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Round Giving: A Field Experiment on Suggested Charitable Donation Amounts in Public Television

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Abstract

Direct-mail fundraisers commonly provide a set of suggested donation amounts to potential donors, in addition to a write-in option. Standard economic models of charitable fundraising do not predict an impact of suggested amounts on charitable giving. However, our field experiments on direct-mail solicitations to over 10,000 members of a public television station tell a different story. We find that changing one of the suggested amounts in an ask string from $100 to $95 reduces the number of gifts greater than or equal to $90 by more than 30%. This contrasts with our finding that in three independent comparisons, increasing the entire vector of suggested amounts by 20 to 40 percent reduces the probability of giving by approximately 15 percent, with little effect on the average size of the gift. Both manipulations lead to a larger proportion of write-in donations, even as they reduce the number of total gifts. We propose that many donors prefer to give round numbers, and that donors incur a cognitive cost when choosing to give a non-suggested amount. We advance a simple behavioral theory to incorporate this idea.

JEL Classifications: C9, H4
Keywords: field experiment, charitable giving, suggested amounts

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1. Introduction

Charitable giving continues to increase in economic importance, with $358 billion – over 2% of U.S. GDP – contributed to charity in 2014 (Giving USA, 2014).[1] Charities spend a sizeable 15-35% of their total contributions on administration and fundraising, using mailings, phone-a-thons, and the like.[2] A growing literature has successfully used field experiments to explore the design features of a solicitation that affect giving behavior, which has provided insights into both fundraising practice and theories of public good provision.[3]

A common practice in direct-mail fundraising is to provide a vector of suggested donation amounts to potential donors, in addition to a write-in option. In fact, personal collection of hundreds of letters has led us to conclude that almost all mail solicitations provide suggested contributions, usually with multiple checkboxes of different amounts (e.g., $25, $35, $50 and an 'other' box), known as an "ask string." Many charities utilize ask strings in practice.[4] However, standard economic models of charitable fundraising as public-good provision – which model the optimal choice of gift amount over a continuous set of choices – imply that suggested amounts are irrelevant for explaining donor giving behavior.

To investigate whether suggested amounts impact donor behavior, we conducted field experiments using a fundraising campaign for a public television station in Tucson, Arizona. In the first experiment, a mailing went out to 10,548 station members, soliciting a year-end gift. Members were randomized to one of four treatments in a 2x2 experimental design. First, we varied the size of the suggested amounts by shifting the entire vector of suggested amounts up by approximately 20% in two of the treatments. Second, we varied whether the vector of suggested amounts was fixed across individuals or personalized based on the individual's previous donation. (For purposes of comparing two vectors, this comprises two separate experiments: one

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[1] As reported by Giving USA in their report, available at http://givingusa.org/.

[2] As reported by the Center on Nonprofits and Philanthropy, Urban Institute, Center on Philanthropy, Indiana University. Nonprofit Overhead Cost Project: Facts and Perspectives.

[3] See Jasper and Samek (2014) for a summary. Selected findings of that literature are that donations are increased through matches and seed grants (List and Lucking-Reiley, 2002; Karlan and List, 2011), donor gifts and lotteries (Landry et al., 2006), and recognition (Soetevent, 2005).

[4] For instance, articles on the Association of Fundraising Professionals (AFP) website provide rules of thumb for suggested gift amounts in direct mail (see http://www.afpnet.org/ResourceCenter/ArticleDetail.cfm?ItemNumber=3580). Blackbaud, the provider of one of the leading data solution systems for fundraisers, has made incorporating suggested amounts in direct mail straightforward for non-profits (see https://kb.blackbaud.com/articles/Article/42915). One of the authors (Reiley) also saved all direct-mail solicitations he received for a year, around the time of the experiment, and discovered that the vast majority of the dozens of charities who mailed him were employing ask strings.

with fixed amounts and one with personalized amounts.) We conducted a second field experiment a year later with 9,964 station members in which we tested a larger shift of the vector (approximately 40%) and explored changing just one of the suggested amounts in the vector from $100 to $95 (the second-highest of five amounts in the ask string).

We observe that in contrast to standard economic theory, suggested donation amounts do have a strong influence on donor behavior; overall, 60% of donors choose to give one of the suggested amounts. Interestingly, we find that donors show some preference for round numbers in their giving - even when the round numbers suggest a higher gift amount - as the treatment replacing a suggested amount of $100 with an amount of $95 produces an economically and statistically significant reduction in the probability of contributing a gift in the range of $90 or more. We also find in both experiments that the vector of 20-40% higher suggested donation amounts results in a likelihood of donating that is about 15% lower, with no significant effect on donation amounts (conditional on giving). Finally, we find that the vectors that lead to lower donation probabilities also lead to a higher probability of a write-in donation amount.

Our results lead us to believe that suggested amounts have substantial effects on charitable-giving behavior, potentially due to behavioral factors that are not incorporated into standard economic models of charitable giving. We propose that donors have latent preferences for different gift amounts, with a substantial fraction of donors preferring relatively round numbers. We further propose that they incur a cognitive cost from writing in an amount that differs from the options suggested by the charity. We explore our idea by providing a simple behavioral theory in Section 5, consistent with our experimental results.

Our findings have broad implications for practice. Unlike more costly interventions often undertaken as part of fundraising campaigns (e.g., those that provide matching grants or gifts to donors), suggested amounts constitute a minor framing change or 'nudge' (Thaler and Sunstein, 2008). Suggested amounts are costless for the fundraiser to implement and do not affect potential donors' action set, as they are still free to write in any amount. We demonstrate that fundraisers still need to think carefully about the choices of these amounts, as they have large, measurable effects on donor behavior.

2. Related Work

Related work found that suggested amounts increase the likelihood of giving at the suggested amount. Edwards and List (2014) found that suggesting a single amount in a telephone call resulted in a higher probability of receiving a gift relative to no suggestion at all, while Adena et al. (2014) found that making a suggestion of 100 or 200 euros decreased the probability of a gift but increased the average donation amount.[5] Different from these papers, which focus on changes to one suggested amount, we explore changes to an entire string of suggested amounts, also known as "ask strings". Ask strings are very common in direct-mail fundraising. Manipulating an ask string is therefore not only realistic, but also provides interesting degrees of freedom in manipulating a vector rather than a scalar to understand effects on donor behavior.

Several past experiments have explored shifting an entire string of suggested amounts. In general, this literature finds 'downward-sloping demand' in the sense that when the suggested donation vector increases, the probability of donation generally decreases (Weyant and Smith, 1987; Schibrowski and Peltier, 1995; Warwick, 2003). An exception is Doob and McLaughlin (1989), who found no effect on the probability of a donation. These projects explored relatively large shifts in the ask string, such as {$5, $10, $25} versus {$50, $100, $250} in Weyant and Smith (1987)). By contrast, we explore more modest changes, on the order of 20%.

The papers just mentioned all explore shifts in fixed ask strings. By contrast, de Bruyn and Prokopec (2013) shifted ask strings that were personalized based on the donor's past donation. They also found higher ask strings to lead to a lower probability of donation. In our experiment, we evaluate shifts in both fixed and personalized ask strings, documenting the existence of "downward-sloping demand" for both types of appeals.

Our most novel treatment comes in the second experiment, where we explore the impact of round ($100) versus non-round ($95) suggested amounts. We found only one paper in the charitable giving context that attempts to do something similar. Lee and Feinberg (2013) vary whether ask strings are fixed or personalized, including shifting the strings, and find limited

[5] Other work has investigated an *indirect* suggested amount by telling callers who were making a donation the contribution amounts of others. Shang and Croson (2009) found that giving potential donors information about past high donations (up to a point) increases donation amounts, while giving donors information about past low donations decreases donation amounts (Croson and Shang, 2008). Language such as `even a penny helps' has also affected the probability of donating in related work (Cialdini and Schroeder, 1976; Reingen, 1978). Karlan and List (2007) conducted a field experiment using a direct mail solicitation with three ask strings. They included an example using one of the ask strings at random to explain the impact of a matching grant - the example did not have a meaningful influence on behavior.

overall effects on donations, but report some evidence that donors prefer to give at round suggested amounts. We conduct a more direct test by comparing two fixed ask strings, where we vary only one of the internal suggested amounts.

Outside of the charitable giving context, researchers have found a role for round numbers in test taking (Pope et al., 2015) and bargaining outcomes (Pope et al., 2015; Backus et al., 2016; Cardella and Seiler, 2016). We contribute to this literature is by demonstrating an effect of round numbers in charitable fundraising. We also compare the size of this effect (on the probability of a donation) with that of the effect of a rightward shift in the entire ask string. We find it especially striking that the round-number effect of $100 versus $95 – which pushes one of the suggested amounts down by $5 - produces a result opposite to the general finding of "downward-sloping demand," in which rightward shifts of the ask string produce decreases in the probability of a donation.

3. Experimental Design

The experiments followed the Tucson television station's normal year-end fundraising procedures. In the first experiment, on November 10, 2003, mailings went out to 10,548 current members (individuals who had made "membership" donations that year), randomized to one of four different solicitations.[6] As was standard practice for the station in prior years, the mailing asked for an additional year-end gift from current members, not conferring any additional membership benefits. The experiment had the 2x2 design illustrated in Table 1.[7] The first dimension experimented with fixed versus variable donation amounts, while the second experimented with shifting all suggested donation amounts up by approximately 20%. This design resulted from the station's interest in the possibility of improving their revenue by personalizing the suggested donations by suggesting fractions of the donor's previous membership gift to the station.

[6] Arizona Public Media also chose to apply the experimental treatments to two other groups of individuals: public-radio members, and lapsed members of both the radio and TV stations (people who had given in a previous year but not the current year). Because results for these groups were low-powered, we have chosen, for simplicity of exposition, not to present them in this paper. Power was low for radio station members because they are only one third as numerous as the television members studied here. Power was low for lapsed members because they donated at rates only one tenth as high as those for current members. The results for radio station members are directionally similar to those of the television station members. The results for lapsed members suggest the opposite direction of effect (donation probability increases with higher ask strings), but are small (0.3 percentage points) and statistically insignificant. These results are provided in the appendix.

[7] Each person was assigned with equal probability to one of the four treatments, using random-number generation.

Table 1 shows the ask strings chosen for each treatment in Experiment 1. Treatment Fixed1 employed a similar ask string to that sent to donors in the previous year-end mailing, while Fixed2 increased these across the board by approximately 20%.[8] In the Variable treatments, each suggested amount was defined as a fraction of each individual's previous membership gift amount X.[9] Each ask string contained five specific suggestions of dollar amounts, followed by a write-in box for those who wished to give an amount other than those suggested. Potential donors were not told that the suggested donation amounts were based on a prior donation amount. To donate, potential donors had to either check one of the suggested amounts or write in an amount, and provide a check or credit-card information on the response card.

Table 1: Treatments in Experiment 1

		Suggested Amounts					
Treatments	**Solicitations**	**Ask 1**	**Ask 2**	**Ask 3**	**Ask 4**	**Ask 5**	**Ask 6**
Fixed1	2,619	$30	$50	$75	$100	$200	$___
Fixed2	2,692	$35	$60	$95	$120	$240	$___
Variable 1	2,604	0.5X	0.75X	1X	1.5X	2X	$___
Variable 2	2,633	0.6X	0.9X	1.2X	1.8X	2.4X	$___

Note: X represents the previous year's membership gift amount. In Variable1 and Variable2, the amounts were rounded to the nearest $5 increment, with an amount increased by $5 if it turned out to duplicate the next lowest amount in the string.

In the absence of a clear theory about the correct proportions to use in the Variable treatments, we chose the Variable proportions so that the mean of each suggestion (across donors) would be roughly equal to the corresponding suggestion for current donors in the Fixed1 and Fixed2 treatments.[10] Since this sometimes produced unconventional dollar amounts (such as

[8] In the previous year's (non-experimental) year-end campaign, suggested amounts were $35, $50, $75, $100, $150 and write-in box. The previous year's year-end campaign raised $113,581.18.

[9] Since few members give a year-end gift, we could not use the year-end gift from the previous year as our reference point. We use their previous membership gift instead, since we have such an amount for everyone solicited.

[10] In practice, the mean suggested amounts for the highest entries in the Variable ask strings ended up being a bit lower than the corresponding amounts for the Fixed ask strings. We can see this in Table 2 from the fact that the highest ask amount in Fixed is more than six times the lowest ask amount, while the highest ask amount in Variable is only four times the lowest ask amount. However, the means match relatively closely at the low end, which is where the bulk of donations occur. The mean suggested amounts for those who responded with donations in

non-integer dollar amounts), we rounded all amounts to the nearest five-dollar increment for both Variable1 and Variable2.[11]

One year after the first experiment, we ran a second experiment as part of the station's 2004 year-end gift campaign. This time, we did not explore variable ask strings, but instead decided to follow up on data from the first experiment suggesting donors favor round numbers like $50 over non-round numbers like $45 that had sometimes been produced in the variable treatments.[12] In Experiment 2, we randomized donors into one of three treatments, as described in Table 2. Treatment 1, the baseline treatment, was similar to the Fixed1 treatment in the first experiment. Treatment 2 experimented with a large increase in ask strings relative to Treatment 1. Treatment 2 deletes the bottom amount, shifts down all suggestions, and adds a suggestion of $500 at the top. At the low end of the suggestions, where most gifts are received, this increase is approximately 40%, compared with the 20% shift in Experiment 1. Finally, Treatment 95 asked about non-round numbers by modifying only the fourth number in the Treatment1 ask string, replacing $100 with $95.

Table 2: Treatments in Experiment 2

		Suggested Amounts					
Treatments	**Solicitations**	**Ask 1**	**Ask 2**	**Ask 3**	**Ask 4**	**Ask 5**	**Ask 6**
Treatment 1	3,336	$35	$50	$75	$100	$250	$___
Treatment 2	3,282	$50	$75	$100	$250	$500	$___
Treatment 95	3,346	$35	$50	$75	$95	$250	$___

Following its standard practice, in both experiments, the station sent an additional reminder mailing one month after the initial mailing. This mailing, with the same set of suggested amounts received by the donor in the original mailing, went to current members who had not yet given an additional year-end gift. We consider our treatment to include the effects of

Variable1 were $27.08, $41.32, $57.16, $84.50 and $114.41, while Variable2 resulted in mean suggested amounts of $34.52, $51.66, $69.89, $105.36 and $140.70.

[11] Since small previous gift X could yield redundant suggested amounts (e.g., $5, $5, $10, $10, $15), we chose in those cases to increase suggested amounts by the minimum required so that each would differ from the last by at least five dollars (e.g., $5, $10, $15, $20, $25).

[12] See the discussion of Figure 1 in our results section below.

the initial and the reminder mailing, since we were unable to obtain data on which members received a reminder.

Our data for both experiments consist of response rates and gift amounts for each person who gave in response to the year-end fundraising campaign. The data include all gifts received during the three-month period following the initial solicitation in each experiment. We also obtained the previous (membership) gift amount and ask string applied to each individual who gave during the experiment. However, we were unable to obtain data on the past gifts of those who were solicited but chose not to give during the experiment, because the broadcasting station did not keep these records.[13] The lack of data on non-donors means that we are unable to provide covariate balance checks for the experiment; however, we have reasonable confidence in the randomization of treatment assignment because the station outsourced the mailing to a marketing firm with years of experience in randomized direct-mail solicitations.

4. Results

We begin with Experiment 1. Table 3 provides a summary of our results on the probability of a gift, average gift amounts (conditional on giving) and proportion of gifts utilizing any suggested amount. Our main finding is that the set of suggested amounts significantly affects the probability of a gift. Despite the option to write in one's preferred amount, we observe "downward-sloping demand": larger suggested donation amounts lead to fewer gifts received. We observe an 11.65% contribution rate in Fixed1 relative to an 8.99% contribution rate in Fixed2 (Test of proportions $p<0.01$) and a 10.60% contribution rate in Variable1 relative to a 9.15% contribution rate in Variable2 ($p<0.10$). This brings us to our first result:

[13] This includes being unable to obtain details about specific numbers in the ask string for non-responders in Variable 1 and Variable 2 treatments. We failed to obtain this information because the randomization and mailings were conducted by a direct-mail marketing company hired by the broadcasting station. The company randomized a list of addresses to each of the treatment groups and sent the mailing. Upon receiving responses (donations) the broadcasting station recorded the experimental treatment group of each donor, using a code printed on the response card at the time of the randomized mailing. This unfortunately means that the station never recorded the treatment assignment for any member who did *not* donate. In future research projects, we would insist on recording treatment assignment for everyone solicited, not just everyone who donated. This would allow us to provide a randomization check, to look for heterogeneous treatment effects by past gift size, and to increase precision in our estimated treatment effects by conditioning donors' outcomes on covariates such as their past gift amount and whether they had previously given extra year-end gifts to the station.

Result 1: Increasing the suggested amounts from Variable1 to Variable2 and from Fixed1 to Fixed2 leads to a significant decrease in response rates.

Treating the suggested amounts analogous to a price level (which increased by approximately 20% in each comparison) and the gift probability analogous to a quantity, we calculate "suggestion elasticities" in the two experimental comparisons to be -1.1±0.7 and -0.7±0.7, respectively. Noting the wide 95% confidence intervals on both estimates, we claim merely that the elasticities are in the neighborhood of -1 (the percentage decrease in gift probability approximately equals the percentage increase in ask amounts).

Table 3: Summary Statistics for Experiment 1

Treatment	Response Rate	Responses using a Suggestion	Gift Amount Conditional on Giving	Revenue per Solicitation
Fixed1	11.65% (0.63%)	6.57% (0.48%)	$47.62 (2.48)	$5.55 ($0.41)
Fixed2	8.99%*** (0.55%)	5.05%** (0.42%)	$47.27 (2.41)	$4.25** ($0.34)
Variable1	10.60% (0.60%)	8.49% (0.55%)	$46.45 (4.46)	$4.92 ($0.55)
Variable2	9.15%* (0.56%)	4.33%*** (0.39%)	$49.65 (5.12)	$4.54 ($0.54)
Overall	10.09% (0.29%)	6.09% (0.06%)	$47.69 ($1.87)	$4.81 ($0.05)

Note: Reported gift amounts and proportion utilizing suggested amounts are conditional on making a gift. Standard errors in parentheses. Test statistics from a test of proportions are reported (response rates) and t-test (gift amounts) comparing Fixed1 and Fixed2 and Variable1 and Variable2. * p-value<0.10, ** p-value<0.05, *** p-value<0.01.

We next turn to the sizes of gift amounts. We see no significant differences in the mean gift size conditional on giving. More interesting than the mean gift amounts is the shape of the distribution of gifts, particularly the utilization of the suggested gift amounts. Conditional on giving, we find that a large proportion – 60% of those who contributed – use the suggested amounts. This constitutes 6% of all solicitations. This result reinforces the results in Haggag and Paci's (2014) work on taxi tipping, who found that default suggested amounts are often used as tips. Like us, they find that individuals are much more likely to give suggested amounts than to

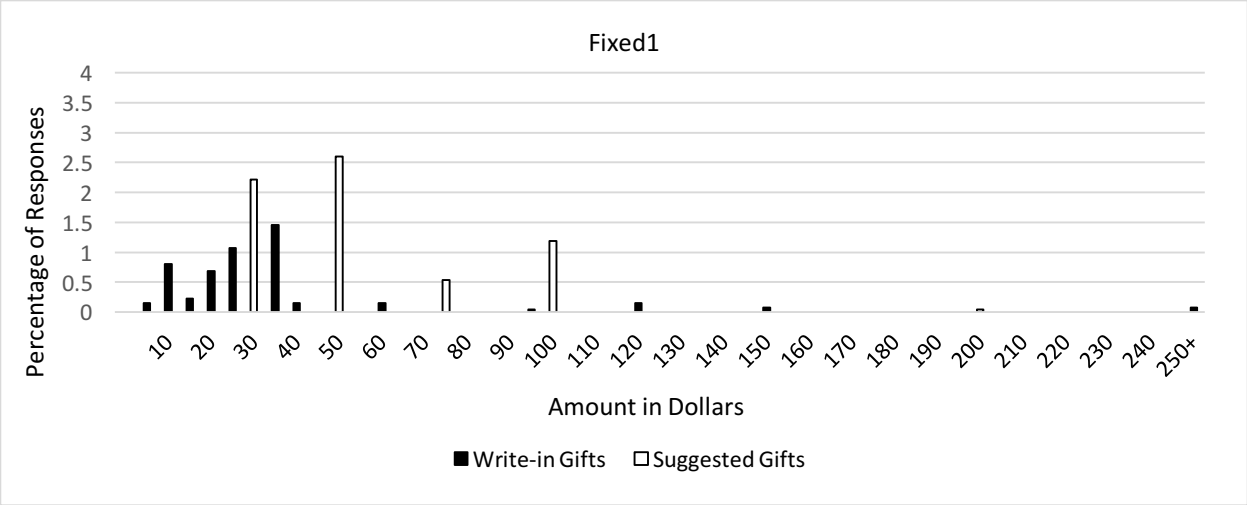
write in an amount, and that suggesting 'too high' tip amounts yields a greater number of individuals who do not tip at all. We observe a statistically significant decline in suggested amount usage from Fixed1 to Fixed2 and from Variable1 to Variable2. This brings us to our next result:

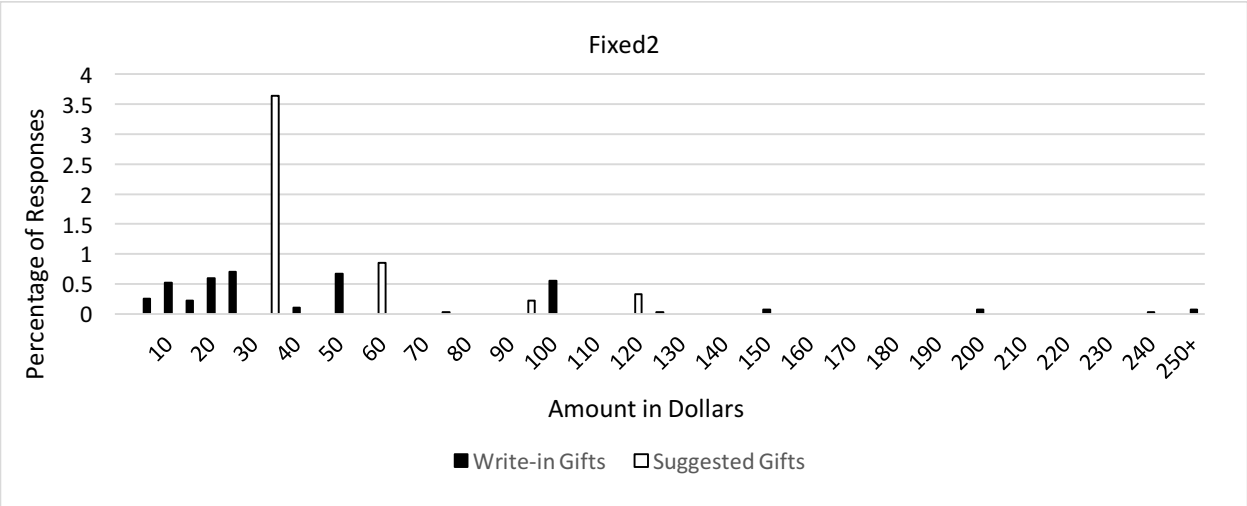
Result 2: 6% of those solicited utilize a suggested amount, and the utilization decreases significantly as the set of suggested amounts increases.

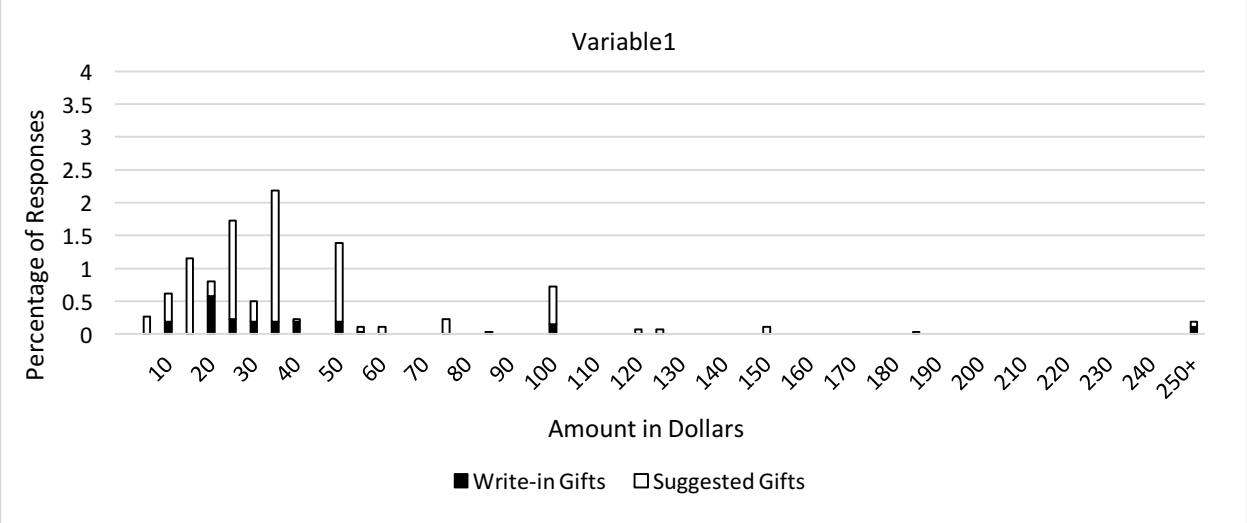
Figure 1 provides histograms of gift amounts in Experiment 1, where the bars are colored black for gifts accepting suggested gift amounts, and white for write-in gifts. Most write-in gifts fall below the lowest suggested gift (58% of write-in gifts in Fixed1 and 56% of write-in gifts in Fixed2 are below the lowest suggested amount). The likelihood of giving any amount is statistically significantly higher when that amount is suggested. Utilization of suggested amounts is concentrated among the lowest two amounts in Fixed1 ($30 and $50) and lowest single amount in Fixed2 ($35).

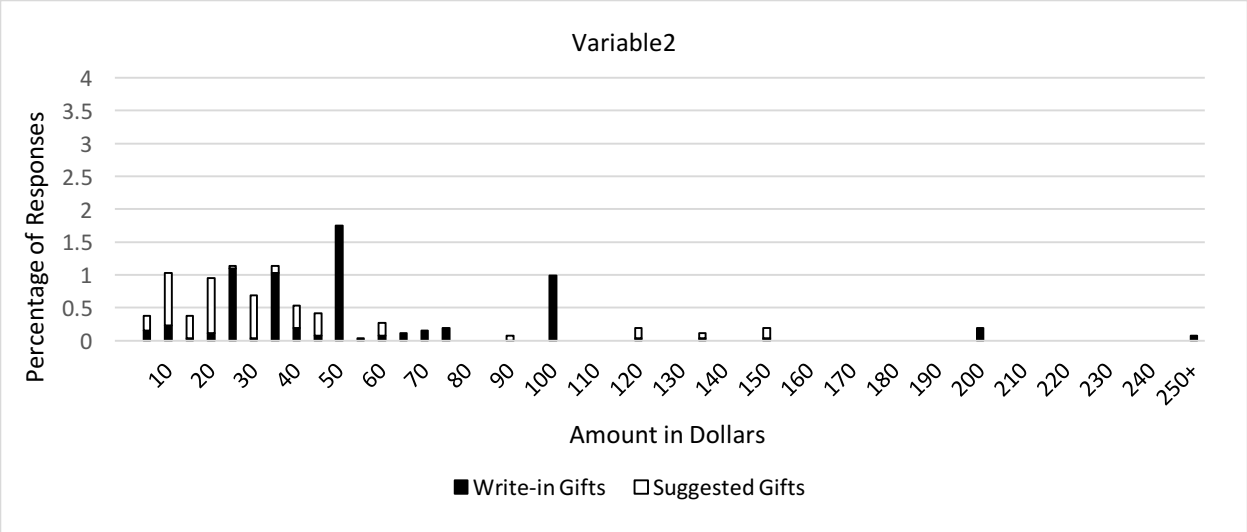
Interestingly, we see a preference for giving the "round" numbers $25, $50, and $100 in all treatments, even when they are not suggested (see the panels for Fixed2 and Variable2). Variable1 and Variable2 also both display a high likelihood of giving $100, whether that amount is suggested (Variable1) or not (Variable2). The $25 amount is smaller than the smallest amount used in the Fixed treatments, so the evidence about this amount can be found mainly in the Variable treatments. In Variable1, we see over 50 gifts of $25 when that amount is suggested, and 10 write-ins when it is not. In Variable2, we see almost no suggestions of $25, but 30 write-ins at that amount. A similar result occurs for gifts of $50: over 50 such gifts in Variable 1 (where they are mostly suggested) and almost 50 such gifts in Variable2 (where they are almost exclusively written in). Finally, we see just over 30 gifts of $100 in Variable1, and just under 30 gifts of $100 in Variable2. Note that total gifts at or near these round amounts tend to be less frequent in Variable2 than in Variable1, suggesting that non-round suggested amounts may cause some donors not to give at all. (The motivation for Experiment 2 was to investigate this question in an experiment expressly designed for this purpose.)

Figure 1: Histograms of Giving Amounts in Experiment 1









**Note: White bars represent giving at a suggested amount, black bars represent giving a write-in amount. The y-axis is the percentage of responses, where the denominator is the total number of solicitations sent.*

Finally, we examine hypothesis tests concerning differences in the distributions of gifts plotted in Figure 1. To conduct a chi-squared test, we bin the data into seven natural bins (corresponding to the numeric ranges chosen for the five individual numbers in the Fixed ask strings): no donation, under $30, $30-49, $50-74, $75-99, $100-199, and $200+. The Fixed1 and Fixed2 distributions are statistically significantly different from each other ($p<0.01$), while the Variable1 and Variable2 distributions are not ($p=0.47$).

Checking the individual bin ranges, we find it noteworthy that we see a significantly higher probability of giving in the $50-$74 bin in Fixed1 relative to Fixed2 when $50 rather than $60 is suggested (2.87% versus 1.77%, $p=0.008$). We see more gifts in the $100-199 bin in Fixed1 versus Fixed2 when $100 rather than $120 is suggested, but this difference is not statistically significant (0.62% versus 0.38%, $p=0.17$), perhaps due to the lower statistical power that comes with smaller numbers of gifts.

We next present results from Experiment 2 in Table 4. We replicate Result 1 from Experiment 1, finding significant decreases in the probability of giving when shifting 'up' the suggested gift amounts from Treatment 1 to Treatment 2, a decrease of about 16% ($p<0.01$). This compares with the difference of about 23% found in Experiment 1 when comparing Fixed1 and Fixed2. Dividing that treatment effect by the increase of approximately 40% gives us an elasticity of -0.8±0.6, once again approximately -1.

Just as in Experiment 1, we find no statistically significant difference in the gift size conditional on giving when moving from Treatment 1 to Treatment 2: the 11% decline in mean conditional gift is insignificant (p=0.27). Because of the decline in the response rate, revenue per solicitation declines by 26% when we raise the suggested amounts from Treatment 1 to Treatment 2. (p=0.04).

Table 4: Summary Statistics for Experiment 2

Treatment	Response Rate	Responses Using a Suggestion	Gift Amount Conditional on Giving	Revenue per Solicitation
Treatment 1 ($100)	12.26% (0.56%)	8.24% (0.47%)	$53.58 ($5.11)	$6.61 ($0.74)
Treatment 2 (Shift up)	10.29%** (0.53%)	4.11%*** (0.35%)	$47.50 ($2.36)	$4.89** ($0.36)
Treatment 95 ($95)	11.39% (0.55%)	6.75%** (0.43%)	$44.78 ($3.03)	$5.11* ($0.43)
Overall	11.32% (0.32%)	6.38% (0.22%)	$48.90 ($2.27)	$5.54 ($0.31)

Note: This table displays the response rate, gift size and proportion using suggested amounts, by treatment. Standard error terms in parentheses. Significance tests conducted comparing Treatment 2 to Treatment 1, and Treatment 95 to Treatment 1. * p-value<0.10, ** p-value<0.05, *** p-value<0.01.

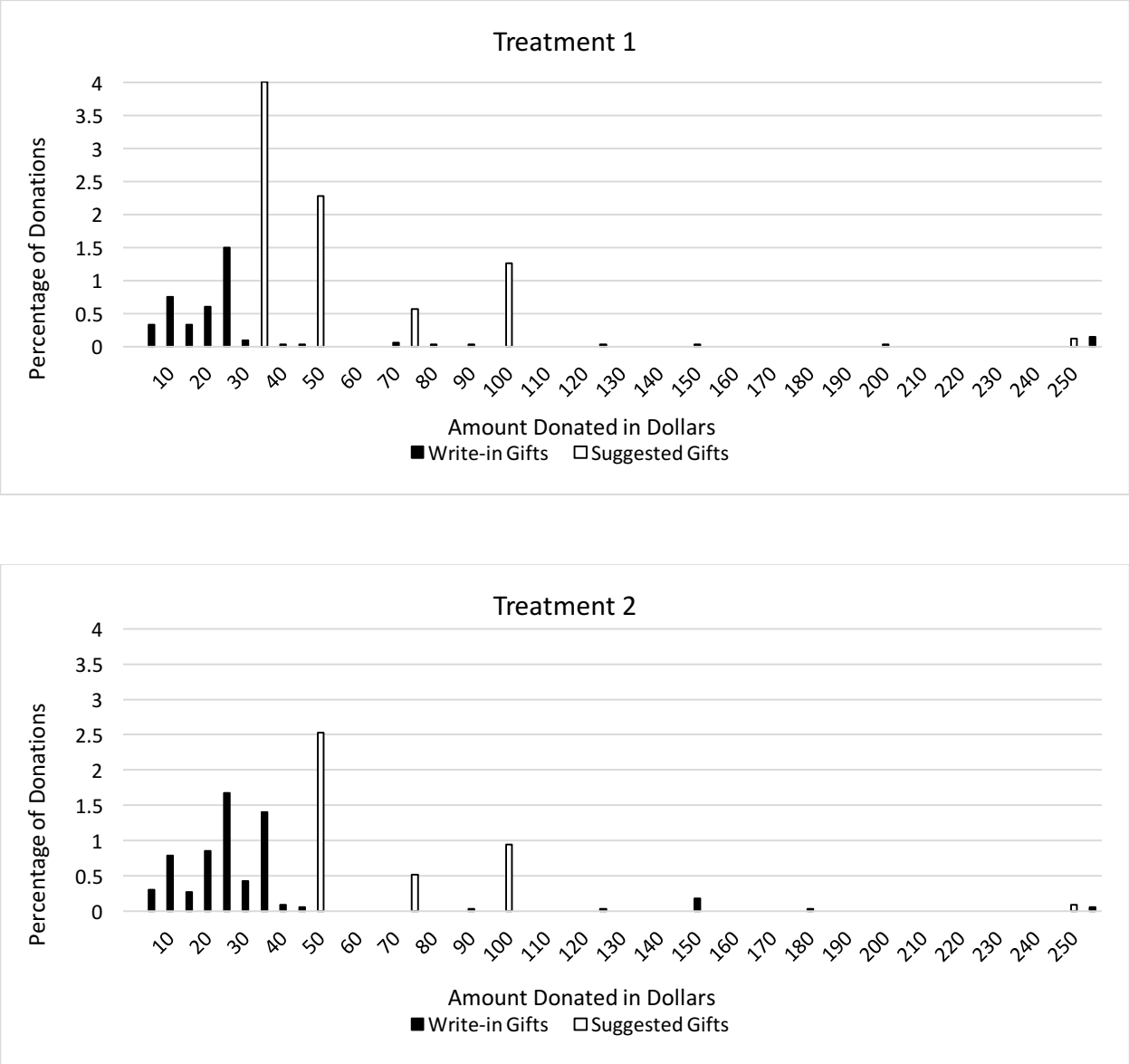
We observe that utilization of suggested amounts is highest in Treatment 1, and significantly lower in the other two treatments. Solicited donors accept suggested amounts 50% less often in Treatment 2 relative to Treatment 1 (p<0.01), and 18% less often in Treatment 95 relative to Treatment 1 (p=0.02). As can be seen in Figure 2, which shows the distribution of responses color-coded by type of response (red for suggested, blue for write-in), this difference in usage of suggested amounts is greater in Experiment 2 (which increased all suggested amounts by ~40%) than in Experiment 1 (which increased all suggested amounts by ~20%).

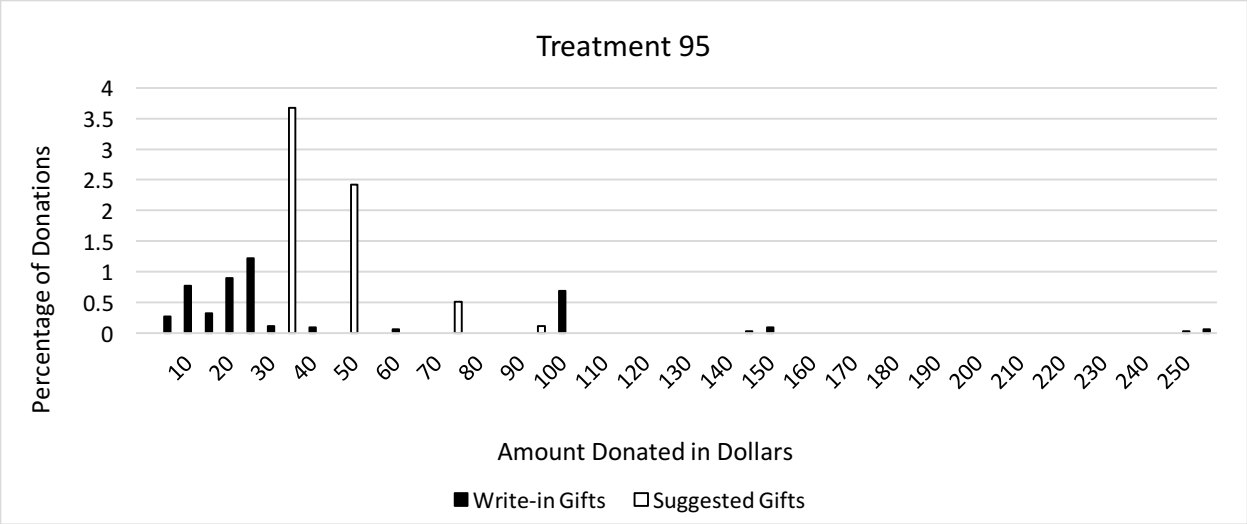
Figure 2 shows us the distribution of average gift amounts in each treatment of Experiment 2.[14] The comparison of Treatment 2 to Treatment 1 produces results similar to those

[14] Note that although Treatment 2 includes a top suggested ask amount of $500, gifts of more than $250 are extremely rare, so we keep the scale of this figure focused on amounts of $250 or less, as in Figure 1. We receive 3 gifts of $500 in Treatment 1, 1 gift of $500 in Treatment 2 and 1 gift of $500 in Treatment 95.

in Experiment 1: the rightward shift causes people to make fewer donations overall, and to write in more amounts below the lowest suggested amount (which moves from $35 to $50).

Figure 2: Histogram of giving amounts in Experiment 2





**Note: White bars represent giving at a suggested amount, black bars represent giving a write-in amount. The y-axis is the percentage of responses, where the denominator is the total number of solicitations sent.*

Especially interesting are the results comparing Treatment 95 to Treatment 1, where the only change is to lower the $100 suggestion to $95. The comparisons of means in Table 4 show overall giving rates are about 7% lower with the $95 suggestion. This difference in response rates is not statistically significant (p=0.27), though the resulting 23% decline in mean revenue per solicitation is marginally statistically significant (p=0.08). Note that we expect low statistical power in these tests because the vast majority of gifts are at amounts much less than $95, where suggested amounts are unchanged by the experimental treatment. Instead, we prefer to test the part of the distribution relevant to this suggested donation, where we see an interesting difference between the histograms.

We find that far fewer people give $100 when the $100 gift amount is not present (out of all who gave in each experiment, the proportion who give $100 is 10% in Treatment 1, 9% in Treatment 2, and only 6% in Treatment 95). In addition, the likelihood of giving $90 or more is statistically significantly higher in Treatment 1 as compared to Treatment 95 (13.4% versus 8.9%, p=0.03). This brings us to our final result:

Result 3: Potential donors are more likely to give a gift in response to round suggested donation amounts ($100 versus $95).

5. Interpretation and Theoretical Model

Standard theories of charitable giving model the donation decision as a utility-maximizing decision to contribute to a public good, perhaps including in the utility function other considerations such as warm glow (Andreoni, 1990). The solution to this problem is a maximizing choice of a continuous variable g, the amount of the individual's donation to the public good. We posit that boundedly rational individuals will not solve this problem exactly in order to write in a preferred amount such as $53.11. Instead of performing the optimization exactly, the consumer takes a look at the suggested donations and see whether one of the choices feels sufficiently close to what she imagines her preferred amount to be. That is, we envision that each consumer has a latent variable representing the optimal donation amount g^* that she would choose in the absence of any cognitive costs (i.e., the exact solution to the usual maximization problem). When the consumer looks at the list of prices, she can easily evaluate the utility $u(g_j)$ she would get from accepting a given suggestion g_j from the list. We include $g_0=0$ as an implicit option on the list, and we normalize the utility of a zero gift to be $u(0)=0$. The consumer's actual decision problem is to choose the element of the list g_j that maximizes her utility.

The model we have just sketched will not explain the existence of write-in gift amounts. In order to explain write-in amounts, we imagine that a second type of consumer has relatively low cognitive costs, and instead of choosing from the list this type of consumer writes in her optimal amount. Now, instead of having two discrete types of consumers, we can sketch a more general model in which the consumer's cognitive cost is a parameter with heterogeneous values across consumers. For simplicity, we imagine that a consumer can correctly estimate the utility value $u^* = u(g^*)$ of her optimal donation amount, even if she doesn't know for sure what that amount g^* is. Choosing that write-in amount will incur a cognitive cost c, so her net utility from writing in an amount is $u(g^*)-c$. Then the consumer's problem is to compare her utilities from the list of possibilities $\{0, u(g_1), u(g_2), u(g_3), u(g_4), u(g_5), u(g^*)-c\}$, and choose the maximum. Note that the possibilities include every option on the ask string, plus 0 and the write-in amount g^* as options.

Finally, to explain the behavior we have observed in our experiments, we also posit that the distribution of the optimal gift size g^* is not smoothly continuous, but instead contains point masses at round-number values like $50 and $100. This means the function $u(g)$ has small,

discrete, positive jumps at round-number values, perhaps because those amounts are themselves less cognitively costly to think about.

The theory we have just sketched can explain several aspects of the behavior we have observed. First, consumers have a strong tendency to choose from the suggested amounts rather than writing in an amount. Second, consumers are less likely to give when the suggested amounts increase in size, because we imagine each consumer to have a different bliss point g^* (created by overall diminishing marginal utility of giving to the public good), and if the suggested amounts are too high relative to a consumer's g^*, that consumer will choose not to give. Third, this model can produce fewer gifts at an ask of $95 than at an ask of $100, because cognitive costs c may lead to the circumstance where $u(100)>0$ but $u(100)-c<0$ and $u(95)<0$. Under those conditions, the consumer's best choice is not to give at all with a $95 suggestion, even though she would have given $100 if that amount had been suggested.

The reader might find it surprising to imagine that cognitive costs could be large enough to cause a consumer to give $100 if $100 were suggested, but give nothing if $95 were suggested. We believe that it is important to recognize that these utilities $u(g)$ in our model are *net* utilities, showing how much more utility the consumer obtains from making gift size g than from making no gift at all. It's then easy to imagine that a gift of $100 might produce a net utility equivalent to, say, an additional $1 in private consumption, relative to making no gift at all. We can further imagine that for the same individual a gift of $95 would produce negative utility (the consumer is less happy with a gift of $95 than with a gift of $0, due to dislike of non-round numbers) equivalent to a loss of $0.25 in private consumption, and that that individual's mental effort of computing the optimal write-in amount is equivalent to a loss of $2 in private consumption. Then, normalizing utilities to be denominated in amounts of private consumption, we can write $u(95)=-0.25$, $u(100)=1$, and $u(100)-c=-1$, which satisfy the required conditions: $u(100)>0$, $u(100)-c<0$, and $u(95)<0$.

Our theory is related to a literature on cognitive costs, in that providing suggested amounts may decrease the cost associated with writing in an amount. Iyengar and Lepper (2000) find that individuals are more likely to undertake activities with a low number of choices, while Chuan and Samek (2014) find that individuals are less likely to give to a charity when provided the option of additionally writing a message in a holiday card. The theory is also related to the literature on transaction costs. For example, Meer and Rigbi (2013) find that in an online

microfinance platform, the transaction costs of having to translate loan requests into one's own language decrease the likelihood of making a loan. Similarly, Huck and Rasul (2010) propose that transaction costs prevent donors from giving in response to a mail campaign, and estimate that transaction costs may decrease the likelihood of a donation by 26% or more. In our experiment, the cognitive costs imposed by writing in an amount are smaller, and the impact of cognitive cost is also smaller.[15]

6. Conclusion

Direct-mail (and now online) fundraisers commonly utilize "ask strings" of suggested donation amounts. It is not obvious, from the point of view of microeconomic theory, that the choices of these amounts should impact the behavior of donors, as a donor who doesn't like one amount in the ask string has the opportunity to write in any amount. The possibility that these amounts could influence donations is ignored by standard economic models of charitable giving, in which donors choose a continuous variable as a gift amount to be removed from their private consumption and given instead to the charity.

We presented systematic evidence from large field experiments to explore the effects of varying the ask string. Across two field experiments, we sent nearly 20,000 solicitations to members of a public television station, varying the ask string across treatments. Our experiment extends related work in a number of ways. First, while most related work (with one exception) focuses on the impact of shifting fixed ask strings, we show the robustness of the results for shifting both fixed and personalized ask strings. Second, we directly manipulated one of the internal suggested amounts in an ask string to evaluate the impact of round number giving.

In contrast to standard economic theory but consistent with related experiments, we find that shifting the vector of suggested amounts decreases donations. Shifting suggested donation amounts up by 20-40% produces a statistically significant reduction of about 15% in the number of donations received, with no significant effects on average gift amount. Our surprising and

[15] A related paper is Eckel *et al.* (2015), who allow donors to direct their gift to a specific purpose, which one might expect will increase cognitive costs of making a gift. By contrast, the authors find that donations are significantly increased. Perhaps the opportunity made giving desirable for other reasons, such as signaling to the donor that the charity cares about their preferences, and this counteracted any effect of cognitive costs. The fact that donors rarely actually directed the gifts suggests that they were not, in fact, interested in taking on that cognitive cost.

novel finding is that changing just one of the internal suggested amounts from $100 to $95 decreases donations as well, which is contrary to all prior results on shifting ask strings, since we might expect a decrease from $100 to $95 to increase donations. We provide a new explanation of our result, which is that cognitive costs cause people to choose not to donate when a preferred round number is not available. Interestingly, our results on round numbers are different from conventional wisdom about consumer behavior in the market for private goods, where marketers often set prices with $0.99 endings rather than round-number prices, in an effort to entice consumers to purchase.[16]

Related to our results on round numbers, Edwards and List (2014) report on treatments in which telephone solicitors ask alumni to pledge $20 versus an 'unusual' amount of $20.01-$20.09. The authors find that the $20 suggested amount generates a marginally significantly higher response rate relative to the 'unusual' ask. One confound in interpreting this result is that the 'unusual' ask is both not a round number and always higher than the $20 ask. On the other hand, we consider an ask that is *lower* than the round number ask, still finding a decrease in giving rates. This contrasts with the presence of "downward-sloping demand" in our other treatments: when raising the round amounts in Treatment 1 to the round amounts in Treatment 2, we see a reduction in the overall giving rate. We therefore find it especially striking that a reduction from $100 to $95 in the suggested amount produces a decrease in the number of gifts in the relevant range.

Suggested donations in charitable giving are a rich domain for future research. We would like to see whether a preference for round-number donations can be documented in a wide variety of contexts, with different charities, different groups of donors, and different fundraising channels. Given our observed "downward-sloping demand", we are also interested to see additional experiments and theory that can explain differences in consumer behavior between charitable giving and purchases of private goods (where round numbers seem less favored).

Future work could also develop and estimate structural econometric models that exploit experimental variation to help fundraisers choose better suggested donation amounts. In the future, we imagine conducting experiments that generate ask-string variation for a given

[16] For example, Anderson and Simester (2003) experimented with mail-order catalogue prices, documenting higher quantity demanded for prices with a final digit of 9 than other final digits. Similarly, Backus, Blake, and Tadelis (2016) show that in eBay Best Offer listings, sellers' non-round prices are more likely to be accepted than round prices are.

solicitation or set of solicitations, making sure to pair this with individual data on the history of individual gifts. This will allow researchers to estimate a distribution of latent desired gift amounts and the costs of choosing a write-in amount, which would then yield predictions about the optimal set of suggested donation amounts. A final step would test the structural model by testing the proposed optimal ask string against the status-quo ask string, to verify whether this exercise is capable of improving outcomes for the charity.

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Appendix

Table A1: Experiment 1 Results: Current Radio Station Members (N=3,873)

Treatment	Response Rate	Responses using a Suggestion	Gift Amount Conditional on Giving	Revenue per Solicitation
Fixed1	10.47% (0.10%)	7.37% (0.85%)	$54.74 ($3.83)	$5.73 ($0.68)
Fixed2	10.84% (0.99%)	5.07%** (0.69%)	$54.21 ($4.00)	$5.88 ($0.69)
Variable1	12.41% (0.11%)	7.96% (0.88%)	$58.31 ($8.75)	$7.23 ($1.25)
Variable2	10.11% (0.95%)	5.02%*** (0.69%)	$54.16 ($4.11)	$5.47 ($0.66)
Overall	10.95% (0.50%)	6.32% (0.39%)	$55.46 ($7.82)	$6.07 ($0.42)

Note: Reported gift amounts and proportion utilizing suggested amounts are conditional on making a gift. Standard errors in parentheses. Test statistics from a test of proportions are reported (response rates) and t-test (gift amounts) comparing Fixed1 and Fixed2 and Variable1 and Variable2. * p-value<0.10, ** p-value<0.05, *** p-value<0.01.

Table A2: Experiment 1 Results: Lapsed TV Station Members (N=16,000)

Treatment	Response Rate	Responses using a Suggestion	Gift Amount Conditional on Giving	Revenue per Solicitation
Fixed1	0.83% (0.14%)	0.55% (0.12%)	$42.88 ($4.69)	$0.35 ($0.07)
Fixed2	1.11% (0.17%)	0.60% (0.12%)	$84.33* ($18.35)	$0.95** ($0.25)
Variable1	1.05% (0.16%)	0.73% (0.13%)	$47.38 ($7.98)	$0.49 ($0.11)
Variable2	1.30% (0.18%)	0.75% (0.14%)	$34.23 ($4.61)	$0.45 ($0.09)
Overall	1.08% (0.08%)	0.65% (0.06%)	$52.21 ($5.62)	$0.56 ($0.07)

Note: Reported gift amounts and proportion utilizing suggested amounts are conditional on making a gift. Standard errors in parentheses. Test statistics from a test of proportions are reported (response rates) and t-test (gift amounts) comparing Fixed1 and Fixed2 and Variable1 and Variable2. * p-value<0.10, ** p-value<0.05, *** p-value<0.01.

Table A3: Experiment 1 Results: Lapsed Radio Station Members (N=6,000)

Treatment	Response Rate	Responses using a Suggestion	Gift Amount Conditional on Giving	Revenue per Solicitation
Fixed1	1.07% (0.27%)	0.73% (0.22%)	$72.19 ($28.79)	$0.77 ($0.35)
Fixed2	1.40% (0.30%)	0.67% (0.21%)	$81.19 ($24.93)	$1.14 ($0.42)
Variable1	1.07% (0.27%)	0.47% (0.18%)	$42.82 ($7.43)	$0.46 ($0.14)
Variable2	1.47% (0.31%)	0.40% (0.15%)	$51.14 ($7.59)	$0.75 ($0.19)
Overall	1.25% (0.14%)	0.57% (0.09%)	$62.27 ($9.58)	$0.78 ($0.15)

Note: Reported gift amounts and proportion utilizing suggested amounts are conditional on making a gift. Standard errors in parentheses. Test statistics from a test of proportions are reported (response rates) and t-test (gift amounts) comparing Fixed1 and Fixed2 and Variable1 and Variable2. * p-value<0.10, ** p-value<0.05, *** p-value<0.01.