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How to Design the Ask? Funding Units vs. Giving Money

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Abstract

Charities frequently deviate from the standard donation scheme in which potential donors are asked how much money they are willing to give. Instead, they ask donors to choose how many units of a charitable good (e.g. meals, bed nets, or trees) to fund at a given unit price. In an online donation experiment, we compare the performance of such a “unit donation” scheme with that of the standard “money donation” and investigate the factors that could explain differences. We find that despite the additional demands that it imposes on the charity, the unit donation does not outperform the money donation scheme in terms of overall donations. It significantly differs, however, with respect to the propensity to give. The sign of the difference depends on the granularity of the scheme. When one unit of the charitable good is cheap, unit donation schemes increase the propensity to give and can serve as an effective tool for recruiting donors.

JEL Classifications: D64, H4, L31

Keywords: Charitable giving, unit donation, framing, aid effectiveness, restricted choice

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1 Introduction

Donation calls in which the potential donors are asked how many units of a charitable good they wish to fund are a frequently used solicitation scheme among fundraising practitioners. A prominent example that has attracted about one million donors from all over the world is ShareTheMeal, a smartphone app and initiative of the United Nations World Food Programme which is used to provide food to children in need. Donors for ShareTheMeal are informed that feeding one child for a day costs €0.70 and are then asked to indicate the number of feeding days (“meals”) that they would like to fund (“share”). Over 88 million meals have been provided through the organization’s app so far. Unit donation schemes are not only implemented in food programs. Development aid agencies, for example, promote child sponsorships by fixing the monthly donation for the sponsorship – usually around \$35 – and prospective donors choose the number of child-months to sponsor rather than the amount of money to donate. UNICEF Canada goes beyond this and provides a whole online shop for specific charitable goods, such as a set of measles vaccines for \$16, a teacher training for \$114, or a water pump for \$492. Similarly, fundraising drives for biodiversity conservation or reforestation programs let donors indicate the number of acres or trees to fund. For instance, in the Monarch Butterfly Habitat Exchange program of the Environmental Defense Fund, donors sponsored acres of milkweed habitat for \$35 per acre. In the Plant A Tree program of the Jewish National Fund, donors were asked to choose the number of trees to be planted at \$18 a tree.

The prevalence of such schemes in fundraising must reflect a belief among practitioners that they can outperform alternative schemes in particular circumstances. This difference in expected performance needs to outweigh the need for the charity to make more information available to the donor and the restriction on how the raised funds can be used. The belief in better performance may well be justified: Research has shown that seemingly small changes in the choice ar-

chitecture of a decision problem can lead to substantial changes in donor behavior. Examples are the announcement of seed money (List and Lucking-Reiley, 2002; Huck et al., 2015), specifying default amounts (Goswami and Urminsky, 2016; Altmann et al., 2019), suggesting donation levels (Edwards and List, 2014; Reiley and Samek, 2019), and providing information about the efficacy of the donation (Latour and Manrai, 1989; Cryder et al., 2013). However, to the best of our knowledge, no previous study has systematically compared a solicitation scheme in which the charity asks potential donors to fund units – which we refer to as a “unit donation” scheme – to the traditional scheme of “simply asking for money” (Landry et al., 2010) – which we refer to as a “money donation” scheme.

This paper seeks to close this gap in the literature by comparing both schemes under controlled conditions in an online donation experiment with real money at stake. In their purest forms, the two schemes differ along three dimensions: Unit donation schemes (i) frame the choice in terms of physical units of the charitable good instead of money, (ii) restrict the choice to complete units (i.e. the donation to multiples of the price per unit), and (iii) provide information about the effectiveness of a donation (i.e. the price per unit). The restriction to complete units reflects that some charitable goods are indivisible as a matter of nature (planting half a tree or donating half a coat) or of choice (offering half a meal). Stating the price per unit is necessary for the potential donor to calculate her expenses. Our experimental variations reflect these three dimensions: Subjects in the money donation treatment are simply asked how much money they would like to donate for the provision of food to malnourished children. Subjects in the unit donation treatments are asked how many nutritional rations they would like to fund at a given price, without the possibility to fund fractions. We compare two different unit sizes: A smaller sized unit of the ration that feeds one child for one day (price of \$0.50) and a larger sized unit that feeds one child

for one week (price of \$3.50). In addition to these pure implementations of the money and unit donation schemes, we implement three intermediate forms that selectively activate one or two of the three dimensions that distinguish the two schemes.

Our experiment delivers three main findings. The first is that the money and unit donation schemes were, on average, equally effective in raising donations: There is no statistically significant difference in average donations between the two schemes. This is surprising in light of the higher demands that the unit donation scheme places on the charity. If our results hold more generally, this means that practitioners of unit donation schemes either hold erroneous beliefs about their fundraising effectiveness or use it to pursue other objectives than maximizing the size of the average donation.

Our second finding highlights a plausible alternative objective implicit in unit donation schemes. In our experiment, the unit donation scheme increased the propensity to become a donor when the unit size was small: For the one-day ration at a price of \$0.5, the share of donors was about 13 percentage points higher than for the baseline money donation scheme. This is a statistically and quantitatively significant increase in the propensity to give. An appropriately designed unit donation scheme has therefore the potential to recruit more donors than a money donation scheme. Such a recruitment is likely to be valuable to fundraisers in its own right: Previous research has shown that it is easier to reactivate prior or lapsed donors compared to “cold calling” an unselected sample (Eckel and Grossman, 2008; Landry et al., 2010). Unit donation schemes therefore have a plausible role in growing a charity’s donor base.

Our third finding is that unit size matters: In our experiment, the larger-sized unit (one-week ration at \$3.50) reduced the propensity to become a donor by 22 percentage points compared to the pure money donation scheme, a statistically and quantitatively significant amount. Larger unit-sizes therefore deter

donors at the extensive margin. Our intermediate treatments indicate that this decrease can be traced back to discretizing the donation choice rather than to framing donations in units or to informing about the effectiveness of a donation. In lights of these results, we conclude with the hypothesis that unit donation schemes with small unit sizes decrease a possible stigma associated with “penny donations” or similarly small donation sizes.

2 Related literature

By providing a controlled comparison between unit and money donation schemes, we contribute to a rich literature that investigates how the design of the ask affects giving. Examples include the provision of seed money (List and Lucking-Reiley, 2002; Huck et al., 2015), specifying default amounts (Goswami and Urminsky, 2016; Altmann et al., 2019; Ghesla et al., 2019), or offering subsidies to give (Auten et al., 2002; Eckel and Grossman, 2003; Karlan and List, 2007; see Epperson and Reif, 2019, for a review). Although several papers have used unit instead of money donation schemes as part of their experimental designs, we are not aware of any systematic comparison between the two solicitation schemes. Unit donations have been applied, for example, in experiments on the voluntary provision of climate change mitigation (Loeschel et al., 2013; Kesternich et al., 2016; Diederich and Goeschl, 2014, 2017, 2018). Furthermore, Diederich et al. (2020) show that a reliable finding of the literature on charitable giving – i.e. that matching subsidies raise more money than rebate subsidies – is not replicated under a unit donation scheme.

Due to the three main characteristics of a unit donation scheme, our paper relates to different strands of the literature. First, unit donation schemes implement a different framing of the ask: Potential donors are asked how many units of a charitable good to fund rather than the amount of money to give.

While the effects of framing have been investigated in various domains, including contributions to public goods (Andreoni, 1995; Sonnemans et al., 1998) and charitable giving (Chou and Murnighan, 2013; Grossman and Eckel, 2015), we are not aware of a comparison between money and unit framing for contribution decisions. Lewis and Small (2019) show that presenting the impact of a donation as units of a charitable good per dollar instead of dollar costs per unit of the charitable good significantly affects the response to changes in the effectiveness of the donation. However, the donation question is still framed in terms of money, rather than in physical units of the charitable good. By asking for the number of units of the charitable good, unit donation schemes may emphasize how a donation generates specific outcomes for recipients. As a result, impact motives of giving (Duncan, 2004; Hungerman and Ottoni-Wilhelm, 2018) might become more relevant in the donation decision.

Second, unit donation schemes restrict the choice set of subjects to amounts that correspond to multiples of the unit price. Featuring a discrete choice set is not unusual in studies on charitable giving (e.g. Meier, 2007; Gneezy et al., 2014), but the effect of implementing a restricted instead of an unrestricted choice set are not well understood. Cartwright and Mirza (2019) shows that introducing a minimum donation amount reduces giving if there are no extrinsic incentives to donate. Other studies consider the effect of restricting donors' choices in the context of threshold public goods (e.g. Cadsby and Maynes, 1999; Barbieri and Malueg, 2014). Somewhat related are also studies that find that suggested donation amounts (Weyant and Smith, 1987; Fraser et al., 1988; Adena et al., 2014; Edwards and List, 2014; Reiley and Samek, 2019) or default donations (Goswami and Urminsky, 2016; Altmann et al., 2019; Ghesla et al., 2019) can have a substantial impact on giving.

Third, we add to the literature on providing donors with additional information. In contrast to money donation schemes, unit donation calls must provide

information about the price of a charitable good, i.e. the effectiveness of a monetary donation. Otherwise, potential donors would not be able to calculate the monetary donation that their chosen number of units implies. Several studies have examined whether information about the effectiveness of donations affects giving. For example, Latour and Manrai (1989) complement a blood donation campaign with a letter informing how blood donations saved a child’s life and find substantial increases in donations. Along the same lines, Cryder et al. (2013) find that providing subjects with “tangible information” about the impact of the donation, either in the form of details of the charity’s activities or about the exact charitable good it provides, increases donations. The authors conclude that the observed effect of tangible information is not only mediated by sympathy but also by an increase in the perceived impact of the donation. In contrast, Karlan and Wood (2017) do not find a significant effect of providing information about the impact of a donation on the aggregate, but identify heterogeneous treatment effects by whether a donor has previously given a large or small amount of money.

3 Experimental design

3.1 Donation appeal

The experiment consisted of a real donation ask administered to subjects during an unrelated online survey. Designing the ask as a pure money donation scheme, a pure unit donation scheme, and various intermediate schemes, requires a charitable good or service readily divisible into discrete and meaningful units. We partnered with a relief organization, Sign of Hope e.V., which frequently uses intermediate schemes of unit donation calls in their own fundraising campaigns. Among their activities, we chose the treatment of malnourished children with a special nutritional paste and high energy cookies in a bush clinic in South Su-

dan. This service offered practicable units and prices for our experiment. The associated expenses amounted to \$0.50 per day or \$3.50 per week. These benchmarks provided the two different unit sizes for the experiment: (i) a *one-week* nutritional ration per child at a price of \$3.50 and (ii) a *one-day* nutritional ration per child at a price of \$0.50.

The first part of the donation appeal in the experiment was uniform across all treatments. It introduced the charity, the charitable good (treatment of malnourished children with special nutrition in a hospital in South Sudan), and the charitable cause (a high need due to decades of civil war in the country and hence, a high incidence of malnourishment).¹

The second part of the donation appeal was treatment specific. The six experimental treatments (see Table 1) were designed to (i) compare contributions under the unit and money donation scheme, (ii) investigate whether the size of a unit matters for this comparison and (iii) disentangle the channels through which differences may arise. The three treatments of type A (“pure schemes”) address aspects (i) and (ii). They consist of a treatment with a pure money donation scheme, in which subjects are simply asked how much money they would like to give, and two treatments with a pure unit donation scheme. In the latter, subjects were asked how many rations they would like to fund (one-week and one-day rations, respectively), had their choice restricted to whole units, and learned the price of a unit (\$3.50 and \$0.50, respectively). Subjects entered their desired amount of money or number of nutritional rations in an input field at the bottom of the solicitation screen. We provide the exact wording of the donation appeal for each treatment in the Appendix.

The three treatments of type B (“intermediate schemes”) address aspect (iii). They include a strict subset of the three characteristics that jointly make up a unit donation scheme (unit framing, restricted choice set, price information).

¹We also provided a link to the charity’s web page and informed about a transparency certificate the charity holds to increase trust in the charity (Adena et al., 2019).

This allows us to identify the channels through which potential differences in giving behavior between the pure schemes arise. Specifically, we conduct an unrestricted money donation scheme that provides unit price information (Info), a money donation scheme restricted to multiples of a disclosed unit price (Info + Restricted), and a unit donation scheme with perfectly divisible units (Info + Frame). The three intermediate schemes are implemented only for the case of the one-week ration because we expect larger treatment effects for the larger-sized unit. The three intermediate schemes deliberately leave out three additional possible combinations of the three characteristics because they do not have a meaningful real-world counterpart. There are, for obvious reasons, no schemes that ask for units to fund without also informing the donor about the unit price; and schemes do not arbitrarily restrict the choices of monetary amounts to multiples of some unit price unless information on the unit price is given.²

Table 1: Treatments

Treatment	Framing	Choice set	Price info	Unit size
<i>A. Pure schemes</i>				
Money Donation	Money	Unrestricted	No	—
Unit Donation – Large	Units	Restricted	Yes	Large
Unit Donation – Small	Units	Restricted	Yes	Small
<i>B. Intermediate schemes</i>				
Info	Money	Unrestricted	Yes	Large
Info + Frame	Units	Unrestricted	Yes	Large
Info + Restricted	Money	Restricted	Yes	Large

The table provides an overview of the different treatments in our experiment. Framing: whether the ask is framed in terms of money or physical units. Choice set: whether the choice set is restricted to complete units of the charitable good (multiples of the unit price when the donation is framed in money). Price info: whether information about the unit price of the charitable good is provided. Unit size: Whether one physical unit is a one-day ration of food (small) or a one-week ration of food (large).

²To illustrate, imagine a donor who decides how much money to give. If the donor is informed that for \$3.50 the charity can provide a nutritional ration that feeds one child for one week, a restriction of donations to multiples of \$3.50 will most likely seem reasonable to the donor. However, if this information is not given such a restriction will probably appear arbitrary to the donor.

3.2 Experimental protocol

We conducted the experiment online recruiting U.S. residents from the online labor market Amazon Mechanical Turk (AMT).³ In the posted task, we informed workers that they would earn \$7 for answering a 20-minute academic survey on several topics, including demographics, occupational background, religion, and opinions about some political and societal challenges. Interested workers followed a link to the survey on LimeSurvey. Before the start of the survey, workers read and confirmed a consent form about the research study.

The experimental survey consisted of 22 questions on sociodemographics, employment, religious beliefs, and political attitude before subjects encountered the donation ask, and 12 unrelated questions after the call. One of the treatments was drawn at random and presented to the subject (between-subjects design). The survey ended with five manipulation check questions. After completing the survey, subjects received a unique code that had to be entered into the survey task window on AMT for payment.

In total, 900 subjects completed the survey experiment. We chose the sample size to be able to pick up significant differences in mean donations starting at about 5% of the endowment, according to power calculations based on data from a pilot experiment (80% power and 5% significance level). The concern that some subjects may fraudulently use multiple accounts to participate more than once is generally seen as a minor problem in online experiments (Horton et al., 2011; Paolacci et al., 2010).⁴ We nevertheless follow the common approach

³AMT is known to provide several benefits to researchers, among them fast and easy access to subjects, a diverse subject pool, and low costs (Paolacci et al., 2010; Mason and Suri, 2012). Regarding data quality, several papers highlight a high internal consistency of self-reported demographics, an incentive-compatibility of earnings, and a “spammer”-free workforce from the built-in reputation system (Ross et al., 2010; Mason and Suri, 2012). They also provide evidence that results from standard experimental games successfully replicate on AMT (e.g. Paolacci et al., 2010; Rand, 2012). In implementing our experiment, we followed the suggestions for researchers in that literature and the Guidelines for Academic Requesters on AMT (WeAreDynamo, 2014).

⁴In the case of AMT, having multiple accounts is forbidden by Amazon’s Terms of Service (Mason and Suri, 2012) and creating an account requires a unique credit card number

to exclude subjects with duplicate Internet Protocol addresses from the analysis. Including them does not change the results. This leaves us with a sample of 848 subjects. Average payouts were \$5.87 excluding donations. Subjects took on average 10.1 minutes to complete the experiment.

4 Results

Table 2 shows summary statistics for the sample that participated in our experiment. Our average subject is slightly more likely to be female than male, has an average age of 37.1 years, and has children and a college degree with a probability of 46% and 49%, respectively. About 25% of subjects state that online crowdworking is their primary source of income. To check the balance of these sociodemographic variables across the experimental groups, we regress each variable on treatment dummies and conduct F -tests for the joint significance of the coefficients. The corresponding p -values are reported together with the group means in Appendix Table A.1. The test results suggest that the randomization led to experimental groups that are balanced on all sociodemographic variables (p -values between 0.25 and 0.93).

Table 2: Summary statistics

Variable	Mean	SD	N
Female	0.54	0.50	842
Age (years)	37.11	10.59	847
Has children	0.46	0.50	844
College graduate	0.49	0.50	845
Crowdworker	0.25	0.43	834

The total sample consists of 848 observations. We did not force subjects to answer the sociodemographic questions in the survey. The variable *crowdworker* indicates whether online crowdworking is the subject's primary source of income.

Table 3 reports the share of donors and the mean donation (including non-donors) in each of the six treatment groups. For the treatments with unit

(Paolacci et al., 2010).

framing, the mean dollar donation corresponds to the average number of nutritional rations donated times the unit price. Mean donations vary between \$0.95 for the money donation scheme and \$1.34 for the money donation with unit cost information and a restricted choice set. The variance within each treatment is considerable and donations range from the lower limit of \$0.00 (no donation) to the the upper limit of \$7.00. The share of donors varies between 26% for the large-sized and 60% for the small-sized unit donation scheme. The benchmark of the standard money donation is at 47%. These descriptive statistics point to possibly significant extensive-margin effects across solicitation schemes.

Table 3: Donations

Treatment	Share of donors	Mean donation	N
<i>A. Pure schemes</i>			
Money Donation	0.47 (0.50)	0.95 (1.53)	152
Unit Donation - Large ($p = \$3.50$)	0.26 (0.44)	1.16 (2.14)	121
Unit Donation - Small ($p = \$0.50$)	0.60 (0.49)	1.07 (1.62)	146
<i>B. Intermediate schemes</i>			
Info ($p = \$3.50$)	0.43 (0.50)	1.12 (1.86)	150
Info + Unit frame ($p = \$3.50$)	0.38 (0.49)	1.15 (2.06)	132
Info + Restricted ($p = \$3.50$)	0.27 (0.44)	1.34 (2.10)	146

Standard deviations in parentheses.

Figure 1 presents the cumulative distribution of donations for the three pure scheme treatments. The solid black line refers to the 152 donation decisions under the standard money donation scheme. As reported in Table 3, we see that slightly more than half of the subjects chose not to donate to the charity. For positive donations, there are clear focal points of contributions at full dollar amounts and, less pronounced, at half dollars. In other words, donors do not make use of the unrestricted nature of the donation space, with some exceptions between \$0.00 and \$1.00. Unsurprisingly, lower money donations are more frequently observed than higher ones.

The dashed blue line shows the cumulative distribution of 121 donation decisions under the large-sized unit donation scheme. There are only three possible

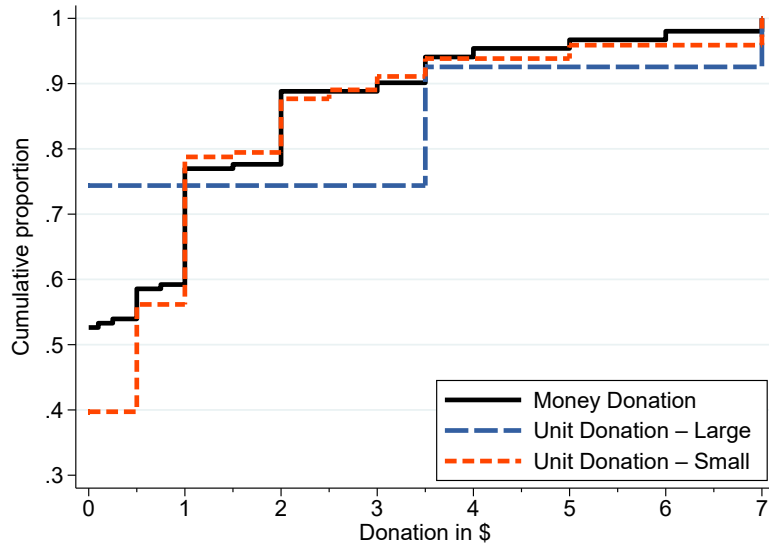


Figure 1: Cumulative distribution of donations in the pure scheme treatments donation levels under this scheme: No donation (\$0.00), one week of nutrition (\$3.50), or two weeks of nutrition (\$7.00). 74% of subjects chose not to donate under this scheme while 18% chose to provide one week of nutrition and about 7% to provide two weeks. The dashed orange line presents the cumulative distribution of 146 donation decisions under the small-sized unit donation scheme. There are fifteen possible donation levels for subjects, ranging from zero to fourteen days of nutrition. Here, around 40% of subjects chose not to donate. For positive donations, slightly more than 16% chose to provide a single day of nutrition at a cost of \$0.50 and almost 23% chose two days. More days of nutrition are less common and their relative frequency under the small-sized unit donation scheme visually does not differ much from that under the money donation scheme.

We proceed in Section 4.1 by first comparing the mean donations (including non-donors) across treatments. Afterwards, we investigate the behavior of potential donors at the extensive margin (Section 4.2).

Table 4: Effect on donations (OLS regression)

	Pure schemes		Pure and intermediate schemes with large unit size			
	(1)	(2)	(3)	(4)	(5)	(6)
Unit Donation – Large	0.202 (0.231)	0.217 (0.232)	–	–	–	–
Unit Donation – Small	0.110 (0.183)	0.104 (0.182)	–	–	–	–
Price information	–	–	0.216 (0.185)	0.237 (0.186)	0.167 (0.196)	0.180 (0.197)
Unit frame	–	–	0.117 (0.175)	0.149 (0.177)	0.221 (0.237)	0.270 (0.239)
Restricted choice set	–	–	-0.070 (0.174)	-0.111 (0.176)	0.029 (0.228)	0.005 (0.232)
Unit frame \times restricted	–	–	–	–	-0.215 (0.351)	-0.251 (0.357)
Controls ^a	No	Yes	No	Yes	No	Yes
Observations	419	408	701	686	701	686
R ²	0.002	0.032	0.004	0.018	0.004	0.019

Robust standard errors are in parentheses, $*p < 0.1$, $**p < 0.05$, $***p < 0.01$. The dependent variable is the amount of money the charity receives and the pure money donation scheme always serves as baseline. In columns 1 and 2, only the treatments with pure solicitation schemes are considered. In columns 3 to 6, all treatments except the unit donation scheme with a small unit size are considered.

^aControls include gender, age, whether the individual has a college degree, whether the individual has children and whether online crowdworking is the individual's primary source of income.

4.1 Donations

We observed in Table 3 that the differences in the mean donations between treatments are small (at most 5.6% of the endowment of \$7) and that the within-treatment variances are high. More specifically, the differences between the pure money and pure unit donation treatments amount to \$0.21 for the one-week and to \$0.12 for the one-day rations. Both differences are insignificant in a two-sided t -test ($p = 0.380$ and $p = 0.546$, respectively).

In columns 1 and 2 of Table 4, we report estimation results from regressing the monetary amount donated on the treatment dummies, using the pure money donation scheme as baseline and only considering the pure solicitation schemes. Even after controlling for available covariates, the differences between the pure solicitation schemes remain very small and insignificant (see column 2). Thus, we do not find evidence that applying a unit donation scheme instead of a money donation scheme significantly affects the average amount of money received,

irrespective of whether a small or large unit size is employed.

For the large unit size, we use our intermediate treatments to identify how specific characteristics of a unit donation scheme affect giving. In particular, we regress individuals' donations on a dummy for each of the three characteristics of a unit donation scheme (price information, unit framing, and a restricted choice set). This allows us to test whether the insignificant difference between the unit and money donation scheme masks countervailing effects of single characteristics. The estimation results are reported in columns 3 and 4 of Table 5. We do not find any evidence for such countervailing effects: All coefficients are small and insignificantly different from zero. The same holds true if we additionally include the interaction of using a unit frame and restricting the choice set (see columns 5 and 6), which can be identified due to the selection of our intermediate treatments.

4.2 Propensity to give

As already noted, the differences at the extensive margin merit attention. While in the pure money scheme, about 47% of subjects donate, only about 26% of subjects decide to give under the pure unit scheme with a one-week ration at price of \$3.50 as single unit ($p < 0.001$, χ^2 -test). If the unit presented to subjects is instead a one-day nutritional ration at a unit price of \$0.50, the propensity to donate is about 13 percentage points higher than under the pure money donation scheme ($p = 0.026$, χ^2 -test).

Regression results from a linear probability model are presented in Table 5 and confirm these findings.⁵ In columns 1 and 2, we regress the binary variable of whether an individual donated on the type of the solicitation scheme, only considering pure schemes and using the pure money donation scheme as baseline. A unit donation scheme with a large unit size (a one-week ration at a price of

⁵Results are robust to using a probit model instead.

\$3.50) is estimated to decrease the propensity to give by about 22 percentage points compared to a pure money donation scheme, whereas a unit donation scheme with a small unit size (a one-day ration at a price of \$0.50) is estimated to increase the propensity to give by 11 percentage points when including controls. Hence, applying a unit donation scheme affects the propensity to give, but the direction of the effect depends on the unit size.

Why do we find such substantial effects on the extensive margin but no significant differences in mean donations? As Figure 1 reveals, the large-sized unit donation scheme decreases the share of individuals who donate but also encourages individuals to choose a higher donation level than they would have chosen under a money donation scheme. For example, the mass of individuals who give more than \$1.00 but less than \$3.50 under the money donation scheme seems to entirely shift to the donation level of \$3.50. In the case of the small-sized unit donation scheme, the positive impact on the extensive margin does not translate into substantially higher mean donations since the increase is mainly driven by additional small donations of one unit, i.e. \$0.50. Beyond donations of \$0.50, the cumulative distribution function looks similar to that of the money donation treatment.

Due to the inclusion of the intermediate treatments, we are able to attribute differences in the propensity to give between the pure money and the large-sized unit donation scheme to a particular characteristic. Analogously to the procedure in Section 4.1, we regress the binary variable of whether a subject donated on a dummy for each of the three characteristics. The estimation results are reported in columns 3 and 4 of Table 5. Neither the unit frame nor the information on the effectiveness of a donation significantly affects the propensity to give. By contrast, restricting the choice set significantly reduces the propensity to give by about 15 percentage points. In columns 5 and 6, we additionally allow for an interaction between the restriction of the choice set and the framing in

Table 5: Effect on the propensity to give (linear probability model)

	Pure schemes		Pure and intermediate schemes with large unit size			
	(1)	(2)	(3)	(4)	(5)	(6)
Unit Donation – Large	-0.217*** (0.057)	-0.219*** (0.057)	–	–	–	–
Unit Donation – Small	0.129** (0.057)	0.113** (0.057)	–	–	–	–
Price information	–	–	-0.050 (0.054)	-0.050 (0.054)	-0.040 (0.057)	-0.041 (0.058)
Unit frame	–	–	-0.033 (0.040)	-0.027 (0.041)	-0.055 (0.059)	-0.047 (0.059)
Restricted choice set	–	–	-0.146*** (0.040)	-0.157*** (0.040)	-0.166*** (0.055)	-0.177*** (0.056)
Unit frame × restricted	–	–	–	–	0.044 (0.080)	0.043 (0.081)
Controls ^a	No	Yes	No	Yes	No	Yes
Observations	419	408	701	686	701	686
R ²	0.077	0.109	0.032	0.045	0.033	0.046

Robust standard errors are in parentheses, * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. The dependent variable is whether a subject has donated and the pure money donation scheme always serves as baseline. In columns 1 and 2, only the treatments with pure solicitation schemes are considered. In columns 3 to 6, all treatments except the unit donation scheme with a small unit size are considered.

^aControls include gender, age, whether the individual has a college degree, whether the individual has children and whether online crowdworking is the individual's primary source of income.

units. The impact of restricting choices is slightly but not significantly smaller in absolute terms if a unit frame is already in place ($p = 0.59$). These results are robust to controlling for sociodemographic characteristics and are consistent with pairwise comparisons.

5 Discussion and Conclusion

Donation schemes can be designed in terms of physical units to fund rather than the amount of money to give. Does this design of the ask affect individuals' giving behavior? The popularity of unit donation schemes among fundraisers suggests that it should, and that the scheme's performance justifies the complications of the design, such as additional information provision and the reduced freedom in how the funds can be used. To address this research question, we conducted an online experiment in which we tested different solicitation schemes. While we do not find evidence that unit donation schemes

affect the amount of money raised, we show that they alter the propensity to give. The direction of this effect depends on the unit size of the charitable good. If the unit size is small, a unit donation scheme attracts more donors than a competing money donation scheme. If the unit size is large, unit donations can deter donors. A unit donation scheme with a small unit size can therefore be an effective strategy for a charity to expand its donor base.

An interesting question is why the effect on the extensive margin reverses when the unit size becomes small. The negative impact of larger-sized units on the extensive margin of giving, relative to the money donation scheme, is unsurprising. In fact, from the intermediate treatments, we can pinpoint that it is the restriction of the choice set that is mostly responsible for the drop in donors. Since the price of becoming a donor increases from almost zero (\$0.01) in a virtually continuous choice set to \$3.50 in a restricted choice set, this demand side response is expected. However, the same logic would apply to the smaller-sized unit. There, the price of becoming a donor increases from almost zero (\$0.01) in a virtually continuous choice set to \$0.50 (the price of a one-day nutritional ration). As a result, we would expect the magnitude of the effect at the extensive margin to be smaller, but the predicted direction would be the same.

While we do not have intermediate treatments for the small unit size that would allow us to disentangle the exact characteristic responsible for that increase, a closer look at the distributions of the donations under the pure solicitation schemes (see Figure 1) offers a plausible explanation. As observed earlier, the distribution of donation amounts under the money donation scheme has focal points at \$0, \$1.00, and \$2.00. This suggests that a substantial share of subjects behaves as if the range of donations available is restricted to integers of dollar amounts. In such a world, the minimum donation, and hence the *perceived* price of becoming a donor, is \$1.00. Offering to fund a charitable good with

a price below the smallest focal point of the unrestricted distribution of giving reduces the perceived price of becoming a donor, resulting in a higher propensity to give. Another possible explanation is that the small unit size acts like a low suggested donation amount. Edwards and List (2014) show that suggesting an amount that is below the average donation can increase the propensity to give. Finally, in a world in which “penny donations” carry a stigma or are considered unproductive, a smaller-sized unit justifies small donation amounts. These explanations are in line with the observation that the positive effect on the extensive margin is mainly driven by additional small donations of \$0.5 (as discussed in Section 4.2).

Our results from the intermediate treatments (for the large unit size) offer interesting insights into the relevance of framing, choice restrictions, and information provision. First, simply rephrasing the ask from giving money to funding units does not affect giving behavior. Second, we show that restrictions of the choice set can have large behavioral consequences that should be taken into account when designing experiments or fundraising campaigns. This evidence is in line with the finding that a minimum donation amount reduces the propensity to give in the absence of extrinsic incentives to give (Cartwright and Mirza, 2019). It also matches well with the result that large suggested donation amounts discourage giving (Adena et al., 2014). Finally, providing explicit information about the per unit price of the charitable good did not significantly affect the propensity to give or overall donations in our experiment. Previous experiments have used different formats when providing information about the effectiveness of a donation and either did not find an impact on the aggregate (Karlan and Wood, 2017) or identified a significant increase in donations (Lattour and Manrai, 1989; Cryder et al., 2013).

An interesting avenue for future research is to explore the role of the unit size in more detail. While we show that the unit size matters for the impact

of applying a unit donation scheme, it is unclear whether the effect on the extensive margin monotonically increases with the unit size. Furthermore, it would be interesting to know at which point the effect reverses and to which extent it depends on the distribution of donations under unrestricted choices.

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Appendix

A.1 Wording of donation appeal

Part I:

As part of this survey, each participant will have the **opportunity to support the provision of nutritious food for malnourished children** in the African country of South Sudan.

[Picture of malnourished child]

Decades of civil war have **devastated South Sudan** and **many children are severely malnourished**. The rations of the nutritious food are supplied by Sign of Hope, an accredited relief organization from Germany cooperating with a hospital in South Sudan.

Sign of Hope holds the **certificate for responsible and transparent use of collected donations** ("Spendenzertifikat") **awarded by the "Deutscher Spendenrat"**, a German umbrella association for charitable organizations. 86 cents of every dollar they receive go directly into the relief efforts, while the remaining fourteen cents cover their overheads. Learn more about the organization at <http://www.sign-ofhope.org>.

[Picture of malnourished child]

Part II – Money Donation:

The nutritious food consists of a **specialty developed paste** and **energy-rich biscuits** that help children gain weight.

In this survey, you may **donate all, part, or none of your reward of \$7.00** for this MTurk HIT to **Sign of Hope for providing the nutritious food**. Thus, you may **choose any amount from \$0 to \$7.00**. **The amount you choose will be subtracted from your reward.**

Please indicate how much money you wish to donate below:

[Numeric field to indicate dollar amount]

Part II – Unit Donation – Large:

One nutritional ration, which feeds one malnourished child for one week, can be provided by the charity for a donation of \$3.50. The nutritious food consists of a **specially developed paste and energy-rich biscuits** that help children gain weight.

In this survey, you may **use all, part, or none of your reward of \$7.00** for this MTurk HIT to **provide these nutritional rations**. Thus, you may **choose a number from 0 to 2 rations**. **\$3.50 per ration will be subtracted from your reward.**

Please indicate how many rations you wish to provide below:

[Numeric field to indicate number of rations, restricted to 0, 1, and 2]

Part II – Unit Donation – Small:

One nutritional ration, which feeds one malnourished child for one day, can be provided by the charity for a donation of \$0.50. The nutritious food consists of a **specially developed paste and energy-rich biscuits** that help children gain weight.

In this survey, you may **use all, part, or none of your reward of \$7.00** for this MTurk HIT to **provide these nutritional rations**. Thus, you may **choose a number from 0 to 14 rations**. **\$0.50 per ration will be subtracted from your reward.**

Please indicate how many rations you wish to provide below:

[Numeric field to indicate number of rations, restricted to integers between 0 and 14]

Part II – Info:

One nutritional ration, which feeds one malnourished child for one week, can be provided by the charity for a donation of \$3.50. The nutritious food consists of a **specially developed paste and energy-rich biscuits** that help children gain weight.

In this survey, you may **donate all, part, or none of your reward of \$7.00**

for this MTurk HIT to Sign of Hope for providing the nutritious food. Thus, you may **choose any amount from \$0 to \$7.00**. The amount you **choose will be subtracted from your reward**.

Please indicate how much money you wish to donate below:

[Numeric field to indicate dollar amount]

Part II – Info + Frame:

One nutritional ration, which feeds one malnourished child for one week, can be provided by the charity for a donation of \$3.50. The nutritious food consists of a **specially developed paste and energy-rich biscuits** that help children gain weight.

In this survey, you may **use all, part, or none of your reward of \$7.00 for this MTurk HIT to provide these nutritional rations**. Thus, you may **choose any number from 0 to 2 rations (including fractions)**. **\$3.50 per ration (or the appropriate fraction) will be subtracted from your reward**.

Please indicate how many rations you wish to provide below:

[Numeric field to indicate number of rations]

Part II – Info + Restricted:

One nutritional ration, which feeds one malnourished child for one week, can be provided by the charity for a donation of \$3.50. The nutritious food consists of a **specially developed paste and energy-rich biscuits** that help children gain weight.

In this survey, you may **donate all, part, or none of your reward of \$7.00 for this MTurk HIT to Sign of Hope for providing the nutritious food**. In particular, you may **choose an amount of \$0, \$3.50, or \$7.00**. The **amount you choose will be subtracted from your reward**.

Please indicate how much money you wish to donate below:

[Numeric field to indicate dollar amount, restricted to \$0, \$3.50, and \$7.00]

A.2 Additional Tables

Table A.1: Summary statistics by treatment

Treatment	Female	Age (years)	Has children	College graduate	Crowd- worker	<i>N</i>
<i>A. Pure schemes</i>						
Money Donation	0.52 (0.50)	37.20 (10.64)	0.47 (0.50)	0.49 (0.50)	0.25 (0.43)	152
Unit Donation – Large ($p = \$3.50$)	0.52 (0.50)	37.34 (10.30)	0.50 (0.50)	0.53 (0.50)	0.23 (0.42)	121
Unit Donation – Small ($p = \$0.50$)	0.60 (0.49)	37.42 (10.20)	0.48 (0.50)	0.48 (0.50)	0.23 (0.42)	146
<i>B. Intermediate schemes</i>						
Info ($p = \$3.50$)	0.52 (0.50)	36.71 (10.68)	0.46 (0.50)	0.53 (0.50)	0.28 (0.45)	150
Info + Unit frame ($p = \$3.50$)	0.54 (0.50)	36.33 (10.40)	0.43 (0.50)	0.48 (0.50)	0.19 (0.39)	132
Info + Restricted ($p = \$3.50$)	0.55 (0.50)	37.65 (11.34)	0.45 (0.50)	0.44 (0.50)	0.31 (0.47)	146
<i>F</i> -test (p -value)	0.75	0.91	0.93	0.71	0.25	

Standard deviations in parentheses. The number of observations per variable does not always correspond to the number of subjects in the treatment group since we did not force subjects to answer the survey questions. The last row shows the p -value of the F -test for the joint significance of the treatment dummies when regressing the respective variable on the treatment dummies and a constant.