Time is of the Essence: Gender Differences in Volunteering Behavior

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Abstract:

How does gender affect volunteer behavior within an experimental group setting? Within altruistic behavior literature, women tend to volunteer more than men. I further untangle the effect of gender on volunteering behavior. I examine volunteer behavior within an experiment that allows individuals to volunteer at little or as much as they would like to. Within groups, if a volunteering goal was reached the impact of the volunteer contribution was matched either at 100% or 25% rate. Individuals observed their group's behavior throughout the experiment to see if they reached the goal. Regardless of gender, individuals volunteered very little when the matching rate was low. Contrary to previous results, men volunteered more under this experiment design. Being a man significantly impacted the amount of volunteer contributions. Overall, male volunteer behavior echoed previous research that found that men tend to donate at extremes – either at a high rate or nothing at all.

Introduction:

No matter what the cause, volunteering occurs in settings from corporate volunteerism to church groups. Companies are connecting to their local communities and increasing positive perceptions through corporate volunteerism. Corporate volunteer opportunities are often "paid volunteering" done during the workday or weekend (Staglin 2022). In previous research, it was found that women were more likely to volunteer for these opportunities, which comes at the cost of developing professional skills (Babcock et al. 2017).

The AmeriCorps has estimated that the value of volunteer hours was about $122.9 billion within the United States (Schneider and Marshall 2023). Despite this huge number, there is little known about what motivates people to volunteer. From demographic information, we know that in general women tend to volunteer more. This is seen internationally, for example the United Nations' volunteer force is about 57% women (Borromeo 2021). Within the United States, ⅓ of all women volunteer while ¼ of all men volunteer (Schlachter 2019). This implies that more women are contributing to the overall value of volunteering than men are. With this in mind, volunteering comes at a cost. Generally, the time spent volunteering can be thought of as forgone wages. If women are selecting into more volunteering than men, this also means volunteering comes at the cost of developing professional skills. This likely further increases the gender wage-gap (Day and Devlin 1997; Babcock et al. 2017). While volunteering may be "free" to charities, the effects of gender-inequality in volunteering may come at a cost to developing skills and obtaining wages.

A major reason for the lack of research regarding volunteer behavior is the difficulty of the ability to measure underlying motivation due to a lack of data. There may be problems of selection bias, omitted variables within survey data, and insufficient data to assert causality. To help untangle this effect, using a controlled lab setting, students are randomly assigned to groups to perform an effort task that stimulates volunteering. Effort tasks are generalizable tasks used within experiments to simulate engagement in the experiment and measure outcomes depending on performance. The performance measure within the experiment will be volunteering behavior simulated by making charitable contributions during the lab experiment. Individuals will be allowed to volunteer as often as they would like. I will be examining volunteer behavior

throughout each round or volunteer period. The benefits of using a lab experiment allow us to hold factors such as charitable contribution opportunity, time commitment, and group size constant.

Using multiple rounds will provide insight on how people adjust behavior over multiple periods in response to the fundraising goal. It will allow us to examine the relationship between effort and time as well. Overall, I examine which gender is more likely to volunteer within a group setting without bounds on volunteering behavior. Within the lab experiment, individuals will be assigned one of two treatments that allows their volunteering to be matched at 100% or 25%, like donation matching within fundraising. The matching will occur only if a "volunteer goal" is reached. This means that if the individual's volunteering in the 25% matching is worth $1.00, it will be matched for charity to be $1.25. Within my experiment, I find that men are more likely to volunteer than women. I also find that all individuals volunteer less when the matching rate is at 25%.

Literature Review

I will be examining altruistic behavior differences between genders. Altruism is widely defined as the idea of contributing to a group at the cost of benefits to the contributor. People are bound by approximate rationality and social factors that allow them to make decisions. Social patterns often result in altruistic behavior that has a "net advantage" for society (Simon, 1993). In economic literature, altruism can be viewed as the combined payoff of both an individual as well as the sum of the others. "Warm glow" is the benefit felt emotionally from an action. Warm

glow is viewed as a contributor to behavior but not as the driving force behind actions that are performed at the expense of an individual (Holt 2019).

Often, people contribute to charity due to warm glow for their own benefit rather than increasing funds available to charity. This is known as "impure altruism", which may be a factor driving inefficient gifts to charities. In impure altruism, individuals are maximizing their own utility rather than a charity's. If the individual were to take into account the charity's utility function, there may be cases where it is more optimal to donate money rather than volunteer. Within my experiment, I focus on time donations. Within a model of impure altruism, it is assumed that volunteering is a public good. Using the framework established in Brown et al., within my experiment, we are assuming impure altruistic motives (2013). Public goods receive contributions if people demand more of the public good or if people receive a private benefit (Andreoni 1989). The private benefit being received is warm glow. Within my experiment, I am assuming that volunteering is nonrival and nonexcludable. This means that participants can volunteer as much as they would like and a single participant's volunteering does not affect the volunteering of any other participants (Lilley and Slonim, 2014). Under impure altruism, wealth, generosity, or income elasticity are irrelevant to giving (Andreoni 1989).

Brown et al. develop a theoretical model using impure altruism with implications on how subjects view benefits generated from volunteering and donating money to optimize the impact of the donation (2019). If the wage of donating money is higher than the benefit generated from volunteering, then a subject should prefer donating money and vice versa. This implies that volunteering and donating money are substitutes. A possible explanation from Brown et al. offer

is that higher warm glow is generated from the act of volunteering (2019). Brown et al. simulate the act of volunteering by having subjects perform an effort task with multiple problems to earn a piecewise rate. Subjects that were assigned the volunteer treatment were allowed to donate problems to charity to simulate volunteering. While completing the effort task the subject was required to designate if they would like to donate the earnings from the effort task to charity or if they would like to keep them. The contributions from the volunteering treatment were significantly higher than the donating money experiment, which implies that subjects generally prefer volunteering to donating money. Using this experiment design method, I will examine volunteer behavior using this method in a group setting. This will provide insight on volunteering-groups as opposed to individual behavior. I will simulate volunteering within my experiment using this framework given that the results show that this was effective at stimulating volunteer behavior within a lab setting.

Babcock et al. examined the first person within a group to volunteer, which was overwhelmingly found to be women within mixed gender groups (2017). Babcock et al. manipulate a time constraint, giving subjects two minutes to make a decision to volunteer. If a subject does volunteer, everyone's payoff increases while the volunteer's pay increases at a much lower rate than the other group members. Overall, volunteering benefits the group but comes at a cost to the volunteer. Within mixed gender groups, when gender of group members is known by the participants Babcock et al. find that when people are asked to pick a volunteer for a group both men and women choose women to volunteer. Women also overwhelmingly accepted the invitation to be the group volunteer. When in single-sex groups, men and women volunteered at similar rates (Babcock et al. 2017). If women were more altruistic than men, then women would

be volunteering overwhelming more than men when in a single sex group. While we find that women tend to be the first to volunteer within a group, I explore how gender differences arise with a time-constraint and with interactions observing volunteering behavior of other group members. This simulates a situation in which more than one volunteer may be required to receive a benefit (Holt 2019).

Andreoni and Vesterlund find that men and women vary their behavior based upon the cost to oneself to contribute. Women prefer to equalize payments while men are described as "perfectly selfish or selfless, increasing payments when giving is at a low cost to them (2001). This behavior has been observed in public goods experiments as well (Goerre et al. 2000). With this, there will be an additional treatment varying the rates of the charity multiplier. We will examine potential differences using multipliers of 1.25 and 2.00. Multipliers will create a greater impact for charity, meaning that charity will benefit the most from completing problems within the effort task. Given the results from Andreoni and Vesterlund as well as Babcock et al. I hypothesize that women will volunteer more within the experiment (2001;2017).

Experimental Design

The experiment was conducted at the University of Virginia (UVA), VEconLab. Subjects were recruited from the VEconLab participant pool and are all UVA undergraduate students. Experiments lasted for about an hour and subjects were compensated $10 for attending the session and on average $23 from participating directly in the experiment. This means the total average earnings per subject was about $33. Subjects will be given the option to choose a charity

for contributions, the options are Feeding America's Hungry Children and the PetSmart Charities. These charities were chosen using WalletHub's charity rankings based upon measures such charity expenses, popularity, and donation impact. In general, children and animals are popular charity causes (Kiernan 2022). Each individual's charitable contributions will go to their chosen charity. Receipts will be available at an individual's request.

The experiment will consist of subjects participating in an effort task to earn money. The effort task will be a math problem where participants will be adding single digit numbers over 10 rounds during the one hour time period of the experiment. Subjects will be given pen and paper to use as needed. Previous research has shown that this effort task does not cause gender bias (Niederle and Vesterlund 2007). Within my experiment, it was found not to be gender biased. Each math problem will earn a fixed rate of $0.20. While they solve each math problem, they will be asked if they would like to allocate the earnings to themselves or to charity (Figure 1). This can be done as often or as little as the participant desires. The effort task is designed to simulate volunteering when the task is allocated toward charity (Brown et al. 2017). During the experiment, the participants will also be able to see how much money they have contributed, team members' contributions, and their own earnings.

To incentivize donations, each round will have a fixed volunteering goal. The experiment follows a between-subject design, where each subject is given one treatment. The volunteering goal within the experiment is donations is set at $2.40. For every round that the goal is meant, the amount volunteered by the team will be multiplied if the fundraising goal is met. I introduce this using two types of multipliers, 100% and 25%. This is meant to replicate high impact and

low impact volunteering. If the team has met the overall contribution goal, then the total donation will be matched 100% or 25%. For example, if the goal is $2.40 and $2.40 is contributed, then the total contribution will be $3.00. There was no limit to the amount that was matched. The volunteer goal will reset each round, so to receive a match the group must collectively reach the goal repeatedly. The volunteer goal allows me to examine how men and women behave with respect to the goal overtime while they observe group behavior.

There was no emphasis placed on gender during the recruitment process or during the experiment. Subjects were recruited in groups of four randomly. Subjects did not know the gender composition of their groups however, upon entering the room they were able to observe that it was a mixed-sex group. There were two treatment groups, 100% and 25% matching. Each treatment had three groups of four, for a total of 12 people per treatment. There were 24 total participants. This will be a multi-round experiment, consisting of about 10 rounds of 2 minutes. The participants have 2 minutes to solve up to 15 math problems. Participants knew how many rounds there were. Participants were paired with the same group of people each round and moved together during the experiment. The instructions given to the participants that were used in the experiment are included within the Appendix.

Results:

The groups were randomly assigned so they were not gender balanced. There are three groups that are majority female and three groups that have an equal gender composition. From table 1, the average amount of contributions from the 100% matching is $2.56 while the average from the 25% matching is $1.46. From the 25% matching treatment, only one group reached the

volunteering goal on average. Within the 100% matching, on average two of the three groups reached the fundraising goal. For the 100% matching, the distribution of the average contribution rates by participants shows high variety in male contributions while female contributions appear relatively similar (Figure 3). The 25% matching distribution shows very little contributions regardless of gender (Figure 4). Matching was found to have a highly significant effect on the amount donated by participants (Table 2).

The primary outcome I examine within my results is the share of contributions. The share of contributions is the percentage of total problems solved correctly that were volunteered or contributed to charity. Within the 100% matching, we observe that men volunteered significantly more than women. For men, there was a positive relationship between the number of rounds that occurred and the average contribution rate. Women have a negative relationship between the number of rounds and the average contribution rate (Figure 2). Overall, the distribution of male donations showed extremes. Women tended to donate less and smooth volunteer behavior over the series of rounds (Figures 3 and 4).

Using a linear regression model, I find that overall being a woman significantly decreases the average share of contributions. Within the 100% match while controlling for groups, being a woman decreases the average share of contributions by about 37 percentage points and is highly significant at the 1% level (Table 3). When clustering by groups in the 100% matching treatment, being a woman decreases the average share of contributions by about 27 percentage points and is highly significant at the 1% level (Table 4). Within the 25% matching treatment while controlling for the group, being a woman decreases the average share of contributions by

about 9 percentage points and is significant at the 10 percent level (Table 3). Within the 25%

match treatment being a female decreases the average share of contributions by 13 percentage

points while significant at the 5 % level (Table 4). Using a permutation test, similar results hold.

Overall, I find that being a woman decreases the share of contributions.

Conclusion and Applications:

Overall, the results contradicted my expectations as well as some results of previous

research. The results of this experiment mirror result of public goods games. It has been

previously found that men tend to volunteer or contribute to a public good at extremes (Goerre et

al. 2000). It also reflects results from Andreoni and Vesterlund that show that men are either

perfectly selfless or selfish (2001). To my knowledge, this is the first volunteer experiment

where men volunteered more than women. Although it is unclear why men chose to donate more

within this experiment. Within Brown et al. there was no differences in gender for volunteer

groups, so it is unlikely the public goods design aspect (2017). I speculate that it is the matching

rate design that motivated men to donate more. Another hypothesis is that men may view the

group aspect of volunteering as a competition and choose to try to outperform the others in their

groups. Men tend to volunteer more than women in social groups such as a Rotary Club while

women volunteer individually (Day and Devlin 1997). This might lead to differences due to a

preference to avoid competitions (Niederle and Vesterlund 2007).

These results can provide further insight on diversifying volunteering by increasing the

number of male volunteers. A disproportionate number of women who volunteer leads to little

gender diversity. To my knowledge, there is no research that examines the benefits of gender

diversity within charitable organizations. However, one might infer benefits of gender diversity within charities are like those of for-profit firms. It has been found that gender diverse teams within research papers conducted by teams of equal gender composition perform better, while the underlying cause is unknown, research suggests improved creativity among the group (Allen 2022). Within a field experiment, it was found that equal gender composition groups outperform male-dominated groups. Researchers also found that equal gender groups perform about the same as female-gendered groups (Hoogendoorn et al. 2013). Diversity allows firms to reflect the dynamics of the world shaped by globalization. This in turn attracts talent from different backgrounds (Woetzel et al., 2015). Encouraging male volunteers can bring benefits from diversity into nonprofits and other organizations, such as political campaigns, that rely on volunteers.

The career benefits of volunteering have been unclear. A field experiment conducted in Belgium found that volunteering increases the overall probability of being invited for a job interview (Baert and Vujic 2016). However, an analysis of the 1987 Survey of Volunteer Activity in Canada finds that male volunteers earn about 11% higher incomes than their female counterparts and non-volunteers (Day and Devlin 1997). Day and Devlin estimate that up to about one third of the male-female earnings gap can be explained by the type of volunteer activity. This may be because men tend to volunteer in social clubs while women tend to volunteer for individual causes, allowing men to create social networks to assist in their career (1997). Given these results, the benefits of volunteering may vary by culture. Although it is unclear if there are consistent wage and career benefits for women, it is possible that these benefits are unequally distributed. Using the American Time Use Survey to compare first and

second-generation immigrants, it was found that women volunteered less if they were from countries with gender neutral norms (Bellido et al. 2021). More research is needed to evaluate the benefits of volunteering across different regions.

Charitable donations and volunteer activity is a vital part of philanthropic activities, the Urban Institute estimates that in 2013 nonprofits received about 8 billion hours of free labor (Toran 2014). Gender differences within volunteering policies may lead to an unequal distribution of the benefits of philanthropic activity. Within the United States, only monetary charitable donations and donations of property are eligible for tax benefits. Research has found that cash donations by employed men are more sensitive to tax benefits (Apinunmahakul et al. 2009). Given that gender impacts volunteer and monetary donation preferences, women are not receiving the appropriate incentive to volunteer or benefits to volunteering as male counterparts that choose to donate money (Charitable donations and volunteer activity is a vital part of philanthropic activities, the Urban Institute estimates that in 2013 nonprofits received about 8 billion hours of free labor (Toran 2014). Gender differences within volunteering policies may lead to an unequal distribution of the benefits of philanthropic activity. Within the United States, only monetary charitable donations and donations of property are eligible for tax benefits. Research has found that cash donations by employed men are more sensitive to tax benefits (Apinunmahakul et al. 2009). Given that gender impacts volunteer and monetary donation preferences, women are not receiving the appropriate incentive to volunteer or benefits to volunteering as male counterparts that choose to donate money (IRS 2023a; IRS 2023b).

Building from Brown et al., this experiment was conducted on the primary result that money and time are substitutes (2019). While some researchers have concluded that time and money are substitutes, this remains contentious within the field of economics (Lilley and Slonim 2013). If we expect that money and time are substitutes, then eliminating tax incentives for monetary donations should increase volunteer hours. This also means that if we provide tax incentives for volunteering, we expect the number of people to be indifferent. If money and time are complements, then reducing tax deductible monetary donations would decrease volunteering and monetary donations. Providing tax incentives for both volunteering and monetary donations may imply that people will substitute away from money toward time. Future research should aim to explore whether time and money are complements or substitutes regarding gender (IRS 2023a; IRS 2023b).

Figures and Tables:

Figure 1:

Group (2.0)x	Average Group Contributions ($)	% Female	Group (1.25)x	Average Group Contributions($	% Female
1	3.12	75%	1	4.24	50%
2	0.46	50%	2	0	75%
3	4.1	75%	3	0.14	50%
Average	2.56		Average	1.46	
n=12			n=12		

Table 1

Average Share of Contributions: Clustered by Group			
	Estimate	Standard Error	
Intercept	0.36	0.04	***
Female	-0.2	0.04	***
1.25 Matching	-0.11	0.04	***

Table 2

Average Contribution Rate by Gender (Doubling)
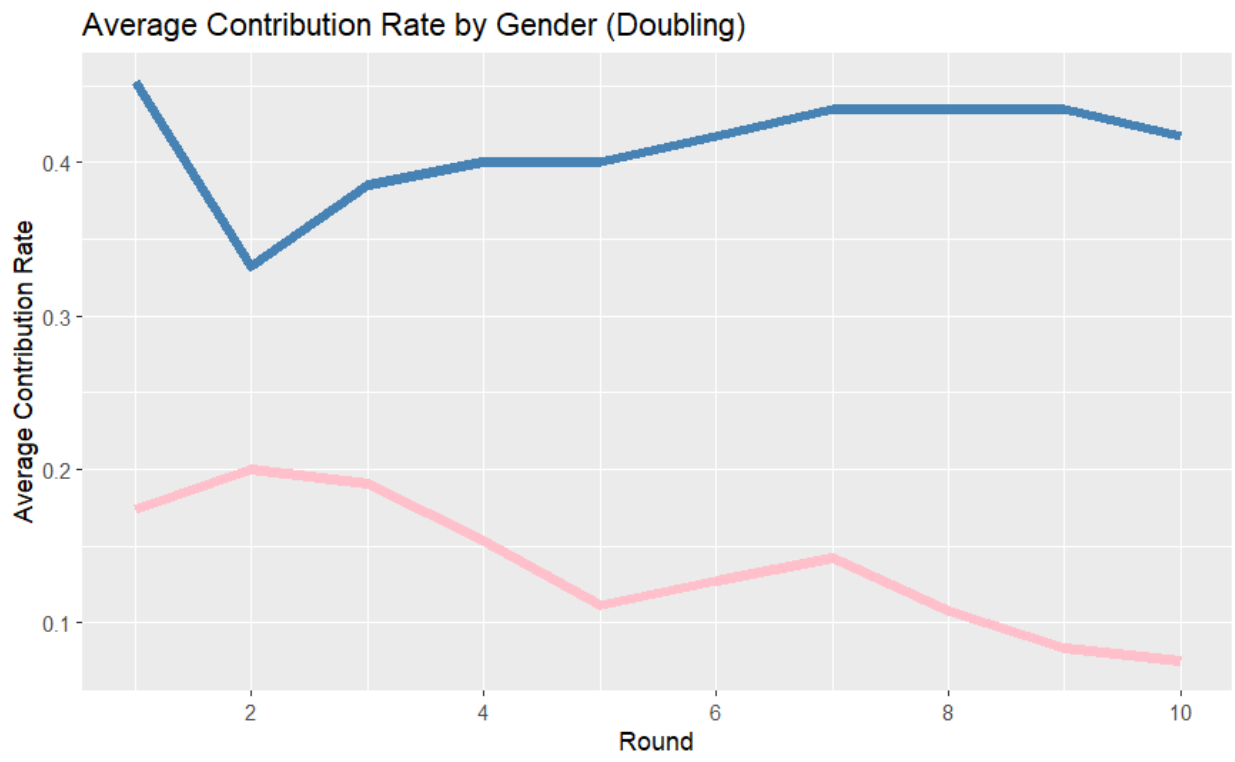
Figure 2

Average Contributions: With Group Fixed Effects			Estimate	Standard Error	
2.0x	Intercept		0.56	0.04	***
	Female		-0.37	0.04	***
	Group 2		-0.33	0.05	***
	Group 3		0.07	0.04	
1.25x	Intercept		0.42	0.05	***
	Female		-0.09	0.05	
	Group 5		-0.36	0.06	***
	Group 6		-0.37	0.06	***

Table 3

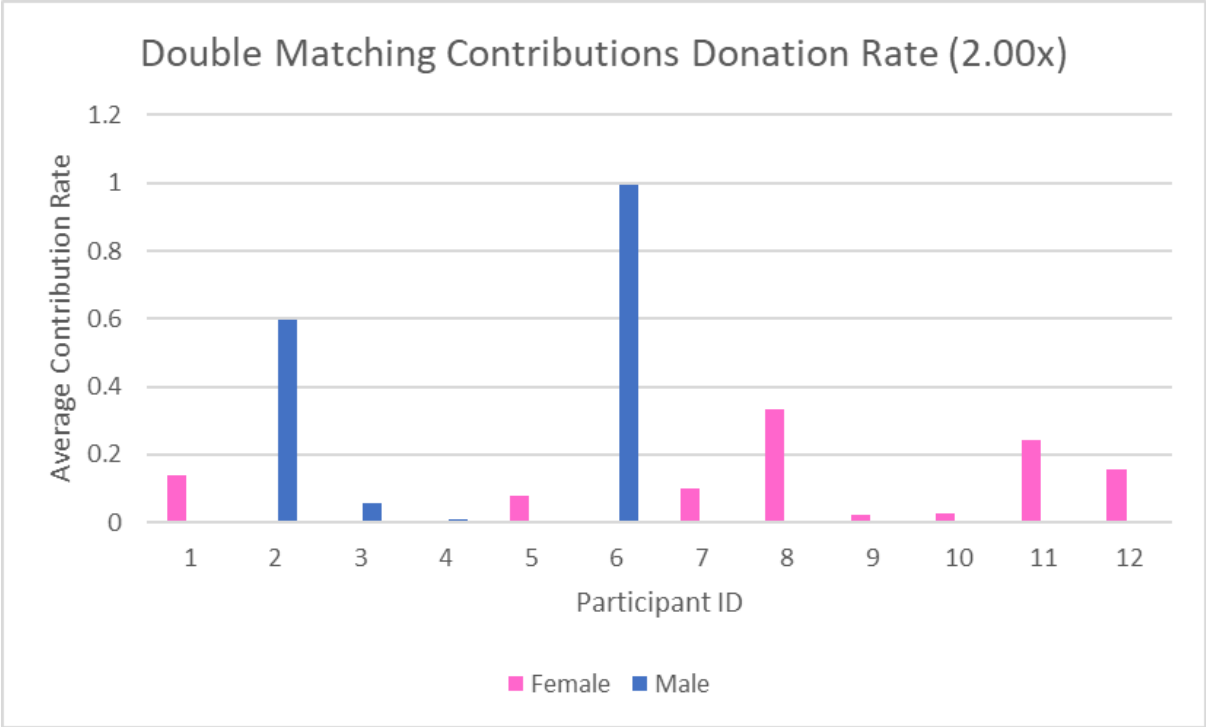| Average Share of Contributions: Clustered by Group				
		Estimate	Standard Error	
2.0x	Intercept	0.41	0.04	***
	Female	-0.27	0.05	***
1.25x	Intercept	0.2	0.05	***
	Female	-0.13	0.05	**
	n=12	R^2=.02,.04		

Table 4

Figure 3
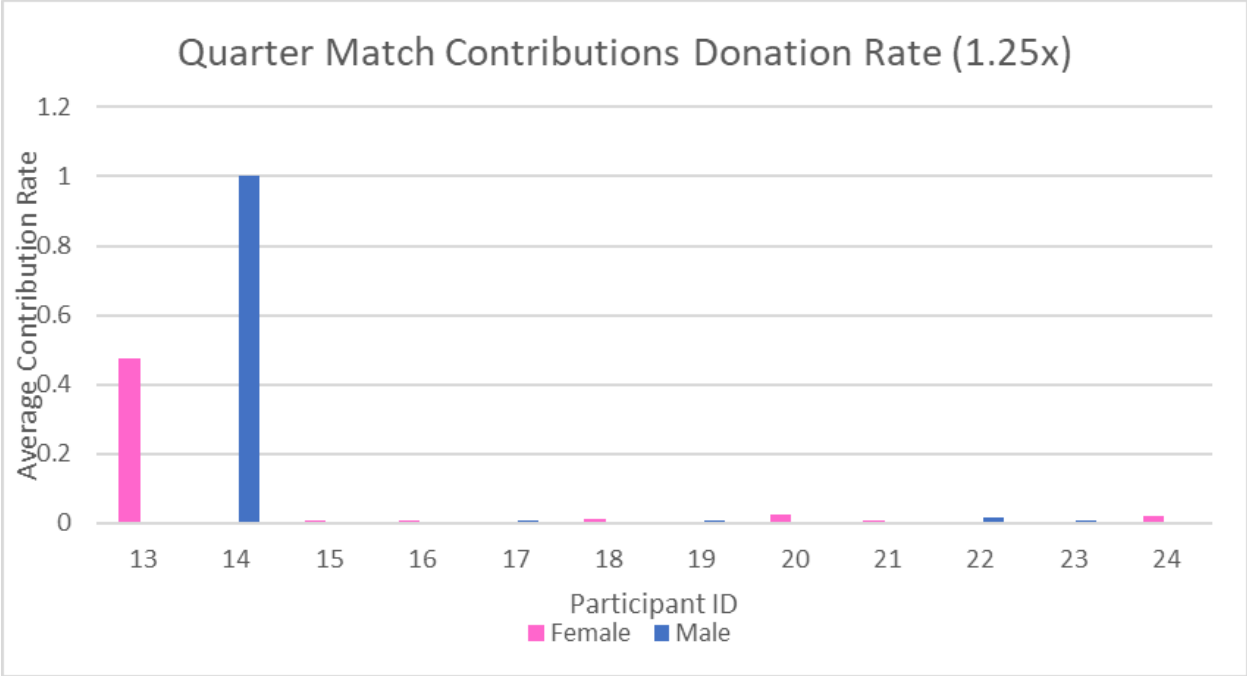
Figure 4

Appendix:

Instructions:

- **Matchings:** The experiment consists of a series of **rounds**. You will be matched with the **same** person in each round. The decisions that you and the other person make will determine the amounts earned by each of you.
- **Effort Task:** Each round will consist of a series of opportunities to earn money by correctly adding together a pair of numbers, in your head or with pencil and paper. Each correct sum that you enter will result in the receipt of **$0.25**. You can work at your own pace, but each round will only last for **120 seconds**.
- **Money Receipts and Contributions:** Prior to each addition task, you will be able to designate the earnings recipient for the correct answer payment, either yourself or a designated charity (details to follow). Moreover, different people may have different designated charities.
- **Contribution Match:** The computer will keep track of the earnings you keep, and of your group's total contributions to designated charities in each round. At the end of the round, if the total charity contributions for your group (of 2 people) exceeds a **provision goal** of **$3** for that round, then each person's total contributions to their designated charity will be multiplied by **2** (for a 100 percent match).
- **Subsequent Matchings:** The groups of 2 people will be the same in all subsequent rounds, so the person you are matched with in one round is the same person that you are matched with in the next round.

Top of Form

Bottom of Form

- **Charity Recipient:** Prior to beginning the first round, you will be able to designate a charity that will receive contributions resulting from your decisions. Recall that each round consists of a series of addition tasks, with a payoff of $0.25 for each correct answer. Before submitting each answer, you first specify a beneficiary, either yourself or your designated charity. You will be able to specify yourself as the beneficiary for all cases, or you can specify the charity beneficiary in all

cases, or you can switch from one beneficiary to the other as you choose.

- **Example:** Suppose that: 1) you correctly answered enough addition problems in trials with a charity beneficiary to earn $1.50 for your designated charity, and 2) in trials without a designated charity recipient you made enough correct answers to earn $E for yourself. Then your earnings for the round would be $E, and your contribution to the charity would be 1.50, unless the total contributions for the other person were high enough to put the total contributions above the provision goal of $3 for the round.

  Example (Continued): Since the provision goal for the round is $3, this goal would be met if the charity earnings for the other person in your group were as great or greater than $1.50, in which case your charity contributions for the round would be multiplied by 2. In this case, your charity contributions for the round would be increased from $1.50 to $3.00 (and the contributions of the other person in your group would also be enhanced in the same manner, that is, multiplied by 2). Your cash earnings would remain at the level of $E, regardless of whether your charity contributions were enhanced (goal met) or not.

- The two charity options available to you are:
  - **Feeding America**: A top charity evaluated based upon donation impact and charity expenses. A nonprofit that works with 200 food banks and 60,000 pantries to collect food donations, transport food to needy communities, and distribute food to local partners. This includes providing children with meals on days without school, supporting senior food programs, and targeting communities with high hunger rates. www.feedingamerica.org
  - **PetSmart Charities**: A top charity evaluated based upon donation impact and charity expenses. A nonprofit that supports nonprofits, municipalities, and animal welfare organizations whose companion animal programs help enrich lives through the human-animal bond. This includes supporting animal adoption and accessible pet

medical treatment, and preventing pet hunger.
petsmartcharities.org

- **Charity Designation:**
Before proceeding, please select the charity that you would like to designate as a potential beneficiary:

Feeding America	A top charity evaluated based upon donation impact and charity expenses. A nonprofit that works with 200 food banks and 60,000 pantries to collect food donations, transport food to needy communities, and distribute food to local partners. This includes providing children with meals on days without school, supporting senior food programs, and targeting communities with high hunger rates. www.feedingamerica.org
PetSmart Charities	A top charity evaluated based upon donation impact and charity expenses. A nonprofit that supports nonprofits, municipalities, and animal welfare organizations whose companion animal programs help enrich lives through the human-animal bond. This includes supporting animal adoption and accessible pet medical treatment, and preventing pet hunger. petsmartcharities.org

Feeding America
PetSmart Charities

- You will be matched with the **same person** for all rounds.
- Each person in your group will encounter a series of simple addition tasks, for which a correct answer will either generate earnings of **$0.25** for that person or a contribution of **$0.25** for the charity designated by that person (**Feeding America** or **PetSmart Charities**). The beneficiary (self or charity) will be prespecified by the person prior to answering each addition task.
- You have chosen Feeding America to be a potential beneficiary of any contributions that you may designate for charity in subsequent rounds.
- Each person will be able to work at their own pace during the permitted time interval for a round (120 seconds), so some

people may end up answering more questions correctly than others. (Note: The "submit page" will show the time remaining, but if the clock runs down after the page has loaded, you will still be to submit the answer to the addition problem that is showing on that page when the page loaded.)

- When the time limit for the round has been reached, each person will see how much they earned for themselves and how much was earned for their designated charity.
- If the total of all amounts contributed to designated charities by both people in your group surpasses a goal threshold of **$3.00** for that round, then the charity contributions for each person in your group will be multiplied by **2** (for a 100 percent match).
- The computer program will keep track of each person's cash earnings (from correct answers when they specified themselves as the beneficiary) across all rounds. Similarly, the program will keep track of each person's charity contributions (for correct answers when their charity was designated to be the beneficiary)
- At the end of the final round, you will be paid your earnings in cash, and your total charity contributions will be mailed to your designated charity after you verify the address on the envelope.
- There will be a total of **10 rounds** in this part of the experiment. Your earnings and contributions for each round will be calculated for you, summed, and shown in the total earnings and contributions columns of the record form to be provided.

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