you will be asked to complete while your payment is arranged by the experimenter. Your answers to the questionnaire in Part 3 will NOT affect your payment.

In addition to the $5 you receive automatically for participating in the experiment, your payment will be based on your actions in EITHER Part 1 or Part 2. The Part of the experiment that determines your payment will be randomly selected, and each of the two parts will receive equal weighting during selection. As you will not know which Part determines your payment until the experiment is complete, it is important for you to carefully consider your decisions in each Part.

We will now read the instructions for Part 1 only. We will read the instructions for Part 2 after the completion of Part 1.

**Instructions for Part 1**

You will be endowed with $5 at the beginning of Part 1 to split between yourself and the Make-A-Wish Foundation however you decide. All participants will be randomly split into groups of 4. You will also randomly be assigned a “Position” in your group of 4 that determines when you will have the opportunity to donate in your group. For example, the person who receives the

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15 The Make-A-Wish Foundation is a non-profit dedicated to providing children with life-threatening illnesses experiences they would not otherwise have. These include wishes such as a family trip to Disney World, being a police officer for a day, and many more.
Position of 1 will make their donation decision first. However, if someone in a Position before you in your group decides not to donate at least $2, those positioned later will not have the opportunity to donate. For example, if the person in the first Position donates $2 or more, then the person in the second Position will have the opportunity to decide whether or not to donate. However, if the person in the second Position then decides to donate $1 or $0, the people in the third and fourth Positions will not have the opportunity to donate. If you do not have the opportunity to donate, you will keep your endowment of $5.

Your donation amount must be in $1 increments, so there are 6 possible donation options ranging from donating $0 up to donating the full $5. The amount you donate to the Make-A-Wish Foundation will be sent to the foundation by the experimenter, and the remaining amount determines your payout, as explained below.

After receiving your “Position” but prior to any member of your group making a donation decision, you will be asked to predict how likely you believe it is that participants in your group will donate each amount $0-5. Your predictions should add up to 1.0 for each group member. For example, you might believe there is a 100% chance that the Player in Position 4 will donate $5, so then you would put 0 for all dollar amounts between $0-4 and 1.0 for $5.

Once each member of your group provides predictions for his or her beliefs on others’ donating behavior, each member of your group will then have the opportunity to donate to the Make-A-Wish Foundation sequentially in order of “Position”. However, should a member of your group donate less than $2, the members of the group in later Positions will not have the opportunity to donate.

Between each donation decision, an “Action Screen” will display the amount donated by each participant next to his or her “Position.”

**Payment for Part 1**

As mentioned earlier in the instructions, there is a 1/2 probability that Part 1 will be randomly selected to determine your final payment for the experiment. If Part 1 is selected to determine your payout, your final payment will depend on your donation decision and your predictions on others’ donation behavior.

Keep in mind that in addition to any further payment you may receive, you automatically receive the $5 participation fee regardless of your decisions in the experiment.

*Payment from Donation Decision*

Your payout is equal to your original $5 endowment less your donation amount. If you did not have the opportunity to donate, you receive your full $5 endowment.

*Payment from Predictions*

Should Part 1 be selected to determine your payment, one of your three predictions will be randomly selected to calculate your payment from predictions.
You will be paid to the nearest quarter dollar for these predictions. For instance, if you earn $.60 for your predictions, you will receive $.50, not $.75.

When experimenter instructs you to proceed, you may start with Part 1 of the experiment.

When every participant has completed Part 1 of the experiment, the experimenter will provide you with the instructions for Part 2, at which point the experimenter will read those instructions.

Again, please do not talk to anyone. Should you have a question or problem with your computer at any time during the experiment, please raise your hand, and the experimenter will assist you.

**Instructions for Part 2**

Before the start of Part 2, you will be asked to enter your first and last name into a text box provided. Please ensure that you spell your name properly before proceeding to the next screen. Throughout Part 2 of the experiment, your donation decision will be linked both to your “Position” and name. Similar to in Part 1, you will be endowed with $5 at the beginning of Part 2 to split between yourself and the Make-A-Wish Foundation however you decide. Again you will be randomly split into a group of 4 participants. Within your group, you will be randomly assigned a new “Position” that determines when you will have the opportunity to donate. However, if someone in a Position before you in your group decides not to donate at least $2, those positioned later will not have the opportunity to donate. After the first person donates, the person in the second Position will then have the opportunity to donate, and so on unless a group member donates less than $2. Your donation amount must be in $1 increments, so there are 6 possible donation options ranging from donating $0 up to donating the full $5. The amount you donate to the Make-A-Wish Foundation will be sent to the foundation by the experimenter, and the remaining amount determines your payout, as explained below.

After receiving your “Position” but prior to any member of your group making a donation decision, you will be asked to predict how likely you believe it is that participants in your group will donate each amount $0-5. Your predictions should add up to 1.0 for each group member. For example, you might believe there is a 100% chance that the Player in Position 4 will donate $5, so then you would put 0 for all dollar amounts between $0-4 and 1.0 for $5.

Once each member of your group provides predictions for his or her beliefs on others’ donating behavior, each member of your group will then have the opportunity to donate to the Make-A-Wish Foundation in order of “Position”. However, should a member of your group donate less than $2, the members of the group in later Positions will not have the opportunity to donate.

Between each donation decision, an “Action Screen” will display the amount donated by each participant next to his or her “Position” and name.

**Payment for Part 2**
Like in Part 1, there is a $1/2$ probability that Part 2 will be randomly selected to determine your final payment for the experiment. If Part 2 is selected to determine your payout, your final payment will depend on your donation decision as outlined above as well as your predictions of others’ donation behavior.

Keep in mind that in addition to any further payment you may receive, you automatically receive the $5 participation fee regardless of your decisions in the experiment.

*Payment from Donation Decision*
Your payout is equal to your original $5 endowment less your donation amount.

*Payment from Predictions*
Should Part 2 be selected for payment, one of your three predictions will be randomly selected to calculate your payment from predictions.

[Formula and explanation of the quadratic scoring rule removed]

You will be paid to the nearest quarter dollar for these predictions. For instance, if you earn $.60 for your predictions, you will receive $.50, not $.75.

When experimenter instructs you to proceed, you may begin Part 2 of the experiment.

When you have finished Part 2 of the experiment, you will begin Part 3. Part 3 is a questionnaire and will not affect your earnings in any way. While you are completing Part 3, the experimenter will arrange your payment. Upon completion of Part 3, you will receive an envelope with your earnings, and you may leave the lab.
REFERENCES


Experimental Economics 10, 171-178.


