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

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Abstract

Unit donations are an alternative fundraising scheme in which potential donors choose how many units of a charitable good to fund, rather than just giving money. Based on evidence from an online experiment with 8,673 participants, we demonstrate that well-designed unit donation schemes can significantly boost giving above and beyond the standard money donation scheme. A decomposition of the underlying mechanisms shows patterns consistent with the conjecture that unit donations increase impact salience and leverage donors' cognitive biases by changing the metric of the donation space. Managers need to weigh the potential fundraising benefits of a unit scheme against some important challenges, such as expert handling of the choice of unit sizes.

JEL Classifications: D64, H4, L31

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1 Introduction

Charities traditionally "simply ask for money" (Landry et al., 2010): Potential donors are presented with a charitable cause and then asked what monetary contribution they would like to make. The fundraising landscape, however, also sees charities employing an alternative solicitation form, namely "unit donation" schemes. There, potential donors are asked how many units of a charitable good they wish to fund. While less common than the traditional "money donation" scheme, unit donation schemes are frequently observed in the fundraising landscape.[1] Humanitarian aid is one area in which unit donation schemes are often encountered. An illustrative example is UNICEF Canada, which provides a whole online shop for specific humanitarian goods, such as a set of measles vaccines for C$18, a reusable sanitary kit for girls for C$38, or a water pump for C$455. Similar shops are implemented by other large organizations, including World Vision Australia ("Charity Gift Store") and the Catholic Relief Services ("Gift Catalog"). Another area is nature conservation: In the Plant Trees program of the Jewish National Fund USA, for example, donors are asked to choose the number of trees to be planted at $18 a tree. Likewise, the Trillion Tree Campaign has donors choose how many trees to plant, with a price-per-tree for each reforestation project.

A charity that plants trees to combat desertification or provides meals to children in need could also "simply ask for money" instead of employing a unit donation scheme. This raises the question whether such schemes can perform better in fundraising terms and if so, under which circumstances. Performance differences could be caused by three features along which the typical unit scheme differs from money schemes: It (i) provides information about the cost per unit of the charitable good, (ii) frames the choice in terms of physical units instead of money, and (iii) imposes a "donation grid" (Adena and Huck, 2020) in which donors can only choose multiples of full units. The first of these three features, providing cost-per-unit information, is a prerequisite for framing the donation decision in physical units of the charitable good and ensures that potential donors can calculate the money equivalent of their donation. The second, unit framing, forces the fundraiser to designate the charitable good(s) and decide what constitutes a unit: Should donors be asked to donate trees or acres of woodland? Should it be individual meals or a week of nutrition? – The answer to these

[1] Appendix A.7 provides an extensive list of examples of fundraising activities that employ a unit donation scheme. This list, resulting from a targeted web search, includes schemes run by large European and North American charities, such as some of "America's Top 100 Charities" (2022) listed by Forbes.

questions determines the unit size of the fundraiser's ask, a key choice variable in the campaign. The third dimension, the donation grid, 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). In the field, donation grids are common for unit schemes, even when doing so is not strictly necessary. For example, donors to UNICEF can donate neither half an (indivisible) water pump nor half a (divisible) dozen measles immunizations. For unit donations to outperform traditional schemes, not each of the three features has to individually increase average donations. But the total effect of cost-per-unit information, a unit frame, and a donation grid would have to be a net positive.

In this paper, we compare the performance of unit and money donation schemes, with three main research objectives in mind. We first test whether employing a unit instead of a money donation scheme affects giving. Second, we investigate whether this effect depends on the size of the physical unit of the charitable good, which could be an important choice variable. Third, we identify which features of unit donation schemes drive the effect. These experimental tests play out against the background of predicted null effects for the vast majority of treatment comparisons – informed by current models of charitable giving (Ottoni-Wilhelm et al., 2017; Hungerman and Ottoni-Wilhelm, 2021) – and offer important insights into individual giving behavior and its drivers. With the goal of supporting future theory-building, we also conduct exploratory analyses to better understand the mechanisms behind the effects induced by certain features of unit donation schemes.

To address our research objectives, we conduct a pre-registered online experiment with individuals that have completed an online real-effort task. These individuals can donate some or all of their effort reward of \$90 to a charity, subject to random implementation. Before making their decision, participants learn that donations will always fund one specific charitable activity, namely providing high-calorie pediatric nutrition rations to children in developing countries.[2] Participants are randomly assigned to one of seven treatment conditions. Three of these conditions closely parallel donation schemes in the field. One is a conventional money donation scheme: Donors are simply asked to give money without further information about the cost of the nutritional rations, framing in terms of rations or a donation grid. The other two are unit schemes, one with a small unit

[2]A related, but distinct question is whether donors facing a charity with multiple activities have a preference for earmarking donations to a certain activity, thus restricting the charity's freedom to operate (see, e.g., Jacobsson et al., 2007; Hildebrand et al., 2017; Gangadharan et al., 2018; Fuchs et al., 2020). In the present case, donors face a charitable cause addressed through the same single activity, irrespective of scheme.

size (a daily ration at $1) and another with a large unit size (a monthly ration at $30), reflecting the degrees of freedom available to the fundraiser when designing the scheme. Both unit schemes inform donors about the cost of the nutritional ration, ask for the funding of rations (rather than giving money), and do not allow fractions of rations to be donated. The random assignment of potential donors to the three conditions results in a horse race between the three "pure" donation schemes and allows us to address the first two research objectives.

To better understand the mechanisms behind the relative performance of the two schemes, we also implement (for each unit size) two intermediate schemes not typically seen in the field. One is the same as the money donation scheme, but provides cost-per-unit information. The second scheme moves another step closer to the unit donations by not only providing cost information, but also explicitly framing the ask in terms of units. The only feature that distinguishes this scheme from the pure unit donation scheme is that donors are not restricted to a donation grid: Fractions of units are acceptable, thus retaining the quasi-continuous donation space of the money donation scheme. With the help of these intermediate schemes, the total differential between money and unit donation schemes can be decomposed into a succession of incremental effects as the fundraiser takes on board successive features of the unit donation scheme.

On the basis of the decisions of $8,673$ subjects, we establish our main result: Unit donation schemes significantly affect giving behavior and can outperform money donation schemes, given the right circumstances. Average donations under the monthly ration scheme ($42.35) – i.e., the large unit size – were 57% higher than those under the money scheme ($26.94). This provides strong support for the choice of some practitioners to employ unit donation schemes in fundraising drives. At the same time, determining the optimal unit size is a challenge: Average donations under the daily ration scheme ($24.25) – the small unit size – were around 10% lower than under the money scheme. Unit size therefore matters greatly.

Decomposing the main result into the incremental effects of moving from money to unit donation schemes offers additional insights into individual giving behavior and its drivers. Simply providing cost-per-unit information negatively affects average donations: Augmenting a money donation scheme with information about the unit cost significantly decreased the average donation by $3 (large unit size) to $5 (small unit size). Adding the unit frame on top, however, substantially raises average donations: For the large unit size, the average donation significantly increased by around

$18 and for the small unit size by $3. The final step of adding a donation grid has little measurable impact on average donations. The total effect is therefore composed of the positive effect of unit framing net of the negative effect of information provision and the absence of a donation grid effect.

Based on the observed effects and additional analyses of the data, we conjecture that the total effect is jointly driven by an increased salience of the donation impact and additional cognitive biases, going beyond a simple model of impure altruism. In particular, we find suggestive evidence that providing the cost-per-unit information serves as an anchor or creates the perception among donors that the charity expects a certain donation, drawing individuals towards donating exactly the cost of one unit (see also Lewis and Small, 2019). Adding the unit frame appears to set into motion two distinct mechanisms. First, it changes the metric of the donation space, thereby potentially interacting with accessibility bias – a heuristic of choosing numbers that easily come to mind (Converse and Dennis, 2018) – and left-digit bias – the tendency to focus on the leftmost digit in numbers (DellaVigna, 2009; Pope and Simonsohn, 2011; Lacetera et al., 2012). This can explain why individuals adhere to donations of full units once a unit frame is introduced even though giving fractions is explicitly feasible. As a side effect, the distribution of donations is already "gridded" such that adding the donation grid to the ask has no further impact on patterns of giving. In our experiment, such adherence to full units can induce treatment effects only when the unit size is large because the metric of the donation space remains the same when the unit size is small (one dollar equals one unit). The second mechanism that appears to be set into motion is an increased salience of the donation impact (e.g., Cryder et al., 2013). Such a salience can explain why a unit frame increased donations substantially beyond what could be explained by a simple adherence to full units. It is consistent with the idea that pointing to the output of giving (units of charitable goods) rather than its inputs (money) leads to a higher marginal utility of giving.

Our findings contribute to and have relevance for three important strands of the charitable giving literature. First, the main result adds fresh insights to the rapidly expanding literature on how seemingly small changes to the choice situation of charitable giving can affect donations (e.g., List and Lucking-Reiley, 2002; Zarghamee et al., 2017; Kessler and Milkman, 2018; Schulz et al., 2018; Adena and Huck, 2020).[3] Our results are the first to show that properly designed unit

[3]The findings naturally also relate to studies focusing on the impact of larger changes like providing subsidies (e.g., Karlan and List, 2007; Huck et al., 2015; see Epperson and Reif, 2019, for a review) or gifts (e.g., Falk, 2007; Alpizar et al., 2008).

donation schemes are a promising design alternative to the standard money donation scheme and have significant potential to boost charity receipts. These potential fundraising benefits of unit schemes need to be carefully weighed against their challenges, such as the required expert handling of the choice of the unit size.

These potentials and dangers of unit donation schemes add important nuance to a second literature, which has studied pro-social giving in unit schemes (Löschel et al., 2013; Diederich and Goeschl, 2014; Kesternich et al., 2016; Diederich et al., 2022). These contributions highlighted the unit scheme, but lacked the ability to compare the performance of a unit-based ask with alternatives. Our results offer such a comparison and show that earlier results of unit schemes merit additional attention given its fundraising potential.

Third, the evidence on the incremental effects of information, framing, and the donation grid that turn the money into a unit donation scheme contributes to an increasingly rich body of knowledge on efficacy information (e.g. Lewis and Small, 2019; Exley, 2020), framing (e.g. Chou and Murnighan, 2013; Grossman and Eckel, 2015), and discrete choice effects (e.g. Barbieri and Malueg, 2014; Cartwright and Mirza, 2021) in charitable giving. Our experiment is the first to specifically compare pure money donation schemes with and without cost-per-unit information. This comparison returns a negative effect, giving additional weight to findings that information provision can backfire on the fundraiser (Metzger and Günther, 2019; Lewis and Small, 2019). We also contribute to research on framing in charitable giving, such as suggested donation amounts (Weyant and Smith, 1987; Fraser et al., 1988; Adena et al., 2014; Edwards and List, 2014; Reiley and Samek, 2019) and default donations (Goswami and Urminsky, 2016; Altmann et al., 2019; Ghesla et al., 2019). Here, we show that defining the donation decision in unit terms can substantially increase giving, despite being subtler than suggesting a donation or setting a default donation. Another contribution is that the scale of the framing effect depends on the unit size, highlighting an important choice variable in the hands of the fundraiser.

For managers in the charitable sector, our experimental evidence has two key implications. First, fundraising practitioners should actively consider the feasibility of unit schemes for their own fundraising activities. Not doing so risks foregoing possibly significant fundraising success. Second, managers opting for unit donation schemes should take into account how the choice of the unit size impacts the performance of the scheme vis-à-vis the charity's fundraising objectives. For example,

our evidence suggests that managers should choose a larger unit size to maximize revenues and a smaller unit size to maximize donor recruitment. Realizing the significant potential of the unit donation scheme requires both a clear understanding of objectives and expert handling. In this context, managers also need to be aware that opting for a unit donation scheme implicitly commits a charity with multiple activities to earmarking the revenues to a specific activity. This may be attractive to donors and boost revenues (see, e.g., Jacobsson et al., 2007; Fuchs et al., 2020), but undesirable for the charity by restricting how revenues can be used.[4]

In the following section, we present the design and procedures of our online experiment. Guided by theory and the existing literature, Section 3 develops predictions for the treatment effects of using unit instead of money donation schemes as well as the incremental effects of successively moving from one to the other. These predictions meet the experimental data in Section 4, where we present the main results and further explore the underlying mechanisms. Section 5 concludes.

2 Experimental design

2.1 Donation ask and treatments

The experimental design builds on an online donation ask administered to subjects after an unrelated real-effort task. The goal is to implement different versions of this donation ask, including pure forms of unit and money donation schemes. This requires a charitable good (or service) readily divisible into discrete and meaningful units. We implement the donation ask using rations of a nutritional paste for the treatment of malnourished children offered in UNICEF Canada's online shop.[5] At the time of the experiment, treating one child for one day with this paste costed US$1, treating it for a month US$30.

In the experiment, each subject had an endowment of $90 (subject to random implementation with a 1% chance, see Section 2.2) and decided how much of this endowment to donate to UNICEF for the provision of the nutritional paste. Subjects took this choice under one of seven treatments,

[4]Note that some charities might circumvent earmarking by not committing to use the raised funds for the charitable good(s) advertised in the unit donation scheme. For example, World Vision Australia employs a unit donation scheme with specific charitable goods in its gift catalog, but mentions at some point in the FAQs that raised funds are not necessarily used for the specific charitable good. If donors are aware of that, implementing the unit donation scheme in such a fuzzy way might change its effectiveness.

[5]The paste is available under the trademark Plumpy'Nut® and offered in UNICEF Canada's web shop (https://shop.unicef.ca/, last accessed on December 7, 2022).

three of which parallel the money or the unit donation schemes in the field. Panel A of Figure 1 shows a screenshot of the pure money donation scheme. The scheme starts with two motivating paragraphs that introduce the donation opportunity, the charitable cause, the charitable good, and the charity. These two paragraphs are the same across all seven treatments. The other paragraphs are treatment-specific. One is a "procedural" paragraph that provides details on how the donation would be processed in the experiment. The other is an "ask" paragraph that prompts the subject to enter their donation decision. In the pure money donation treatment, the ask paragraph asks how much money the subject wishes to donate and the procedural paragraph is phrased accordingly. The possible donation amount is not restricted in any specific way: Subjects can donate any dollar amount between \$0.00 to \$90.00, including cents.

Panel B of Figure 1 shows the corresponding wording of the donation ask for one of the two pure unit donation treatments. It differs from the money donation treatment (Panel A) along the three features that jointly make up a unit donation scheme. First, it contains information on the cost per unit in an additional "information" paragraph. Second, it frames the donation question in the ask paragraph in terms of units. Specifically, it asks for the number of rations to fund rather than the amount of money to give (and adjusts the procedural paragraph accordingly). Third, it introduces a donation grid that restricts donations to full units of the charitable good: Subjects can only enter integer amounts in the input field.[6]

The difference between the two pure unit donation treatments lies in the unit size. The treatment presented in Panel B employs a "large" unit size with a monthly ration at a cost of \$30. Three reasons underpin this choice. First, the unit size is sufficiently large such that the smallest possible donation involves a non-negligible amount of giving: Pilot data suggested a first focal point in the money donation treatment at \$10, and the large unit is a multiple of that.[7] Second, the unit size is not so large (relative to the endowment of \$90) that it effectively converts the donation decision into a binary choice: With \$30 per unit, subjects were still able to make adjustments on the intensive margin (how much to give conditional on giving). Third, the unit size of one month is meaningful: Compared to an arbitrary duration of, say, 20 days, a month is a natural choice.

[6]This restriction becomes particularly salient when subjects try to enter fractions. Then, a help text points out the need to enter full rations to be able to proceed.

[7]We conducted three small pilots (about 50 to 100 observations each) that were primarily used to test the real-effort task (see Section 2.2) and to get a rough idea of the distribution of donations under the money donation scheme. Only the money donation scheme was included in the pilots.

As part of this MTurk HIT, each participant has the opportunity to **support the provision of nutritious food for malnourished children** in developing countries.

Currently, millions of children in developing countries could be pushed to the brink of starvation due to huge shortfalls in humanitarian aid funding amid the COVID-19 pandemic. Ready-to-use therapeutic foods can help: **A specially developed nutritional paste can be used to treat children affected by severe acute malnutrition and help them gain weight.** UNICEF runs a program to provide such foods.

In this MTurk HIT, **you may donate (some of) your additional reward for helping provide the nutritional paste.** Thus, you can donate any amount up to $90.00. If you get the additional reward of $90.00, the amount you have chosen will be subtracted from your reward and donated to UNICEF for the provision of the nutritional paste.

Please tell us below how much money you wish to donate.

$

(A) Money Donation

As part of this MTurk HIT, each participant has the opportunity to **support the provision of nutritious food for malnourished children** in developing countries.

Currently, millions of children in developing countries could be pushed to the brink of starvation due to huge shortfalls in humanitarian aid funding amid the COVID-19 pandemic. Ready-to-use therapeutic foods can help: **A specially developed nutritional paste can be used to treat children affected by severe acute malnutrition and help them gain weight.** UNICEF runs a program to provide such foods.

One ration of the nutritional paste is sufficient to treat a child for one month (30 days) and can be provided for a donation of $30.00.

In this MTurk HIT, **you may donate (some of) your additional reward to provide rations of the nutritional paste.** With $90.00, you can provide up to 3 rations. If you get the additional reward of $90.00, $30.00 per ration will be subtracted from your reward and donated to UNICEF for the provision of the nutritional paste.

Please tell us below how many rations you wish to provide.

ration(s)

(B) Unit Donation - Large

Figure 1: Instructions of main treatments

The second pure unit donation treatment employs a "small" unit size of a daily ration at a cost of $1. The wording of the ask is correspondingly adjusted (see Appendix Figure A.8 for the detailed wording). Across the two unit sizes, the implied effective cost is therefore the same, but the communicated rations cover different durations. We chose the daily unit size for two reasons. First, it minimizes the differences between unit and money donation schemes by perfectly aligning the metric of dollars and physical units: one unit is exactly one dollar and vice versa. By contrast, these metrics differ purposefully for the large unit size in order to allow a large difference between unit and money donations to arise in the experiment. Second, the unit size of one day is meaningful and is expected to appear natural to potential donors.

The three "pure" treatments, one money and two unit donation schemes, make up Panel A of Table 1, which presents all seven treatments and the dimensions along which they differ. The treatments in Panel A allow us to compare donations under the unit and money schemes and to answer whether the unit size matters.

Table 1: Treatments

Treatment	Info	Frame	Grid	Unit size
A. Pure schemes				
Money Donation	No	No	No	—
Unit Donation – Small	Yes	Yes	Yes	Small
Unit Donation – Large	Yes	Yes	Yes	Large
B. Intermediate schemes				
Info – Small	Yes	No	No	Small
Info & Frame – Small	Yes	Yes	No	Small
Info – Large	Yes	No	No	Large
Info & Frame – Large	Yes	Yes	No	Large

The table provides an overview of the different treatments in our experiment. Info: whether information about the cost per unit of the charitable good is provided. Frame: whether the ask is framed in terms of physical units (instead of money). Grid: whether the choice set is restricted to full units of the charitable good. Unit size: whether one physical unit is a one-day ration of nutritional paste (small) or a one-month ration of nutritional paste (large).

Panel B of Table 1 is made up of four treatments representing two intermediate schemes implemented for both unit sizes. These intermediate schemes allow us to investigate how the three features (cost-per-unit information, unit frame, donation grid) drive differences between money and unit donation schemes. These features are successively introduced to enable a decomposition of the total differential between the money and the unit donation scheme into a sequence of incremental

effects. The first step is to add information about the cost per unit to a money donation scheme (Info). This means adding the information paragraph on cost per unit (see Appendix Figure A.10 and Appendix Figure A.9 for the detailed wording). Providing cost-per-unit information is the natural first step: Its presence is a prerequisite for the unit frame and sets the stage for the donation grid.

The second step is to also add a unit frame with perfectly divisible units, i.e., without a donation grid (Info & Frame): With an information paragraph present, the ask paragraph of the money donation treatment is now replaced with that of the unit donation treatment. In addition, the procedural paragraph is adjusted accordingly, but makes explicit that giving fractions of units is possible (see Appendix Figure A.12 and Appendix Figure A.11 for the exact wording).

Together with the pure treatments from Panel A, the intermediate treatments from Panel B help identify the impact of each of the three features by successively moving from a pure money donation scheme to a pure unit donation scheme: Moving from the treatment Money Donation to the treatment Info – Small (Info – Large) introduces information on the cost per unit, moving from there to the treatment Info & Frame – Small (Info & Frame – Large) adds the framing of the donation in physical units, and the final step to the treatment Unit Donation – Small (Unit Donation – Large) imposes the donation grid.[8]

2.2 Experimental protocol

We conducted the experiment with U.S. residents on the online labor market Amazon Mechanical Turk, which provides access to a large heterogeneous sample of individuals.[9] In the posted task, workers learned that they would earn $0.50 for completing a simple transcription task and a few questions that would take them about 9 minutes.[10] They also learned that on top of the fixed payment, they would have a verifiable 1 in 100 chance to get an additional reward of $90. This

[8] We deliberately decided to introduce the donation grid as the last step since restricting the choice set is arguably more intuitive for a potential donor when a unit frame is already in place. Furthermore, it seems rather uncommon in practice to restrict choices (beyond a simple minimum donation) when no unit frame is in place.

[9] MTurk 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 MTurk (e.g. Paolacci et al., 2010; Rand, 2012).

[10] Subjects took on average 7.9 minutes to complete the experiment.

additional reward constitutes the endowment for the donation decision. The expected payoff for completing the experiment (not accounting for any donation) was $1.40, equivalent to an average hourly wage of $9.33. Interested workers followed a link to the survey on the platform LimeSurvey. Before the start of the survey, workers read and confirmed a consent form about the research study. The consent page included details about the lottery payment and its independent verification using the comparison of a subject-specific random number and an official random string published by the US National Institute of Standards and Technology (NIST).

The detailed instructions of the experiment are available in Appendix A.2. The real-effort task was to transcribe two lines of scanned text typed on a 1970s typewriter in a rare German dialect.[11] We included the real-effort task in the design in order to make the experiment look more like a typical "human intelligence task" posted on Amazon Mechanical Turk and thereby obfuscate the purpose of the experiment (Zizzo, 2010). Also, the offer of the $90 lottery endowment is likely to be felt less as a windfall gain because of the preceding task. The real-effort task was followed by a screen containing an attention check before subjects encountered the donation ask. One of the seven treatments of Table 1 was drawn at random and presented to the subject (between-subjects design). If a positive donation was submitted, subjects were reminded of their donation decision (including the implied monetary amount for treatments with unit frame) and were asked to confirm that CloudResearch would make the donation on their behalf if they won the additional reward. This confirmation procedure was chosen for administrative purposes. If subjects did not confirm their donation, they were informed that this would prevent the implementation of their donation and they had one more chance to confirm.[12] The experiment ended with additional questions about beliefs and sociodemographic characteristics.[13] After completing the survey, subjects received a unique code that they had to enter into the survey task window on MTurk for payment.

Power calculations with insights from our pilot experiment (see Section 2.3) and additional design-specific pilot data under the money donation scheme determined a desirable sample size of 9,000 subjects. The goal was to be able to identify differences in mean donations of about $3.5

[11] See Appendix Figure A.5 for a sample.

[12] In total, 29 subjects did not confirm their donations and will subsequently be treated as not having donated. Results are robust to using their non-confirmed donation amounts instead.

[13] The goal of the questions about beliefs was to get additional suggestive evidence on the underlying mechanisms of why certain features of unit donation schemes create an effect. Since the insights from these questions are limited, they are discussed in detail in Appendix A.3.

(equivalent to roughly 4% of the endowment) between two treatments with at least 80% power and a 5% significance level.[14] The recruitment of participants from MTurk was administered via CloudResearch (formerly TurkPrime; see Litman et al., 2017; Litman and Robinson, 2020) which allowed us to make use of their data quality features. In particular, we blocked suspicious geocode locations and duplicate IPs within sessions, and required MTurk workers to have at least a 90% approval rating and 100 previous HITs completed. Furthermore, we excluded individuals who had participated in our pilot experiment or were part of the additional pilot data. The experiment and the analysis plan were pre-registered on *aspredicted.org* (see Appendix A.1 or https://aspredicted.org/847_4CC). Ethical approval was obtained from the ethics board at the University of Innsbruck (82/2021).

We ran seven experimental sessions from April 20 until May 23, 2022, at which point 8,987 participants had completed the experiment. To create our final sample we apply three pre-registered exclusion criteria. First, we drop additional 3,077 observations for failing to complete the experiment. Of these, 2,672 dropped out before treatment assignment (i.e., before being confronted with the donation ask).[15] Second, we exclude 85 complete observations for indicating an MTurk ID that was not listed has having worked on the HIT by MTurk. Since we recognized some common mistakes in entering the MTurk ID (e.g., including a space or a colon at the beginning), we automatically removed those extra characters before validating the observations. Third, we drop 229 additional complete observations with duplicate MTurk IDs that do not satisfy the exception requirements (being the first observation with this ID that has been assigned to a treatment and completing the experiment during a time window that does not overlap with any other observation sharing the same ID). This leaves us with a sample of 8,673 participants.

[14] With the realized sample sizes and standard deviations shown in Table 2, the ex-post minimum detectable effect size (with 80% power and a 5% significance level) is also at most about $3.5 for the relevant separate pairwise comparisons between treatments.

[15] The treatment assignment happened when the donation ask was to be presented. Attrition rates after treatment assignment are between 4.4 and 5.1% for most treatments. The only outlier is the treatment Unit Donation – Large with a somewhat lower attrition rate of 2.8%. This has a simple explanation: Subjects in treatment Unit Donation – Large had a shorter exit questionnaire because some questions, e.g., about focal points, did not fit with the donation situation (see Appendix A.3). As a result, they were more likely to complete the experiment. The attrition rates during the donation decision are always around 2% and not significantly different across treatments (see Appendix Table A.6). Importantly, results are robust to keeping incomplete observations that were assigned to a treatment and that pass the other two exclusion criteria at least to some degree (see Appendix A.4).

2.3 Pilot experiment

Prior to our main experiment presented in this paper, we conducted a much smaller experiment ($N = 865$) that offered some first evidence on unit donation schemes affecting giving behavior and the unit size playing a crucial role. The design of this pilot experiment was comparable but employed a nominally smaller but certain endowment of \$7, a slightly different set of treatments, a different charity with a similar cause, and unit sizes of \$3.5 (a weekly nutritional ration) and \$0.5 (a daily nutritional ration). Similar to the results presented in Section 4, the unit donation scheme with the large unit size (\$3.5) significantly decreased giving on the extensive margin, while the unit donation scheme with the small unit size (\$0.5) led to a marginally significant increase compared to the money donation scheme. Differences in average donations were not statistically significant but as in our main experiment, the highest level among the pure donation schemes was achieved by the unit donation scheme with the large unit size. Due to raised concerns about a potential lack of power, an artificially small endowment, and some other design elements, we decided to conduct a completely new, pre-registered, large-scale experiment with an improved design. Details of the pilot experiment are presented in Appendix A.6.

3 Predictions

Our predictions of how giving under a unit donation scheme will differ from giving under a conventional money donation scheme in our experiment are informed by current models of charitable giving (Ottoni-Wilhelm et al., 2017; Hungerman and Ottoni-Wilhelm, 2021). These models are based on a preference structure characterized by "impure altruism" (Andreoni, 1989, 1990). Under such a preference structure, donor i's utility function can be represented as $U(c_i, g_i, R)$, with c_i denoting donor i's own consumption, g_i the donor's pecuniary expenditures for the donation, and R the total charity output, which is the sum of the charity output produced by own giving (R_i) and the charity output produced by others' giving (R_{-i}).[16] The charity output produced by own giving (R_i) is not necessarily equal to own giving (g_i). If, for example, a third party matched individual donations at a rate of m, it would hold that $R_i = (1+m) \times g_i$ (see Hungerman and Ottoni-Wilhelm,

[16] Hungerman and Ottoni-Wilhelm (2021) allow individuals to weight the charity output produced by themselves and others differently, i.e., $R = R_i + \lambda R_{-i}$. In the following, we assume $\lambda = 1$ for simplicity, but our predictions are not affected by this choice.

2021). In our case, $m = 0$ since the experiment does not involve any matching. While the utility function is usually defined over monetary values, we can also think of R as representing the amount of service or number of goods provided by the charity (e.g., meals to children in need). In this case, we can define $R_i = \frac{g_i}{p}$, where p represents the cost of one unit of the charitable good.[17] The budget constraint is $c_i + g_i = y_i$, with y_i denoting the donor's income. Overall, donors are assumed to be adequately informed about their own utility function and the functional relationships between its arguments and to be maximizing their utility.

For an interior solution, a donor's out-of-pocket giving is determined simply by

$$g_i = f_i(y_i + R_{-i}, R_{-i}) - R_{-i} \tag{1}$$

with $R_{-i} = \sum_{j \neq i} \frac{g_j}{p}$. In this world, familiar from Andreoni (1989), donors are driven by both altruistic motives (leading to the first argument of $f(\cdot, \cdot)$) and egoistic or "warm glow" motives (leading to the second argument of $f(\cdot, \cdot)$). Thus, changes in the decision environment affect charitable giving through these motives.

The simple framework of impure altruism among well-informed potential donors generates a set of predictions of how a small (daily) and a large (monthly) unit donation scheme affect giving in our experiment, compared to the standard money donation scheme. These predictions cumulatively result from the individual effects of the three successive steps that connect the money and the unit donation schemes: (i) providing cost-per-unit information, (ii) framing the ask in terms of units of the charitable good, and (iii) employing a donation grid. We discuss the predictions for our two main pre-specified outcome variables – average giving and the propensity to give – as well as the average donation conditional on giving.

For the first two of the three successive steps, the theoretical framework provides little traction for affecting the behavior of potential donors. Under the assumption of impurely altruistic and reasonably well informed donors (particularly regarding p), providing cost-per-unit information will not change the parameters in donors' optimization problem, at least on average. Likewise, impurely altruistic donors will rationally determine their optimal giving g_i^* without reference to a unit frame, large or small. The unit frame does not restrict giving in any way, allowing g_i^* to

[17] Similarly, the warm glow component could be defined over the units funded instead of the monetary amount given.

be implemented, and can therefore not affect the model's predictions. As a result, the first two steps towards the unit donation scheme have expected zero treatment effects on average giving, the propensity to give (extensive margin) and conditional giving (intensive margin) for both unit sizes.

The third step from the money to the unit donation scheme differs from cost-per-unit information and the unit frame in that the donation grid actively restricts the ability of well-informed, impurely altruistic donors to implement their optimal giving g_i^*.[18] Because equation 1 involves strategic considerations in which individual donor i's optimal responds to the actions of all other potential donors $-i$, this restriction of the choice set has two impacts. First, the donor needs to compare discrete utility levels at the two donation grid points that are closest to g_i^* and choose the one yielding higher utility. Second, in doing so, the donor has to take into account that g_i^* itself is a function of how all other donors are choosing between the two closest grid points since this determines R_{-i}. Whether and how the donation grid affects giving is now plausibly linked to the unit size: Under the small unit size of a daily ration at a cost of \$1, potential donors are restricted to give full dollar amounts. This restriction of the choice set will have negligible impact if most donors routinely donate full dollars under a money donation scheme. The donation grid is therefore expected to be inconsequential for donations under the small unit size. This contrasts with the effect of a large unit size of a monthly ration at a cost of \$30. Here, the restriction of the choice set is considerable. At the extensive margin, potential donors are confronted with a large minimum donation of \$30, making a donation less likely for donors whose optimal g_i^* would be substantially smaller than \$30 under a money scheme. At the intensive margin, the impacts of the donation grid on optimal restricted choice cannot be confidently signed without more structure on the preferences, making the average effect undetermined.

Due to the donation grid effect, the predictions that arise from the three cumulative effects for the treatment differences between the pure money scheme and the pure unit scheme will differ by unit size. If the small unit size of \$1 is used, a unit donation scheme is predicted not to differ significantly from a money scheme in terms of average giving, the extensive, and the intensive margin. If the large unit size of \$30 is used, a unit donation scheme is predicted to have a negative

[18] Discretizing the individual contribution space through the introduction of the donation grid superficially resembles setting thresholds for collective contributions, such as in threshold public goods games (e.g., Cadsby and Maynes, 1999; Barbieri and Malueg, 2014). There is an important difference, however, in that the donation grid discretizes the individual choice set while collective contribution thresholds discretize the set of collective outcomes. We are grateful to an anonymous referee for making us aware of the possible conflation.

impact on the extensive margin of giving compared to a money scheme, while having ambiguous effects on the intensive margin and thus average giving. The analysis also predicts that it is the final step of the donation grid that drives these differences in giving behavior.

While empirically successful, the impure altruism model can – for every specific donation situation – only provide a first-order approximation. Giving in the experiment could deviate from our predictions, for example, because the model abstracts from second-order behavioral phenomena, some of which have received attention in the donation literature. These phenomena can be grouped into informational, cognitive, and affective effects. Starting with informational effects, our predictions could fail because potential donors do not hold accurate prior beliefs about the productivity of giving. In this scenario, providing cost-per-unit information would be expected to shift individuals' beliefs and thereby cause behavioral adaptations, similar to the case of charity efficiency information (Butera and Horn, 2020). At the same time, such information does not necessarily lead to predictive failure. If prior beliefs do not systematically under- or over-estimate cost per unit, individual-level information effects may well even out at the aggregate level. If there are informational effects, however, their magnitude should be the same across unit sizes since the implied productivity of giving is the same.

A greater threat to our predictions comes from cognitive factors and biases that can be triggered even by subtle variations in the ask (see, e.g., Lewis and Small, 2019).[19] One relevant bias is *anchoring* among donors (Jung et al., 2016): Our design introduces specific dollar amounts of \$1 or \$30 as part of the donation call when cost-per-unit information is provided. If present, anchoring would lead to donations of \$1 and \$30 appearing in the data with increased frequency for the small and large unit size, respectively, causing differences in outcomes depending on unit size. Related, but distinct is *impact salience* (Latour and Manrai, 1989; Cryder et al., 2013; Karlan and Wood, 2017), which could give rise to a behavioral effect of the unit frame. This requires that the unit frame changes donors‘ focus from providing monetary inputs to helping provide outputs (nutritional rations). If present, impact salience could increase average donations, irrespective of unit size, whenever the unit frame is used. *Accessibility bias* and *left-digit bias* could also be present, the first triggered by the presence of "prominent numbers"[20] (Reiley and Samek, 2019), the second

[19]For example, Lewis and Small (2019) find that donations increase in the cost of giving when the information is framed as cost per unit, but a reverse pattern under a units-per-dollar frame.

[20]For people raised in the base-10 number system, certain numbers are more accessible, meaning they more readily

by the presence of "round numbers"[21] (Converse and Dennis, 2018). Introducing the unit frame could interact with the presence of accessibility and left-digit biases when the frame changes the metric of the decision space. This applies to the large (monthly) unit size with its continuous donation space between 0 and 3 units.[22] If present, both accessibility and left-digit bias are likely to favor integers, leading to a high frequency of giving full units and thereby donations of \$30, \$60, or \$90 once a unit frame is introduced.

A final threat to our predictions are affective biases. For example, introducing specific dollar amounts in the ask could lead to a perception among donors of expected giving (e.g., Adena and Huck, 2020) and donors may be averse to disappointing these perceived expectations (Adena et al., 2014). Both the cost-per-unit information and the unit frame introduce such specific amounts of \$1 and \$30. Donations of \$1 and \$30 could therefore occur with greater frequency under a unit donation scheme with the small and large unit size, respectively, and affect our outcome variables of interest.

4 Results

Table 2 reports the average donations (including non-donors), the share of donors, and the number of observations across the seven treatment groups. For the treatments with unit framing, the average dollar donation corresponds to the average number of nutritional rations donated times the cost per unit. Average donations vary considerably between \$22.42 and \$42.35. In the standard money donation treatment, the average donation amounts to \$26.94, which is equivalent to about 30% of the total endowment. The propensity to give is relatively high, with at least 76% of the participants donating to the charity in each treatment. Nevertheless, we observe substantial variation in the share of donors between treatments of up to 10 percentage points.

come to mind (Albers and Albers, 1983). In open-ended economic decisions such as donations or placing orders for stock trades, prominent numbers such as 10, 20, 50, and 100 are present with high frequency for no apparent material reason (Converse and Dennis, 2018).

[21] This is the tendency to focus on the leftmost digit in numbers (Lacetera et al., 2012; Korvorst and Damian, 2008). Round numbers are often as conspicuous by their absence as by their presence: They are absent in retail prices, which instead tend to cluster on odd numbers such as 9, 49, and 99, inducing the perception that a person has to give up less. This phenomenon is known as "psychological pricing" (DellaVigna, 2009). They are present when individuals stand to receive quantities such as share dividends (Sonnemans, 2006; Aerts et al., 2008) or their SAT score (Pope and Simonsohn, 2011) where round numbers induce the perception that the person receives more.

[22] An interaction with accessibility or left-digit bias is less likely for the daily unit size because of the one-to-one correspondence between the dollar metric of the monetary donation space and the nutritional ration metric of the unit donation space.

Table 2: Donations

Treatment	Average donation	Share of donors	N
A. Pure schemes			
Money Donation	26.94 (29.58)	0.81 (0.39)	1,243
Unit Donation – Small	24.25 (29.51)	0.85 (0.36)	1,261
Unit Donation – Large	42.35 (32.27)	0.76 (0.43)	1,438
B. Intermediate schemes			
Info – Small	22.42 (27.77)	0.83 (0.38)	1,174
Info & Frame – Small	25.54 (29.63)	0.86 (0.35)	1,261
Info – Large	23.73 (25.85)	0.77 (0.42)	1,102
Info & Frame – Large	42.01 (32.25)	0.76 (0.43)	1,194

Standard deviations in parentheses.

To address our main research objectives and compare our predictions about treatment effects with the experimental evidence, we first investigate how the small and the large unit donation schemes affect average donations compared with the money scheme and which of the three steps connecting the money with the unit scheme are driving treatment effects, if any. We then conduct a similar analysis for the extensive margin, i.e., the propensity that individuals give to the charity. The extensive margin offers additional evidence on whether and how the donation schemes alter individual behavior, but is also an interesting metric in itself: Even if the unit donation scheme has no effect on revenue in the short term, an increase in the donor base tends to support future fundraising (Landry et al., 2010). Finally, we combine the results on average donations and the extensive margin with further exploratory analyses to better understand the underlying mechanisms at work.

4.1 Donations

We first draw on the experimental evidence generated by the three pure solicitation schemes (i.e., Money Donation, Unit Donation – Small, Unit Donation – Large) and conduct an OLS regression that regresses the monetary amount donated on a set of treatment dummies, with the standard money donation scheme serving as the baseline. Column 1 of Table 3 reports the corresponding estimation results. The unit donation scheme with a small unit size is estimated to significantly decrease average donations by \$2.68 (or 10%) compared to the money donation. The unit donation scheme with a large unit size, by contrast, significantly raises average donations by \$15.41 (or 57%),

compared to the money scheme. Based on these results, we can reject the null hypothesis that both treatment effects are zero ($p < 0.001$, F-test). This implies that unit donations do affect average donation levels, in ways that at least partially run counter to the predictions of the simple model. Specifically, the small unit size of \$1 gave rise to a negative treatment effect (prediction: zero) while the large unit size of \$30 gave rise to a positive effect (prediction: ambiguous). The unit size therefore plays a crucial role, but in unanticipated ways: It significantly affects the treatment effect and even reverses its sign when using a large instead of a small unit ($p < 0.001$, F-test). As shown in column 2 of Table 3, these results are robust to controlling for available covariates.

Table 3: Effect on donations

			Incremental effects			
	Pure schemes		Small unit		Large unit	
	(1)	(2)	(3)	(4)	(5)	(6)
Unit Donation – Small[a]	-2.684**	-2.054*				
	(1.181)	(1.189)				
Unit Donation – Large[b]	15.413***	15.597***				
	(1.195)	(1.147)				
Info			-4.516***	-4.704***	-3.208***	-2.248**
			(1.167)	(1.157)	(1.145)	(1.139)
Frame			3.117***	3.287***	18.281***	17.407***
			(1.163)	(1.164)	(1.215)	(1.158)
Grid			-1.285	-0.835	0.340	0.383
			(1.178)	(1.192)	(1.263)	(1.160)
p-value ($a = b = 0$, F-test)	0.000	0.000				
p-value ($a = b$, F-test)	0.000	0.000				
Controls	No	Yes	No	Yes	No	Yes
Observations	3,942	3,790	4,939	4,774	4,977	4,799
R^2	0.066	0.141	0.003	0.035	0.072	0.193

Robust standard errors are in parentheses, $^*p < 0.1$, $^{**}p < 0.05$, $^{***}p < 0.01$. Each column corresponds to a separate OLS regression. The dependent variable is the amount of money the charity receives and the pure money donation treatment always serves as baseline. In columns 1 and 2, only data from the treatments with pure solicitation schemes are considered. In columns 3 to 4, only data from treatments with a small unit size and the pure money donation treatment are considered. In columns 5 to 6, only data from treatments with a large unit size and the pure money donation scheme are considered. *Info* refers to providing cost-per-unit information. *Frame* refers to framing the ask in terms of physical units. *Grid* refers to restricting donations to full units of the charitable good. Controls 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.

Combining the pure solicitation schemes with our intermediate treatments allows us to identify which specific features of unit donation schemes are driving the estimated effects above. Recall that the identification relies on the fact that these features are successively introduced: Moving from the treatment Money Donation to the treatment Info – Small (Info – Large) introduces information on the cost per unit, with an anticipated null effect. The treatment Info & Frame – Small (Info & Frame – Large) adds the framing of the donation in physical units, again resulting an an anticipated

null effect. The final step to the treatment Unit Donation – Small (Unit Donation – Large) imposes the donation grid, resulting in an anticipated null effect for the small unit size and an effect on average donations that cannot be signed a priori for the large unit size. As preregistered, we run a separate OLS regression for each unit size where we regress the monetary amount donated on dummies for each of the three successively introduced features, i.e., whether information on the cost per unit is provided (*Info*), whether the donation is framed in units (*Frame*), and whether a donation grid restricts the choice set to full units (*Grid*). For each regression, we only include data from the money donation treatment and from the unit donation treatments with the corresponding unit size.

Columns 3 to 6 of Table 3 show the estimation results, without and with controlling for available covariates. For both unit sizes, providing information on the cost per unit significantly decreases giving whereas using a unit frame creates a significantly positive effect. A key difference between the unit sizes is which effect dominates. For the small unit size, the information effect slightly dominates, leading to an overall negative effect. For the large unit size, the unit frame increases average donations by \$18.51, leading to an overall positive effect. The donation grid does not play a major role for any of the two unit sizes given that cost-per-unit information and a unit frame are already in place.[23]

4.2 Propensity to give

Table 4 reports estimation results from OLS regressions for the extensive margin analogously to the results presented in the previous section on average donations. The results show that unit donation schemes also significantly affect the propensity to give ($p < 0.001$, F-test) with a critical role played by the unit size ($p < 0.001$, F-test). The estimated effects are again only partly in line with our predictions. Contrary to the neutrality prediction for the small unit size, the share of donors increases significantly by 3.5 percentage points. As predicted, however, the effect of the large unit size is significant and negative, reducing the share of donors by 5.8 percentage points. This highlights a potential trade-off present in small-unit size donation schemes: They risk reducing

[23]The impact of the donation grid (i.e., the restriction of the choice set) is identified by comparing a pure unit donation scheme to a scheme with cost-per-unit information and a unit frame but without restriction of the choice set. Hence, the estimated effect is conditional on the unit frame and the information already being in place. We cannot exclude that restricting the choice set without using a unit frame would lead to a significant impact.

Table 4: Effect on propensity to give

			Incremental effects			
	Pure schemes		Small unit		Large unit	
	(1)	(2)	(3)	(4)	(5)	(6)
Unit Donation – Small[a]	0.035**	0.045***				
	(0.015)	(0.014)				
Unit Donation – Large[b]	-0.058***	-0.061***				
	(0.016)	(0.015)				
Info			0.011	0.007	-0.046***	-0.035**
			(0.016)	(0.015)	(0.017)	(0.016)
Frame			0.037**	0.041***	-0.010	-0.020
			(0.015)	(0.014)	(0.018)	(0.017)
Grid			-0.013	-0.004	-0.003	-0.007
			(0.014)	(0.014)	(0.017)	(0.016)
p-value ($a = b = 0$, F-test)	0.000	0.000				
p-value ($a = b$, F-test)	0.000	0.000				
Controls	No	Yes	No	Yes	No	Yes
Observations	3,942	3,790	4,939	4,774	4.977	4,799
R^2	0.010	0.089	0.003	0.073	0.003	0.106

Robust standard errors are in parentheses, *$p < 0.1$, **$p < 0.05$, ***$p < 0.01$. Each column corresponds to a separate OLS regression. 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 data from the treatments with pure solicitation schemes are considered. In columns 3 to 4, only data from treatments with a small unit size and the pure money donation treatment are considered. In columns 5 to 6, only data from treatments with a large unit size and the pure money donation scheme are considered. *Info* refers to providing cost-per-unit information. *Frame* refers to framing the ask in terms of physical units. *Grid* refers to restricting donations to full units of the charitable good. Controls 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.

average donations (see Section 4.1) but can manage to attract significantly more donors. The major driver for this positive effect on the extensive margin is the unit framing (see columns 3 and 4 of Table 4), which we expected to have no effect according to the impure altruism model. The negative effect with the large unit size is instead mainly driven by providing the information that one nutritional ration of $30 is sufficient to treat a malnourished child for one month (see columns 5 and 6 of Table 4).

4.3 Understanding the mechanisms

As discussed in Section 3, each step along the path from money to unit donation schemes has the potential to generate effects on giving if we go beyond a simple model of impure altruism. Here, we revisit the observed effects in terms of direction and magnitude and shed light on the underlying mechanisms.

As a starting point, Figure 2 summarizes the total effect of a unit donation scheme and its

disaggregation into the successive steps (cost-per-unit information, unit frame, donation grid) for three outcome variables: the average donation (panels A and B; results from Section 4.1), the extensive margin or propensity to give (panels C and D; results from Section 4.2), and the intensive margin, i.e., the average donation conditional on giving (panels E and F). The estimates are based on simple regressions without covariates, analogously to the empirical procedure introduced in sections 4.1 and 4.2. The panels on the left (A, C, and E) report on the small and those on the right (B, D, F) on the large unit size. Positive and negative effects that are significant at the five percent level (in a two-sided test) are highlighted in green and red, respectively. In addition, Figure 3 reports the distribution of donations for each treatment.

Cost-per-unit information. For average donations (panels A and B of Figure 2), providing information on the cost per unit had a negative effect of comparable magnitude across unit sizes. The effect contrasts with our prediction of a null effect based on the assumption of well-informed donors in a simple model of impure altruism. At first sight, it is in line with belief updating upon receiving information on the cost per unit. However, if belief updating were the main mechanism, we would also expect the effect on the intensive and extensive margin to be similar across units sizes (because the implied effective cost is independent of the unit size). This is not the case. Examining the response to information at the two margins (panels C to F of Figure 2) and taking a closer look at the distribution of donations (panels A to C of Figure 3) suggests instead that cost-per-unit information serves as an anchor or creates the perception among donors that the charity expects a donation of exactly the cost of one unit. When the unit size is large, the potential donor learns that treating a child for one month costs \$30. This relatively high monetary amount (roughly similar to the average donation in the money donation treatment) discourages a substantial share of individuals to give (see Panel D of Figure 2). At the same time, donations of exactly \$30 become more likely (raising from 4.6% in the treatment Money Donation to 20.1% in Info – Large, $p < 0.001$, χ^2-test).[24] When the unit size is small, the communicated cost per unit of \$1 does not discourage individuals to give, but instead encourages individuals to give small amounts and in particular \$1 (the share of donations of \$1 increases from 4.0% in the treatment Money Donation to 11.1% in Info – Small, $p < 0.001$, χ^2-test). As a result, cost-per-unit information creates a

[24]This could be at least partly driven by pulling donors down towards the anchor: The share of donations above \$30 decreases from 33.0% to 22.9%, $p < 0.001$, χ^2-test. This would explain the slightly negative effect of providing information on the intensive margin (see Panel F of Figure 2, $p < 0.10$).

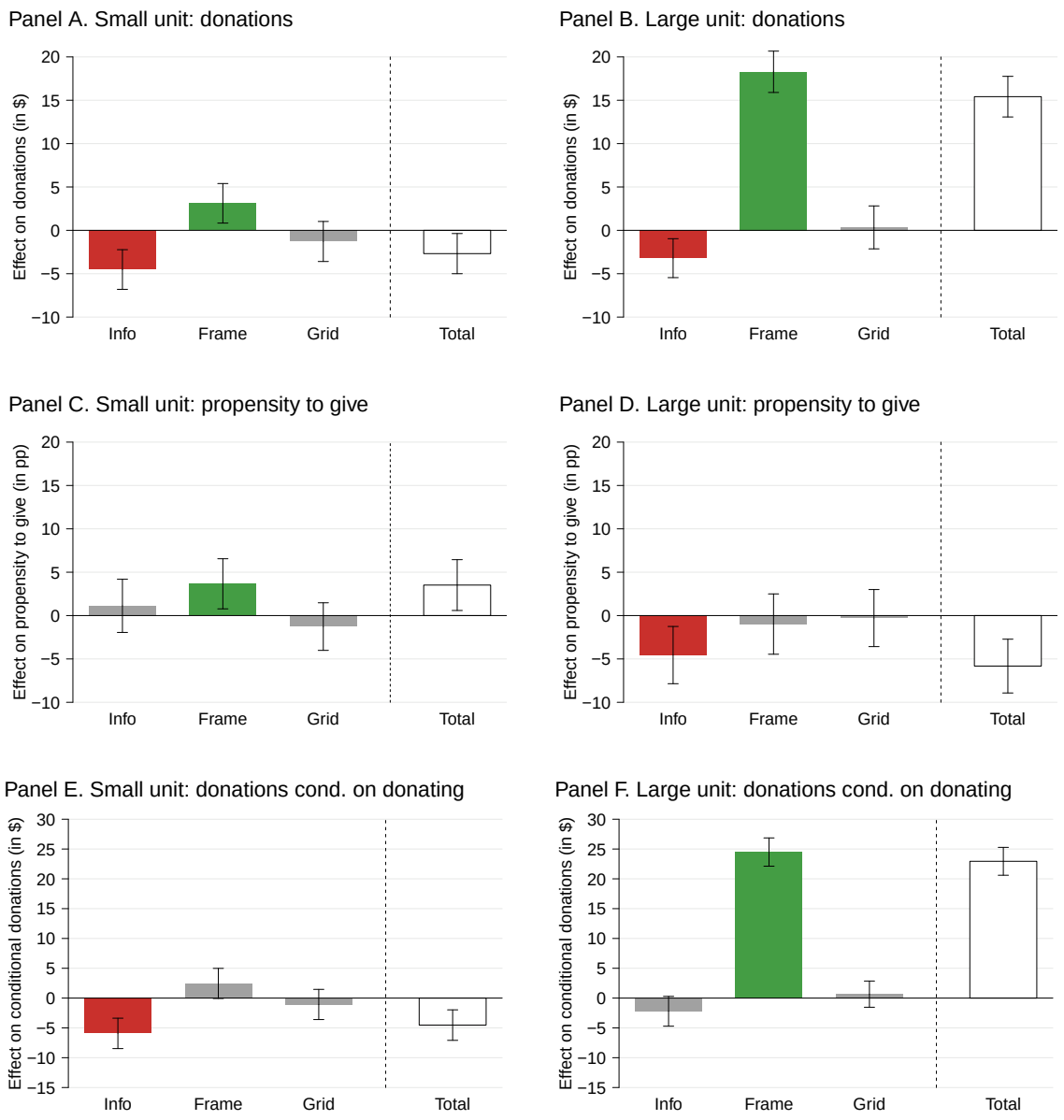

Figure 2: Incremental effects by outcome variable and unit size

Notes: The figure shows that incremental effects when successively moving from a money donation to a unit donation scheme. *Info* refers to the effect of adding cost-per-unit information to a pure money donation scheme. *Frame* refers to the effect of framing the ask in terms of physical units instead of money (in addition to providing cost-per-unit information). *Grid* refers to the effect of restricting the donations to full units of the charitable good (in addition to providing cost-per-unit information and framing the ask in physical units). *Total* refers to the total effect of using a unit donation instead of a money donation scheme. The estimates are based on simple OLS regressions without covariates (as introduced in sections 4.1 and 4.2). The panels on the left (A,C,E) focus on the small unit size while the panels on the right focus on the large unit size. The whiskers represent 95% confidence intervals based on robust standard errors. Bars of incremental effects are highlighted in green (red) if the effect is significantly positive (negative) at the 5 percent level (two-sided test).

significant negative effect at the intensive margin (see Panel E of Figure 2) and no adjustment at the extensive margin (see Panel C of Figure 2).

Unit frame. In contrast to the cost-per-unit information, the unit frame created a positive effect on average donations for both unit sizes (see panels A and B of Figure 2), going against the anticipated null effect in the impure altruism model. A first striking observation in this context is that donations of fractions of units are almost completely absent once the unit frame is introduced. Even for the large unit size with a cost per unit of \$30, less than 2% of individuals give fractions of units when a unit frame is present (see Panel E of Figure 3).[25] This finding is in line with accessibility and left-digit bias as driving factors of the response to the unit frame, which would both be associated with an increase in the frequency of full units.

Nevertheless, these biases appear unlikely to be the only driving factors. The main reason is that donations of fractions of units are already absent without the unit frame if the unit size is small (less than 3% of participants in Info – Small give fractions of units). Hence, the positive impact of average donations for the small unit size is unlikely to be driven by accessibility or left-digit bias. A plausible explanation for the positive impact is that the unit frame additionally increases impact salience and thereby boosts the marginal utility of giving. This mechanism also likely contributes to the large positive effect of the unit frame on the intensive margin under a large unit size.

An important finding is that the unit frame does not simply induce people to move from donating fractions of units to the next higher or lower donation of full units. This becomes clear when investigating how the probability mass of donors who give fractions of units under a money donation scheme with cost-per-unit information (i.e., Info – Large or Info – Small) reallocates when the unit frame is introduced (i.e., Info & Frame – Large or Info & Frame – Small). For example, in the treatment Info – Large, 8.7% of participants donate more than \$60 (more than two full units). In the most optimistic scenario, this complete probability mass, but no more, should move to \$90

[25]The instructions of the treatment Info & Frame – Large (and the treatment Info & Frame – Small) explicitly stated in bold that giving fractions of units is possible (see Appendix Figure A.11 and Appendix Figure A.12). In addition, we find that participants are generally responsive to our instructions. If they were not, receiving cost-per-unit information (with a small or a large unit size) should not affect behavior in a money donation scheme. Likewise, moving from the treatment Info – Small to the treatment Info & Frame – Small should not affect behavior because the donation metric remains unchanged (one unit is one dollar). Yet, we find measurable effects for each of the corresponding variations in the instructions. Altogether, this makes it unlikely that the absence of donations of fractions is driven by subjects misunderstanding the unit frame as forcing them to give full units. We concede, however, that we cannot offer conclusive evidence that subjects were not selectively inattentive to the specific bolded statement that giving fractions is possible.

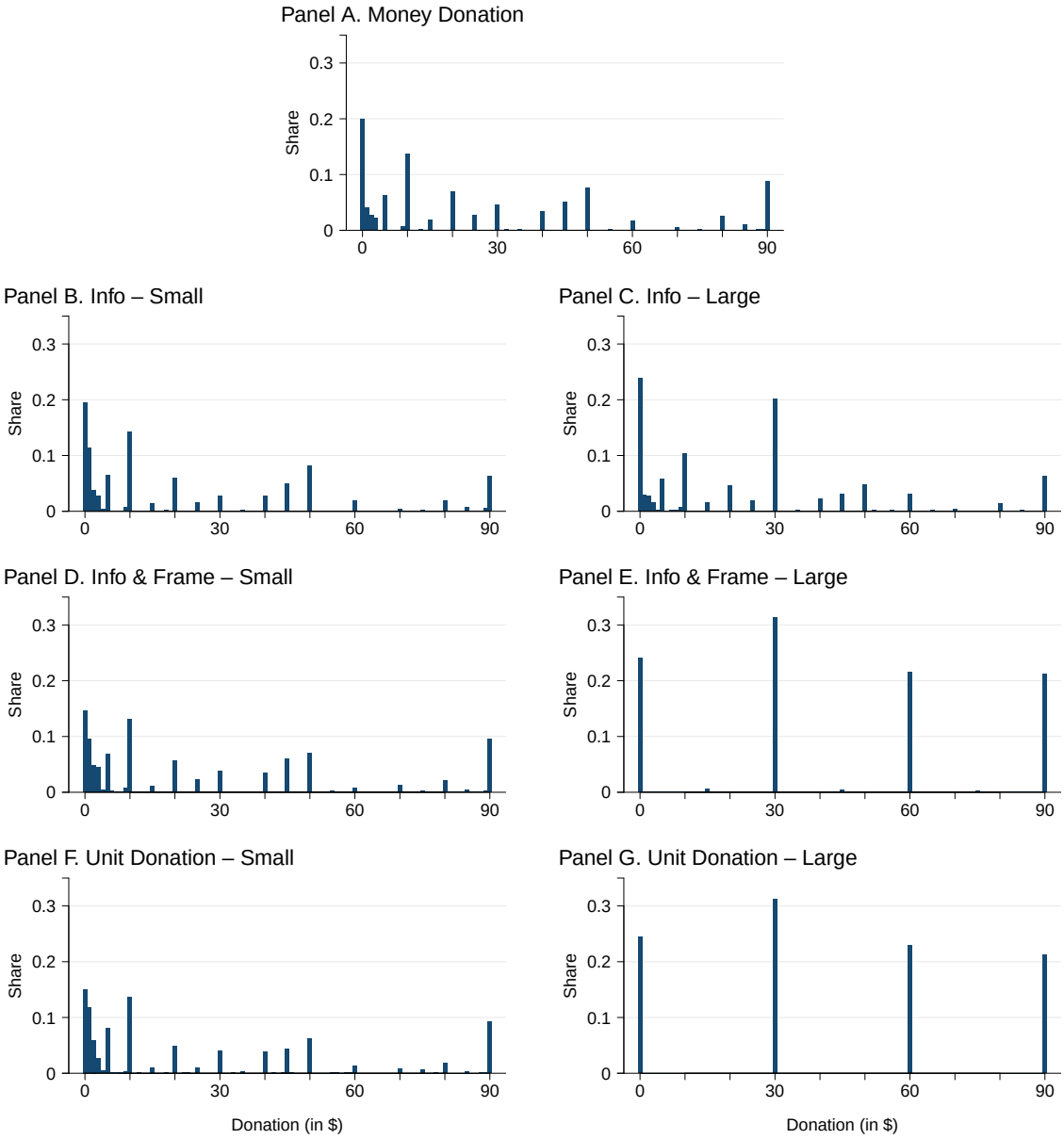

Figure 3: Distribution of donations by treatment

(three full units) when the unit frame is introduced. However, looking at the actual distribution in treatment Info & Frame – Large (panel E of Figure 3), we find that the share of donors giving exactly three units is significantly higher than that and amounts to 21.2% ($p < 0.001$, χ^2-test). To further illustrate the point, we recalculate the average donation in the treatments Info – Large and Info – Small for the scenario that all donors giving fractions of units switch to the next higher number of full units available. The recalculated average donations for the large and small unit size amount to \$32.53 and \$22.43, respectively. Even in this most optimistic scenario, the average donations are significantly lower than what we actually observe in the treatments Info & Frame – Large (average donation of \$42.01, $p < 0.001$, two-sided t-test) and Info & Frame – Small (average donation of \$25.54, $p < 0.01$, two-sided t-test).

While increased impact salience and the interaction with the cognitive biases (accessibility and left-digit bias) are sufficient to explain the observed behavioral responses to the unit frame, we cannot exclude that a change in the perceived expected donation amount – another mechanism discussed in Section 3 – also plays a role. Using a unit frame might create the perception that the charity expects the donor to give one full unit (i.e., \$1 and \$30 in the case of the small and large unit size, respectively). However, the data provides only limited support for this mechanism. While it might contribute to the larger share of donations at \$30 when moving from Info – Large to Info & Frame – Large (20.1% vs. 31.4%, $p < 0.001$, χ^2-test), we do not observe the predicted increase in giving \$1 when moving from Info – Small to Info & Frame – Small (11.1% vs. 9.4%, $p = 0.18$, χ^2-test).

Donation grid. Given that donating fractions of units is already virtually absent in the treatments with unit frame, the additional discretization of the choice set to full units has little scope for creating a substantial impact. In line with this, we do not observe a significant effect on average donations, the extensive margin, or the intensive margin irrespective of the unit size. This does not imply that restricting the choice set is irrelevant. At least for the large unit size, it might substantially alter the outcome if a unit frame has not been introduced, yet. An empirical test of whether this is the case would, however, require a different experimental design.

5 Conclusion

Donation schemes can often 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? To address this research question, we conducted a large-scale online experiment in which we systematically compared money and unit donation schemes. Our main result is that employing a unit donation scheme substantially affects giving, with the direction of the effect depending on the unit size. The unit donation scheme increased giving by almost 60% when a large unit size was used (cost per unit of \$30), but decreased giving by about 10% under a small unit size (cost per unit of \$1).

By decomposing the overall effects into incremental steps of successively introducing the three key features of unit donation schemes (cost-per-unit information, unit framing, and the donation grid), we first show that providing cost-per-unit information reduces average donations irrespective of the unit size and that this effect is likely driven by anchoring or a perception among donors that the charity expects a donation of exactly the cost of one unit. This is in line with Lewis and Small (2019) – who find that potential donors are likely to donate the cost of one unit if information is presented as dollars-per-unit instead of units-per-dollar – and evidence that donors are particularly likely to follow suggested donation amounts (Adena et al., 2014; Reiley and Samek, 2019).

Second, we identify unit framing as the driving factor of the overall positive effect of a unit donation scheme under the large unit size. Based on the empirical evidence, we argue that unit framing alters giving by substantially increasing the salience of the donation impact and interacting with accessibility and left-digit bias due to the changed metric of the donation space. While the unit frame also increased giving for the small unit size, the effect is much smaller and thus more than counterbalanced by the negative impact of cost-per-unit information. The smaller effect under the small unit size can be explained by the fact that, there, the unit framing only increases the salience of the donation impact but does not change the metric of the donation space (leaving accessibility and left-digit bias unaffected).

Third, we do not find any additional effect of introducing a donation grid that restricts donations to full units once the cost-per-unit information and unit frame are already present. Our failure to find additional effects – on average and at the extensive margin – contrasts with earlier result by Cartwright and Mirza (2021) and Adena and Huck (2020) who show that minimum donation

amounts or an increase in the step size of donation grids reduce giving. A straightforward reason for this difference in findings is that in our experiment, donating fractions of units is almost completely absent once a unit frame has been introduced, leaving little scope for an effect of eventually restricting choices.

Our results offer new insights into individuals' giving behavior and have direct implications for fundraising practitioners. We show that unit donation schemes offer an attractive alternative to the standard money donation scheme. With the right design, they can be used to achieve strategic goals like increasing overall giving or expanding the donor base. In doing so, the unit size of the charitable good requires special attention as it is a key determining factor in how effects materialize.

Given the crucial role of the unit size, an interesting avenue for future research is to explore the optimal unit size design. At what point does the overall effect reverse and how does this depend on the distribution of donations under the money donation scheme? Answering these questions goes beyond the scope of this study. Since we have focused on an online environment with workers from Amazon Mechanical Turk, it would also be worth testing the effectiveness of unit donations in other field settings. For example, implementing unit donations in door-to-door fundraising campaigns might be more challenging and require some design adjustments that lead to different effects. Other important questions include whether unit donation schemes offer charities a competitive advantage and how different insights from the standard money donation context play out once a unit donation scheme is employed. We hope that our paper encourages more research in this area of practical and academic relevance.

References

Adena, M. and Huck, S. (2020). Online fundraising, self-image, and the long-term impact of ask avoidance. *Management Science*, 66(2):722–743.

Adena, M., Huck, S., and Rasul, I. (2014). Charitable giving and nonbinding contribution-level suggestions – Evidence from a field experiment. *Review of Behavioral Economics*, 1(3):275–293.

Aerts, W., Van Campenhout, G., and Van Caneghem, T. (2008). Clustering in dividends: Do managers rely on cognitive reference points? *Journal of Economic Psychology*, 29(3):276–284.

Albers, W. and Albers, G. (1983). On the prominence structure of the decimal system. In *Advances in Psychology*, volume 16, pages 271–287. Elsevier.

Alpizar, F., Carlsson, F., and Johansson-Stenman, O. (2008). Anonymity, reciprocity, and conformity: Evidence from voluntary contributions to a national park in Costa Rica. *Journal of Public Economics*, 92(5):1047 – 1060.

Altmann, S., Falk, A., Heidhues, P., Jayaraman, R., and Teirlinck, M. (2019). Defaults and donations: Evidence from a field experiment. *Review of Economics and Statistics*, 101(5):808–826.

Andreoni, J. (1989). Giving with impure altruism: Applications to charity and ricardian equivalence. *Journal of Political Economy*, 97(6):1447–1458.

Andreoni, J. (1990). Impure altruism and donations to public goods: A theory of warm-glow giving. *The Economic Journal*, 100(401):464–477.

Barbieri, S. and Malueg, D. A. (2014). Increasing fundraising success by decreasing donor choice. *Journal of Public Economic Theory*, 16(3):372–400.

Butera, L. and Horn, J. (2020). "Give less but give smart": Experimental evidence on the effects of public information about quality on giving. *Journal of Economic Behavior & Organization*, 171:59–76.

Cadsby, C. B. and Maynes, E. (1999). Voluntary provision of threshold public goods with continuous contributions: Experimental evidence. *Journal of Public Economics*, 71(1):53–73.

Cartwright, E. J. and Mirza, Z. (2021). Charitable giving when donors are constrained to give a minimum amount. *Oxford Economic Papers*, 73(1):295–316.

Chou, E. Y. and Murnighan, J. K. (2013). Life or death decisions: Framing the call for help. *PloS ONE*, 8(3):e57351.

Converse, B. A. and Dennis, P. J. (2018). The role of "prominent numbers" in open numerical judgment: Strained decision makers choose from a limited set of accessible numbers. *Organizational Behavior and Human Decision Processes*, 147:94–107.

Cryder, C. E., Loewenstein, G., and Scheines, R. (2013). The donor is in the details. *Organizational Behavior and Human Decision Processes*, 120(1):15–23.

DellaVigna, S. (2009). Psychology and economics: Evidence from the field. *Journal of Economic Literature*, 47(2):315–72.

Diederich, J., Eckel, C. C., Epperson, R., Goeschl, T., and Grossman, P. J. (2022). Subsidizing unit donations: Matches, rebates, and discounts compared. *Experimental Economics*, 25(2):734–758.

Diederich, J. and Goeschl, T. (2014). Willingness to pay for voluntary climate action and its determinants: Field-experimental evidence. *Environmental and Resource Economics*, 57(3):405–429.

Edwards, J. T. and List, J. A. (2014). Toward an understanding of why suggestions work in charitable fundraising: Theory and evidence from a natural field experiment. *Journal of Public Economics*, 114:1–13.

Epperson, R. and Reif, C. (2019). Matching subsidies and voluntary contributions: A review. *Journal of Economic Surveys*, 33(5):1578–1601.

Exley, C. L. (2020). Using charity performance metrics as an excuse not to give. *Management Science*, 66(2):553–563.

Falk, A. (2007). Gift exchange in the field. *Econometrica*, 75(5):1501–1511.

Fraser, C., Sauer, P. L., and Hite, R. E. (1988). Increasing contributions in solicitation campaigns: The use of large and small anchorpoints. *Journal of Consumer Research*, 15(2):284–287.

Fuchs, C., de Jong, M. G., and Schreier, M. (2020). Earmarking donations to charity: Cross-cultural evidence on its appeal to donors across 25 countries. *Management Science*, 66(10):4820–4842.

Gangadharan, L., Grossman, P. J., Jones, K., and Leister, C. M. (2018). Paternalistic giving: Restricting recipient choice. *Journal of Economic Behavior & Organization*, 151:143–170.

Ghesla, C., Grieder, M., and Schmitz, J. (2019). Nudge for good? Choice defaults and spillover effects. *Frontiers in Psychology*, 10:178.

Goswami, I. and Urminsky, O. (2016). When should the ask be a nudge? The effect of default amounts on charitable donations. *Journal of Marketing Research*, 53(5):829–846.

Grossman, P. J. and Eckel, C. C. (2015). Giving versus taking for a cause. *Economics Letters*, 132:28–30.

Hildebrand, D., DeMotta, Y., Sen, S., and Valenzuela, A. (2017). Consumer responses to corporate social responsibility (CSR) contribution type. *Journal of Consumer Research*, 44(4):738–758.

Holm, S. (1979). A simple sequentially rejective multiple test procedure. *Scandinavian Journal of Statistics*, 6(2):65–70.

Huck, S., Rasul, I., and Shephard, A. (2015). Comparing charitable fundraising schemes: Evidence from a natural field experiment and a structural model. *American Economic Journal: Economic Policy*, 7(2):326–369.

Hungerman, D. M. and Ottoni-Wilhelm, M. (2021). Impure impact giving: Theory and evidence. *Journal of Political Economy*, 129(5):1553–1614.

Jacobsson, F., Johannesson, M., and Borgquist, L. (2007). Is altruism paternalistic? *The Economic Journal*, 117(520):761–781.

Jung, M. H., Perfecto, H., and Nelson, L. D. (2016). Anchoring in payment: Evaluating a judgmental heuristic in field experimental settings. *Journal of Marketing Research*, 53(3):354–368.

Karlan, D. and List, J. A. (2007). Does price matter in charitable giving? Evidence from a large-scale natural field experiment. *American Economic Review*, 97(5):1774–1793.

Karlan, D. and Wood, D. H. (2017). The effect of effectiveness: Donor response to aid effectiveness in a direct mail fundraising experiment. *Journal of Behavioral and Experimental Economics*, 66:1–8.

Kessler, J. B. and Milkman, K. L. (2018). Identity in charitable giving. *Management Science*, 64(2):845–859.

Kesternich, M., Löschel, A., and Römer, D. (2016). The long-term impact of matching and rebate subsidies when public goods are impure: Field experimental evidence from the carbon offsetting market. *Journal of Public Economics*, 137:70–78.

Korvorst, M. and Damian, M. F. (2008). The differential influence of decades and units on multidigit number comparison. *Quarterly Journal of Experimental Psychology*, 61(8):1250–1264.

Lacetera, N., Pope, D. G., and Sydnor, J. R. (2012). Heuristic thinking and limited attention in the car market. *American Economic Review*, 102(5):2206–36.

Landry, C. E., Lange, A., List, J. A., Price, M. K., and Rupp, N. G. (2010). Is a donor in hand better than two in the bush? Evidence from a natural field experiment. *American Economic Review*, 100(3):958–983.

Latour, S. A. and Manrai, A. K. (1989). Interactive impact of informational and normative influence on donations. *Journal of Marketing Research*, 26(3):327–335.

Lewis, J. and Small, D. (2019). Ineffective altruism: Giving less when donations do more good. SSRN Working Paper.

List, J. A. and Lucking-Reiley, D. (2002). The effects of seed money and refunds on charitable giving: Experimental evidence from a university capital campaign. *Journal of Political Economy*, 110(1):215–233.

Litman, L. and Robinson, J. (2020). *Conducting online research on Amazon Mechanical Turk and beyond*. Sage Publications.

Litman, L., Robinson, J., and Abberbock, T. (2017). Turkprime.com: A versatile crowdsourcing data acquisition platform for the behavioral sciences. *Behavior Research Methods*, 49(2):433–442.

Löschel, A., Sturm, B., and Vogt, C. (2013). The demand for climate protection—Empirical evidence from Germany. *Economics Letters*, 118(3):415 – 418.

Mason, W. and Suri, S. (2012). Conducting behavioral research on Amazon's Mechanical Turk. *Behavior Research Methods*, 44(1):1–23.

Metzger, L. and Günther, I. (2019). Making an impact? The relevance of information on aid effectiveness for charitable giving. a laboratory experiment. *Journal of Development Economics*, 136:18–33.

Ottoni-Wilhelm, M., Vesterlund, L., and Xie, H. (2017). Why do people give? Testing pure and impure altruism. *American Economic Review*, 107(11):3617–3633.

Paolacci, G., Chandler, J., and Ipeirotis, P. G. (2010). Running experiments on Amazon Mechanical Turk. *Judgment and Decision Making*, 5(5):411–419.

Pope, D. and Simonsohn, U. (2011). Round numbers as goals: Evidence from baseball, sat takers, and the lab. *Psychological Science*, 22(1):71–79.

Rand, D. G. (2012). The promise of Mechanical Turk: How online labor markets can help theorists run behavioral experiments. *Journal of Theoretical Biology*, 299:172–179.

Reiley, D. and Samek, A. (2019). Round giving: A field experiment on suggested donation amounts in public-television fundraising. *Economic Inquiry*, 57(2):876–889.

Ross, J., Irani, L., Silberman, M. S., Zaldivar, A., and Tomlinson, B. (2010). Who are the crowdworkers? Shifting demographics in Mechanical Turk. In *Extended Abstracts on Human Factors in Computing Systems*, CHI EA 2010, pages 2863–2872, New York, NY, USA. ACM.

Schulz, J. F., Thiemann, P., and Thöni, C. (2018). Nudging generosity: Choice architecture and cognitive factors in charitable giving. *Journal of Behavioral and Experimental Economics*, 74:139–145.

Sonnemans, J. (2006). Price clustering and natural resistance points in the dutch stock market: A natural experiment. *European Economic Review*, 50(8):1937–1950.

Weyant, J. M. and Smith, S. L. (1987). Getting more by asking for less: The effects of request size on donations of charity. *Journal of Applied Social Psychology*, 17(4):392–400.

Zarghamee, H. S., Messer, K. D., Fooks, J. R., Schulze, W. D., Wu, S., and Yan, J. (2017). Nudging charitable giving: Three field experiments. *Journal of Behavioral and Experimental Economics*, 66:137–149.

Zizzo, D. J. (2010). Experimenter demand effects in economic experiments. *Experimental Economics*, 13:75–98.

Appendix

A.1 Pre-registration

ASPREDICTED

Wharton CREDIBILITY LAB
University of Pennsylvania

CONFIDENTIAL - FOR PEER-REVIEW ONLY

How to Design the Ask: Experiment (#94287)

Created: 04/15/2022 10:03 AM (PT)

This is an anonymized copy (without author names) of the pre-registration. It was created by the author(s) to use during peer-review.
A non-anonymized version (containing author names) should be made available by the authors when the work it supports is made public.

---

1) Have any data been collected for this study already?
No, no data have been collected for this study yet.

2) What's the main question being asked or hypothesis being tested in this study?
1. Does using a Unit Donation instead of a Money Donation scheme affect charitable giving?
2. Does the size of the unit matter for the impact of a Unit Donation scheme on charitable giving?
3. Which mechanisms are driving the effect?

3) Describe the key dependent variable(s) specifying how they will be measured.
1. The amount donated to the charity in $ (zero if no donation was made).
2. Whether the participant donated to the charity.

4) How many and which conditions will participants be assigned to?
Participants are recruited via Amazon Mechanical Turk. They work on a real-effort task (transcribing a scanned sentence), have the opportunity to donate part of their reward to a charity, and answer some questions. Participants are randomly assigned to one of seven treatments (probability of assignment in parentheses):

1. Money Donation (5/36): The donation call does not provide information about the effectiveness of a donation; the participant decides how much money to give; any amount between 0 and $90.00 can be given.

2. Unit Donation – Small (5/36): The donation call states that one nutritional ration is sufficient to treat a malnourished child for one day and that it can be provided for a donation of $1; the participant decides how many rations to provide; up to 90 rations can be given (only integers).

3. Unit Donation – Large (6/36): The donation call states that one nutritional ration is sufficient to treat a malnourished child for one month (30 days) and that it can be provided for a donation of $30; the participant decides how many rations to provide; up to 3 rations can be given (only integers).

4. Info – Small (5/36): The donation call states that one nutritional ration is sufficient to treat a malnourished child for one day and that it can be provided for a donation of $1; the participant decides how much money to give; any amount between 0 and $90.00 can be given.

5. Info + Frame – Small (5/36): The donation call states that one nutritional ration is sufficient to treat a malnourished child for one day and that it can be provided for a donation of $1; the participant decides how many rations to provide; any amount between 0 and 90 rations can be given.

6. Info – Large (5/36): The donation call states that one nutritional ration is sufficient to treat a malnourished child for one month (30 days) and that it can be provided for a donation of $30; the participant decides how much money to give; any amount between 0 and $90.00 can be given.

7. Info + Frame – Large (5/36): The donation call states that one nutritional ration is sufficient to treat a malnourished child for one month (30 days) and that it can be provided for a donation of $30; the participant decides how many rations to provide; any amount between 0 and 3 rations can be given.

5) Specify exactly which analyses you will conduct to examine the main question/hypothesis.
For questions 1 and 2: We conduct an OLS regression where we regress the outcome variable on a dummy for being in treatment 2 and a dummy for being in treatment 3, only using data from treatments 1, 2, and 3. For the first question, we test whether at least one of the estimated coefficients of the two treatment dummies is significantly different from zero. For the second question, we test whether the estimated coefficients of the two treatment dummies are significantly different from each other.

For question 3: We conduct two sets of OLS regressions. In the first set, we only use data from treatments 1, 2, 4, and 5 and regress the outcome variable on dummies for (i) being informed about the effectiveness of the donation (=1 for treatments 2, 4, and 5), (ii) deciding how many units to give (=1 for treatments 2 and 5) and (iii) being restricted to give complete units (=1 for treatment 2). In the second set, we only use data from treatments 1, 3, 6, and 7 and regress the outcome variable on dummies for (i) being informed about the effectiveness of the donation (=1 for treatments 3, 6, and 7), (ii) deciding how many units to give (=1 for treatments 3 and 7) and (iii) being restricted to give complete units (=1 for treatment 3). For each coefficient in each regression, we test whether it is significant to conclude about the role of each feature in explaining the potential difference between treatment 1 and

treatment 2 or 3.

We always use heteroskedasticity robust standard errors.

6) Describe exactly how outliers will be defined and handled, and your precise rule(s) for excluding observations.
1. We exclude observations with duplicate Amazon Mechanical Turk IDs (which are entered during the experiment). The only exception is that we keep an observation if it is the first with this ID to be confronted with the donation call, it completed the experiment, and the time period from starting to completing the experiment does not overlap with any other observation that shares this ID.
2. We exclude observations with Amazon Mechanical Turk IDs that are not listed as having worked on the HIT by Amazon Mechanical Turk.
3. We exclude all observations that did not complete the experiment.

7) How many observations will be collected or what will determine sample size? No need to justify decision, but be precise about exactly how the number will be determined.
We aim for a sample size of 9,000 participants. Since there is a risk that we will not be able to reach the desired sample size, we will stop the data collection after 8 weeks.

8) Anything else you would like to pre-register? (e.g., secondary analyses, variables collected for exploratory purposes, unusual analyses planned?)
We will post the experiment on Amazon Mechanical Turk in subsequent HITs with up to 1,500 participants. If a posted HIT is completed, we will post a new HIT (with 1,500 participants unless fewer are needed to arrive at the sample size of 9,000 participants in total). If after seven days a posted HIT is still not completed, we will close this HIT and post a new one.

We will use data from the questionnaire to shed more light on the mechanisms studied in research question 3. In particular, we explore how beliefs about (i) the effectiveness of donating a certain amount ($1 or $10), (ii) the appropriateness of donating a certain amount ($1 or $10), (iii) the extent to which others think donating a certain amount is appropriate ($1 or $10), and (iv) the donation behavior of others vary across the treatments.

As robustness checks we will run the analyses specified in point 5 including the following covariates:
- gender (female/male/other)
- age (18–24/25–30/31–40/ 41–50/ 51–64/65 or older)
- crowdworking as main source of income (yes/no)
- children (yes/no)
- college degree or higher (yes/no)

A.2 Instructions

This section shows screenshots from the instructions of the experiment.

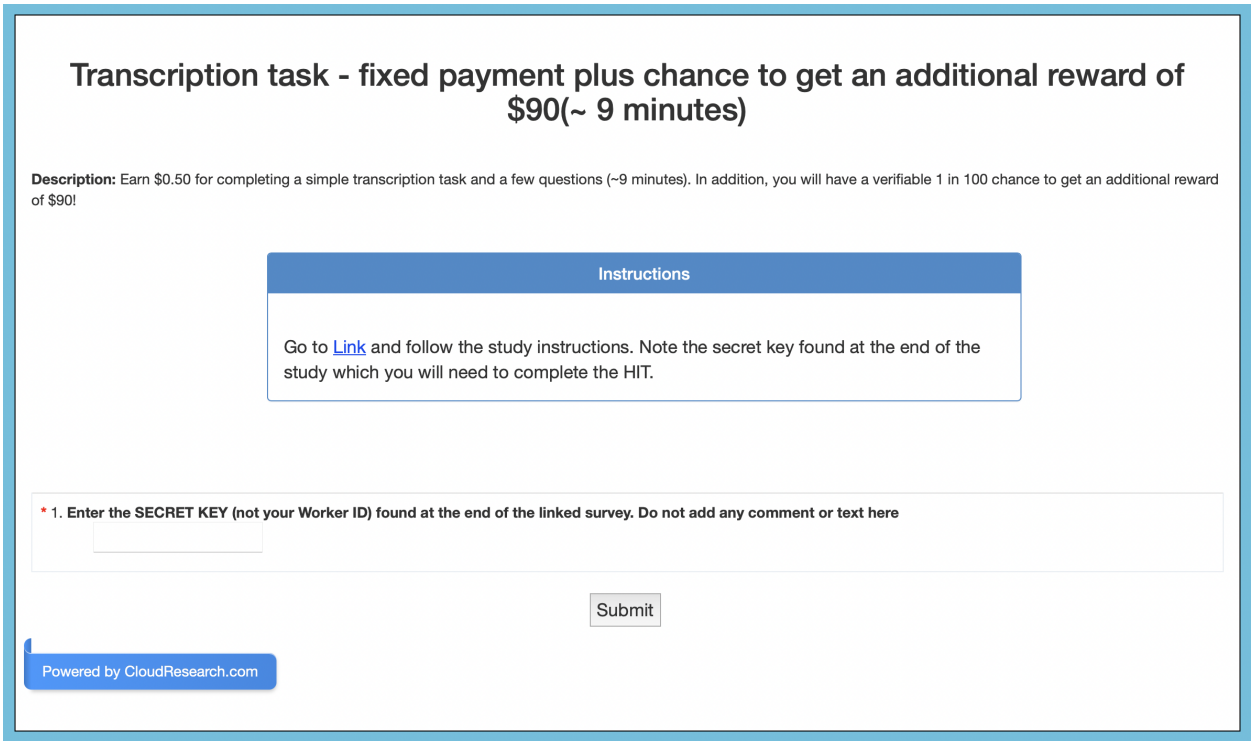

Figure A.2: MTurk HIT

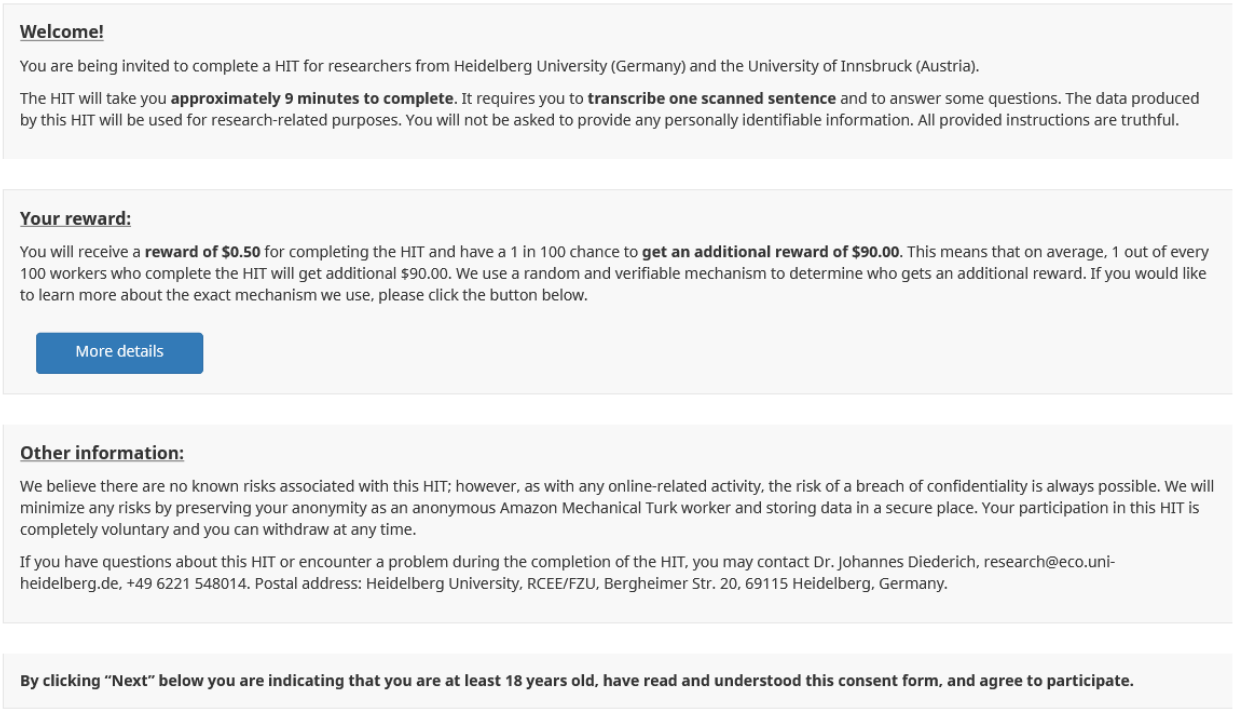

Figure A.3: Screen 1 (consent form)

Notes: If subjects clicked on "More details," the precise details of the procedures for the additional reward were shown.

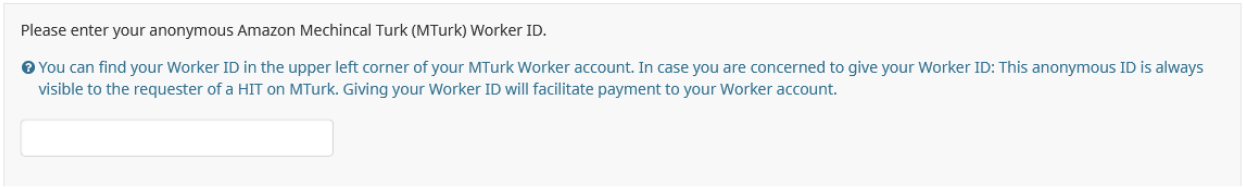

Figure A.4: Screen 2 (MTurk ID)

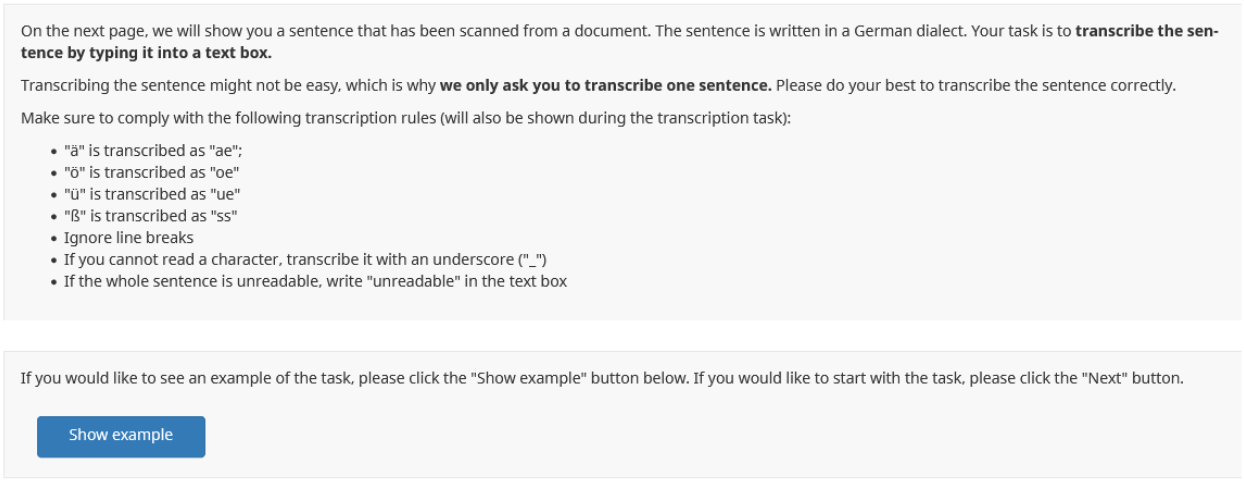

Figure A.5: Screen 3 (instruction of real-effort task)

Notes: If subjects clicked on "Show example," an example of a completed transcription task was shown.

Figure A.6: Screen 4 (real-effort task)

Notes: Subjects randomly received one out of thirteen different sentences.

When posting a HIT on MTurk, it is always helpful to understand how the task is perceived by workers. A difficult task might be more interesting but could also lead to more mistakes. At the same time, it is important to understand whether workers carefully read the instructions. If they do not, this could reduce the quality of the data received from the HIT. To show that you read our instructions carefully, please ignore the following question. Instead, select the answer "other" and enter "understood" (without quotation marks) in the text box. Thank you.

Which of the following statements applies?

- ○ The task was less difficult than most tasks on MTurk.
- ○ The task was more difficult than most tasks on MTurk.
- ○ No answer
- ○ Other:

Figure A.7: Screen 5 (attention check)

As part of this MTurk HIT, each participant has the opportunity to **support the provision of nutritious food for malnourished children** in developing countries.

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Currently, millions of children in developing countries could be pushed to the brink of starvation due to huge shortfalls in humanitarian aid funding amid the COVID-19 pandemic. Ready-to-use therapeutic foods can help: **A specially developed nutritional paste can be used to treat children affected by severe acute malnutrition and help them gain weight.** UNICEF runs a program to provide such foods.

One ration of the nutritional paste is sufficient to treat a child for one day and can be provided for a donation of $1.00.

In this MTurk HIT, **you may donate (some of) your additional reward to provide rations of the nutritional paste.** With $90.00, you can provide up to 90 rations. If you get the additional reward of $90.00, $1.00 per ration will be subtracted from your reward and donated to UNICEF for the provision of the nutritional paste.

Please tell us below how many rations you wish to provide.

ration(s)

Figure A.8: Screen 6 (donation ask in treatment Unit Donation – Small)

As part of this MTurk HIT, each participant has the opportunity to **support the provision of nutritious food for malnourished children** in developing countries.

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Currently, millions of children in developing countries could be pushed to the brink of starvation due to huge shortfalls in humanitarian aid funding amid the COVID-19 pandemic. Ready-to-use therapeutic foods can help: **A specially developed nutritional paste can be used to treat children affected by severe acute malnutrition and help them gain weight.** UNICEF runs a program to provide such foods.

One ration of the nutritional paste is sufficient to treat a child for one day and can be provided for a donation of $1.00.

In this MTurk HIT, **you may donate (some of) your additional reward for helping provide the nutritional paste.** Thus, you can donate any amount up to $90.00. If you get the additional reward of $90.00, the amount you have chosen will be subtracted from your reward and donated to UNICEF for the provision of the nutritional paste.

Please tell us below how much money you wish to donate.

$

Figure A.9: Screen 6 (donation ask in treatment Info – Small)

As part of this MTurk HIT, each participant has the opportunity to **support the provision of nutritious food for malnourished children** in developing countries.

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Currently, millions of children in developing countries could be pushed to the brink of starvation due to huge shortfalls in humanitarian aid funding amid the COVID-19 pandemic. Ready-to-use therapeutic foods can help: **A specially developed nutritional paste can be used to treat children affected by severe acute malnutrition and help them gain weight.** UNICEF runs a program to provide such foods.

One ration of the nutritional paste is sufficient to treat a child for one month (30 days) and can be provided for a donation of $30.00.

In this MTurk HIT, **you may donate (some of) your additional reward for helping provide the nutritional paste.** Thus, you can donate any amount up to $90.00. If you get the additional reward of $90.00, the amount you have chosen will be subtracted from your reward and donated to UNICEF for the provision of the nutritional paste.

Please tell us below how much money you wish to donate.

$

Figure A.10: Screen 6 (donation ask in treatment Info – Large)

As part of this MTurk HIT, each participant has the opportunity to **support the provision of nutritious food for malnourished children** in developing countries.

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Currently, millions of children in developing countries could be pushed to the brink of starvation due to huge shortfalls in humanitarian aid funding amid the COVID-19 pandemic. Ready-to-use therapeutic foods can help: **A specially developed nutritional paste can be used to treat children affected by severe acute malnutrition and help them gain weight.** UNICEF runs a program to provide such foods.

One ration of the nutritional paste is sufficient to treat a child for one day and can be provided for a donation of $1.00.

In this MTurk HIT, **you may donate (some of) your additional reward to provide rations of the nutritional paste. Partial rations are also feasible.** With $90.00, you can provide up to 90 rations. If you get the additional reward of $90.00, $1.00 per ration will be subtracted from your reward and donated to UNICEF for the provision of the nutritional paste.

Please tell us below how many rations you wish to provide.

ration(s)

Figure A.11: Screen 6 (donation ask in treatment Info & Frame – Small)

As part of this MTurk HIT, each participant has the opportunity to **support the provision of nutritious food for malnourished children** in developing countries.

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Currently, millions of children in developing countries could be pushed to the brink of starvation due to huge shortfalls in humanitarian aid funding amid the COVID-19 pandemic. Ready-to-use therapeutic foods can help: **A specially developed nutritional paste can be used to treat children affected by severe acute malnutrition and help them gain weight.** UNICEF runs a program to provide such foods.

One ration of the nutritional paste is sufficient to treat a child for one month (30 days) and can be provided for a donation of $30.00.

In this MTurk HIT, **you may donate (some of) your additional reward to provide rations of the nutritional paste. Partial rations are also feasible.** With $90.00, you can provide up to 3 rations. If you get the additional reward of $90.00, $30.00 per ration will be subtracted from your reward and donated to UNICEF for the provision of the nutritional paste.

Please tell us below how many rations you wish to provide.

ration(s)

Figure A.12: Screen 6 (donation ask in treatment Info & Frame – Large)

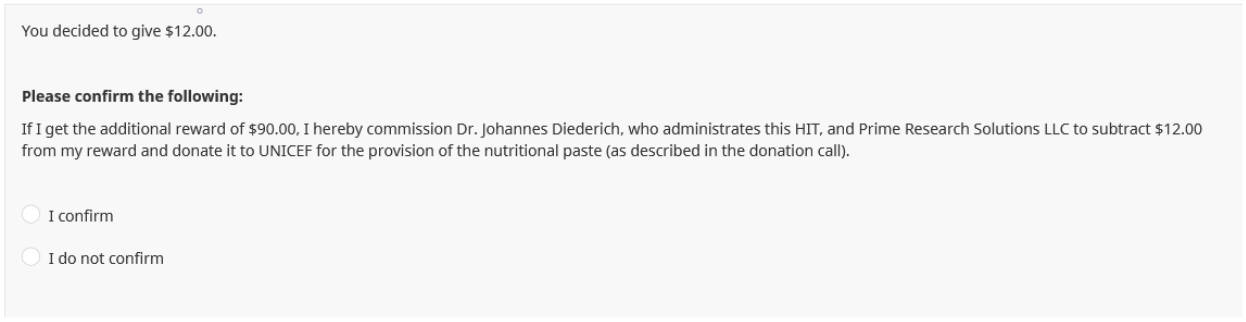

Figure A.13: Screen 7 (donation confirmation)

Notes: If subjects did not select a positive donation amount, they were just reminded of that. For treatments with unit frame, the screen showed the selected number of units and the implied donation in monetary terms. If subjects donated a positive amount but did not confirm the donation on this page, the same screen was shown again but with a hint at the top of the page saying: "Please note that your donation decision cannot be implemented if you do not confirm the statement. Your selected donation amount will only be subtracted from your reward and donated to UNICEF if you confirm the statement and you get the additional reward of $90.00. You now have the one-time chance to change your previous choice and confirm the statement below."

Please indicate how much you agree or disagree with the following statements that refer to the donation opportunity in this MTurk HIT.

	Strongly agree	Agree	Rather agree	Neither agree nor disagree	Rather disagree	Disagree	Strongly disagree	No answer
The recipients of the nutritious food are deserving of support.	○	○	○	○	○	○	○	○
UNICEF will use the money to provide nutritious food as described in the survey.	○	○	○	○	○	○	○	○
Donating $1.00 will make a difference for malnourished children.	○	○	○	○	○	○	○	○
It is inappropriate to donate $1.00 because it is too little.	○	○	○	○	○	○	○	○
Other individuals think it is inappropriate to donate $1.00 because it is too little.	○	○	○	○	○	○	○	○

Figure A.14: Screen 8 (beliefs part 1)

Notes: This screen was shown to subjects in treatments Info – Small, Info & Frame – Small, Unit Donation – Small and a random subsample (about 50 percent) of the treatment Money Donation. Subjects in treatments Info – Large, Info & Frame – Large, and the remaining subsample of the treatment Money Donation saw a screen with similar questions but focusing on a donation of $10 instead of $1. Subjects in treatment Unit Donation – Large did not see this or any equivalent screen.

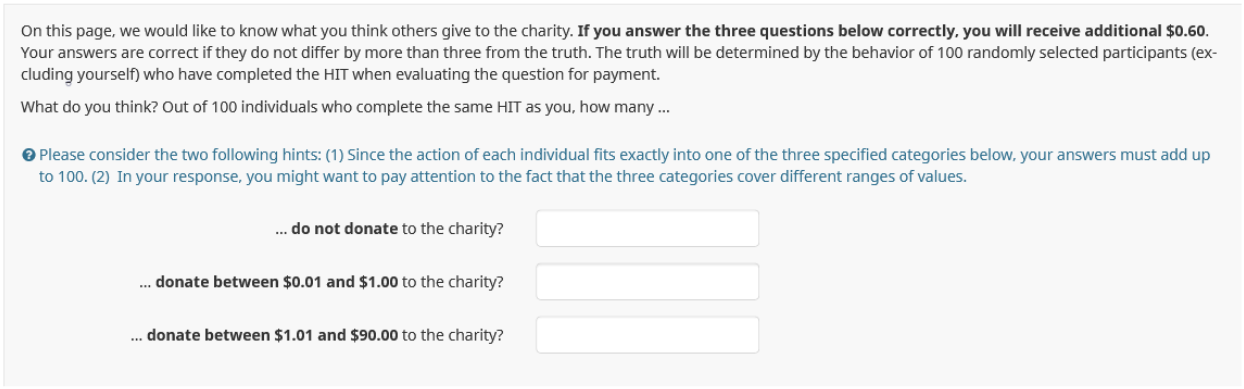

Figure A.15: Screen 9 (beliefs part 2)

Notes: This screen was shown to subjects in treatments Info – Small, Info & Frame – Small, Unit Donation – Small and a random subsample (about 50 percent) of the treatment Money Donation. Subjects in treatments Info – Large, Info & Frame – Large, and the remaining subsample of the treatment Money Donation saw a screen with similar questions but with $10.00 ($10.01) instead of $1.00 ($1.01) as upper (lower) bound of the second (third) donation interval. Subjects in treatment Unit Donation – Large did not see this or any equivalent screen.

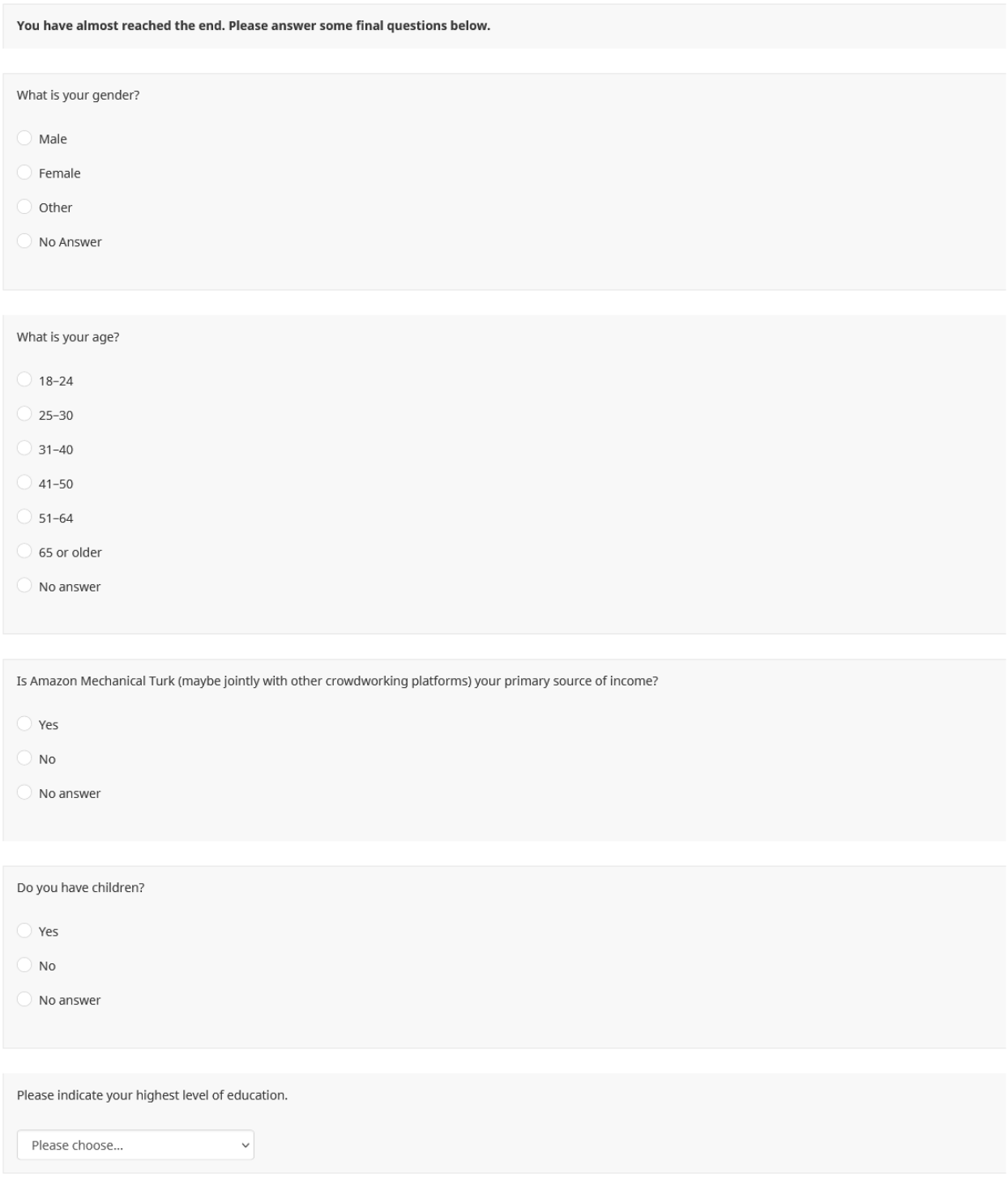

Figure A.16: Screen 10 (sociodemographic characteristics)

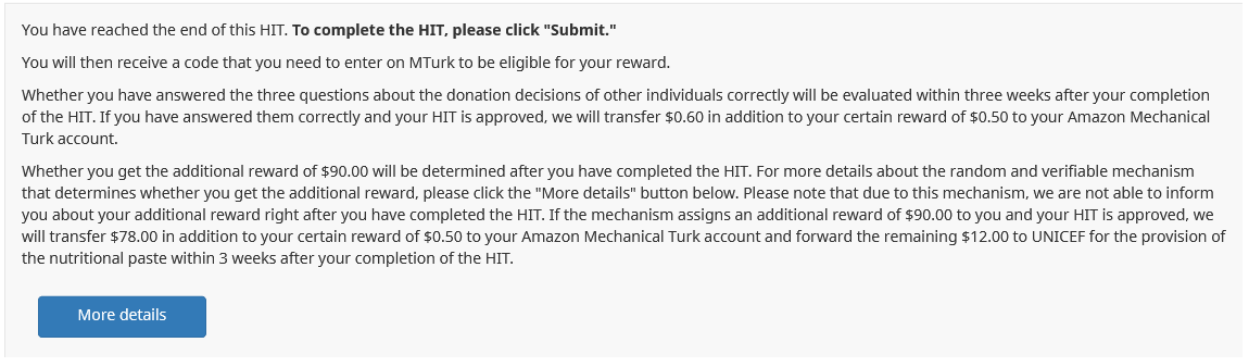

Figure A.17: Screen 11 (submission)

Notes: If subjects clicked on "More details," the precise details of the procedures for the additional reward were shown.

A.3 Beliefs

After the donation ask (and the confirmation of the donation) subjects answered questions about their beliefs in the context of the donation opportunity. The goal was to get additional suggestive evidence on the underlying mechanisms of why certain features of unit donation schemes create an effect. However, the insights from these questions turned out to be limited.

Figures A.14 and A.15 show the questions administered to subjects in treatments Info – Small, Info & Frame – Small, Unit Donation – Small and a random subsample (about 50 percent) of the treatment Money Donation. On the first screen, subjects answered 7-point Likert scale questions about the deservingness of the donation recipients (deserving), the trustworthiness of the charity (trust), whether making a donation of \$1 – the cost of a daily nutritional ration – makes a difference (effective), whether it is inappropriate to give a small donation of \$1 (self), and whether others think it is inappropriate to give a small donation of \$1 (other). We decided to focus on a donation of \$1 to see whether any of the features of a unit donation scheme change whether such a small donation — equivalent to the cost per unit under a small unit size — is perceived as effective or (in)appropriate.

On the second screen, subjects where asked about the donation behavior of other participants. In particular, they indicated how many out of 100 individuals who completed exactly the same HIT (i) did not donate to the charity, (ii) donated between \$0.01 and \$1, and (iii) donated between \$1.01 and \$90. If their answers for the three categories differed not by more than 3 from the observed donation behavior, they received a bonus payment of \$0.60.

For the treatments Info – Large, Info & Frame – Large, and the remaining participants of the treatment Money Donation, we administered the same questions but instead of focusing on a donation of \$1, we focused on a donation of \$10 and also adjusted the intervals on the second screen accordingly. The donation of \$10 was the first focal point under a money donation scheme (identified in pilot data). We decided to use this focal point (which is below the large unit size of \$30) to see whether the unit frame or the cost-per-unit information change whether such a donation is perceived as effective or (in)appropriate. A drawback of this approach is that subjects in treatment Unit Donation – Large did not receive any question because asking them about a donation of \$10 would be confusing, given that such a donation was not possible in the corresponding treatment.

Table A.2: Effects on Beliefs

	Deserving	Trust	Effective	Self	Other
A. Small unit size					
Info	0.055	0.139**	0.018	0.248**	0.125
	(0.059)	(0.070)	(0.079)	(0.104)	(0.089)
	[1.00]	[1.00]	[1.00]	[0.40]	[1.00]
Frame	0.000	-0.041	0.101	-0.162*	-0.136*
	(0.048)	(0.054)	(0.062)	(0.085)	(0.072)
	[1.00]	[1.00]	[1.00]	[1.00]	[1.00]
Grid	-0.041	-0.052	-0.056	0.003	-0.057
	(0.048)	(0.055)	(0.060)	(0.084)	(0.072)
	[1.00]	[1.00]	[1.00]	[1.00]	[1.00]
Observations	4,276	4,263	4,257	4,210	4,164
B. Large unit size					
Info	0.030	-0.115*	-0.221***	-0.022	0.014
	(0.057)	(0.067)	(0.070)	(0.105)	(0.091)
	[1.00]	[1.00]	[0.04]	[1.00]	[1.00]
Frame	-0.019	0.068	0.031	0.118	0.138*
	(0.048)	(0.058)	(0.062)	(0.086)	(0.075)
	[1.00]	[1.00]	[1.00]	[1.00]	[1.00]
Observations	2,894	2,886	2,886	2,863	2,832

Notes: Robust standard errors are in parentheses, *$p < 0.1$, **$p < 0.05$, ***$p < 0.01$. p-values adjusted for multiple hypothesis correction according to Holm (1979) in square brackets. *Info* refers to providing cost-per-unit information. *Frame* refers to framing the ask in terms of physical units. *Grid* refers to restricting donations to full units of the charitable good.

Table A.2 shows regression results for each dependent variable of the first screen. Panel A focuses on the treatments with a small unit size and the subsample of the treatment Money Donation that received similar questions. The dependent variable is regressed on dummies for each of the three features of unit donation schemes. Panel B focuses on the treatments with a large unit size (except Unit Donation – Large) and the subsample of the treatment Money Donation that received similar questions. There, the dependent variable is regressed on a dummy for cost-per-unit information and unit framing. Observations with "I don't know" (at most 4%) are always treated as missing.

Most of the estimated effects are insignificant or only marginally significant, even without correcting for multiple hypothesis testing. Once we apply the simple procedure by Holm (1979) to account for multiple hypothesis testing (regarding the number of dependent variables and estimated coefficients in this table), only the effect of providing cost-per-unit information on the perceived effectiveness under a large unit size is significant with an adjusted p-value of 0.04. This would suggest that a donation of \$10 is perceived as less effective once information on a cost-per-unit of \$30 is given, which might be an indirect consequence of anchoring or a perception that the charity expects a donation of \$30.

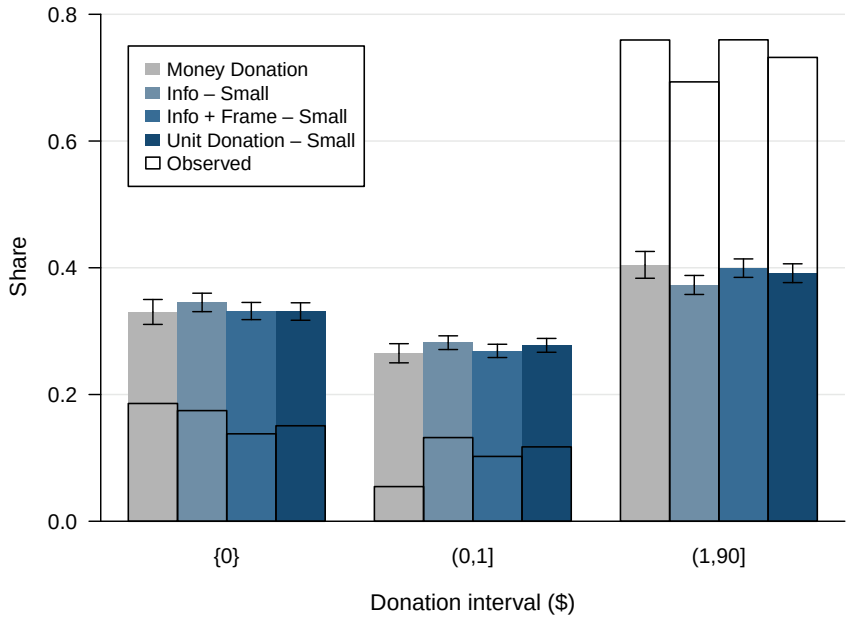

Figure A.18: Beliefs about others' donation behavior – Small unit size

Notes: For each treatment, the colored bars show the average expected share of donations that fall within the corresponding interval, while the bars with black borders represent the observed share of donations within the interval. The belief in the treatment Money Donation is only based on the subsample of subjects that received questions about the corresponding donation intervals. The whiskers represent 95% confidence intervals.

Figures A.18 and A.19 illustrate the average beliefs about others‘ donation behavior across treatments. For each treatment, the colored bars show the average expected share of donations that fall within the corresponding interval, while the bars with black borders represent the observed share of donations within the interval. From the figures, it is very clear that individuals‘ beliefs are on average far from the observed behavior and generally too conservative, i.e., the frequency of large donations is underestimated.[26] At the same time, it seems that changes in average beliefs across treatments often align with the comparative statics that we observe in the actual donation data (although changes in beliefs are usually much smaller). Given the experimental design, it is of course not possible to identify whether changes in beliefs were a driving factor of changes in behavior.

[26]One contributing reason might be a tendency to allocate the probability mass rather equally across the three presented donation intervals.

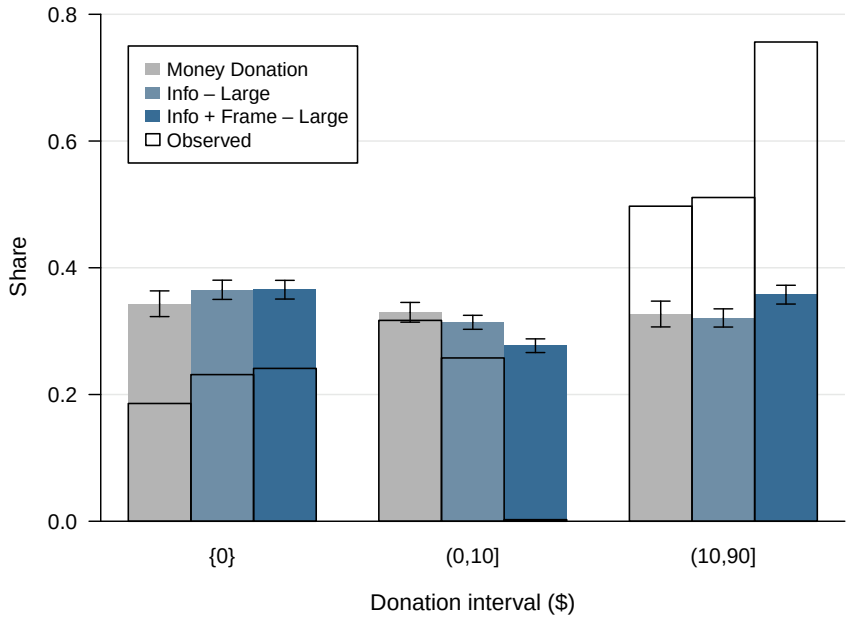

Figure A.19: Beliefs about others' donation behavior – Large unit size

Notes: For each treatment, the colored bars show the average expected share of donations that fall within the corresponding interval, while the bars with black borders represent the observed share of donations within the interval. The belief in the treatment Money Donation is only based on the subsample of subjects that received questions about the corresponding donation intervals. The whiskers represent 95% confidence intervals.

A.4 Robustness with respect to exclusion criteria

In the main analysis of the paper, we apply our pre-registered exclusion criteria to create the final sample. In particular, we exclude (i) incomplete observations, (ii) observations with an MTurk ID that has not been listed has having worked on the HIT by MTurk, and (iii) observations with duplicate MTurk IDs unless they are the first to be assigned to a treatment, their working time does not overlap with any another observation that shares the ID, and they have completed the experiment. Here, we show that the results are robust to alternative exclusion criteria that one might want to apply. Tables A.3, A.4, A.5 show the estimation results under different exclusion regimes for the comparison of the pure solicitation schemes, the incremental effects in case of the large unit size, and the incremental effects in case of the small unit size, respectively.

As mentioned in Section 2, the share of observation that drop out after treatment assignment slightly differs across treatments ($p < 0.1$, χ^2-test, see Appendix Table A.6). Columns 1 and 2 of each table report the estimation results when incomplete observations with treatment assignment are included in the sample as long as they pass the second and third exclusion criterion (note that

the order in which the criteria are presented here and in Section 2 differs from that in the pre-registration). While column 1 always codes their donations as zero, column 2 uses the submitted donations whenever available. Columns 3 and 4 proceed analogously but weaken the third exclusion criterion from Section 2. In particular, observations with duplicate MTurk IDs are not dropped if they are the first observation with this ID and their working time does not overlap with any other observation that shares the same ID (so, the requirement of completing the experiment is no longer applied).

Column 5 makes use of the attention check that was included in the experiment (see Figure A.7). In addition to the exclusion criteria applied in the main analysis, observations who did not pass the attention check are dropped. To pass the attention check, participants had to select the answer option "other" and type "understood" in the text box behind it. The attention check is quite strict. First, it includes a lengthy text which, when reading the question just before the answer options, seems not to be absolutely necessary for answering the question (but includes the instructions on how to pass the attention check). Second, we only code participants has having passed the attention check if they get it exactly right, implying that any deviation from the input "understood" in the text field is coded as failure. For example, some participants included additional spaces, capital letters, quotation marks, or a small typo. As a result, 32.9% fail the attention check and are thus excluded from the analysis in column 5.

Column 6 differs from the main analysis in the paper by excluding observations in the final sample that share the same IP address. While the enabled data quality feature of CloudResaerch should generally avoid IP address duplicates within each of the seven sessions, duplicates across sessions are not restricted. In fact, there are 387 observations with duplicate IP addresses in the final sample of the main analysis that are not considered in column 6.

Table A.3: Effect of pure schemes with different exclusion criteria

	(1)	(2)	(3)	(4)	(5)	(6)
A. Donation						
Unit Donation – Small[a]	-2.641**	-2.826**	-2.390**	-3.173***	-2.735**	-1.741
	(1.170)	(1.171)	(1.150)	(1.157)	(1.380)	(1.202)
Unit Donation – Large[b]	15.651***	15.414***	15.608***	14.993***	14.135***	15.224***
	(1.190)	(1.191)	(1.177)	(1.182)	(1.412)	(1.212)
p-value ($a = b = 0$, F-test)	0.000	0.000	0.000	0.000	0.000	0.000
p-value ($a = b$, F-test)	0.000	0.000	0.000	0.000	0.000	0.000
B. Propensity to give						
Unit Donation – Small[c]	0.035**	0.031**	0.040**	0.024	0.039**	0.037**
	(0.015)	(0.015)	(0.016)	(0.015)	(0.018)	(0.015)
Unit Donation – Large[d]	-0.049***	-0.058***	-0.040**	-0.061***	-0.069***	-0.058***
	(0.016)	(0.016)	(0.016)	(0.016)	(0.019)	(0.016)
p-value ($c = d = 0$, F-test)	0.000	0.000	0.000	0.000	0.000	0.000
p-value ($c = d$, F-test)	0.000	0.000	0.000	0.000	0.000	0.000
Observations	3,983	3,983	4,084	4,084	2,625	3,761

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 for Panel A and whether the individual donated for Panel B. The results are based on regressing the dependent variable on treatment dummies with the pure money donation treatment always serving as baseline and only using data from the treatments with pure solicitation schemes. The difference between the columns lies in the exclusion of observations and the precise definition of the dependent variable (see description in Appendix A.4).

Table A.4: Incremental effects for small unit size

	(1)	(2)	(3)	(4)	(5)	(6)
A. Donation						
Cost-per-unit info	-4.470***	-4.641***	-4.301***	-4.757***	-4.466***	-3.972***
	(1.156)	(1.156)	(1.133)	(1.142)	(1.369)	(1.187)
Unit frame	3.057***	3.407***	3.110***	3.239***	3.744***	2.986**
	(1.151)	(1.154)	(1.131)	(1.139)	(1.374)	(1.185)
Donation grid	-1.227	-1.592	-1.199	-1.654	-2.013	-0.755
	(1.166)	(1.169)	(1.148)	(1.154)	(1.386)	(1.200)
B. Propensity to give						
Cost-per-unit info	0.010	0.008	0.011	0.007	0.009	0.012
	(0.016)	(0.016)	(0.016)	(0.016)	(0.019)	(0.016)
Unit frame	0.036**	0.039***	0.039**	0.036**	0.034*	0.040***
	(0.015)	(0.015)	(0.016)	(0.015)	(0.018)	(0.015)
Donation grid	-0.011	-0.017	-0.011	-0.019	-0.003	-0.015
	(0.014)	(0.014)	(0.015)	(0.014)	(0.017)	(0.014)
Observations	5,013	5,013	5,151	5,151	3,309	4,723

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 for Panel A and whether the individual donated for Panel B. The results are based on regressing the dependent variable on dummies for each channel of unit donations schemes, only using data from treatments with a small unit size and the pure money donation treatment. The difference between the columns lies in the exclusion of observations and the precise definition of the dependent variable (see description in Appendix A.4.

Table A.5: Incremental effects for large unit size

	(1)	(2)	(3)	(4)	(5)	(6)
A. Donation						
Cost-per-unit info	-3.308***	-3.178***	-3.056***	-3.327***	-1.934	-3.263***
	(1.133)	(1.135)	(1.114)	(1.122)	(1.352)	(1.154)
Unit frame	17.972***	18.461***	17.448***	18.492***	15.165***	18.448***
	(1.207)	(1.208)	(1.196)	(1.195)	(1.443)	(1.232)
Donation grid	0.988	0.131	1.216	-0.172	0.904	0.039
	(1.260)	(1.260)	(1.254)	(1.251)	(1.499)	(1.287)
B. Propensity to give						
Cost-per-unit info	-0.050***	-0.045***	-0.043**	-0.042**	-0.035*	-0.049***
	(0.017)	(0.017)	(0.017)	(0.017)	(0.020)	(0.017)
Unit frame	-0.008	-0.010	-0.010	-0.010	-0.033	-0.007
	(0.018)	(0.018)	(0.018)	(0.017)	(0.021)	(0.018)
Donation grid	0.009	-0.004	0.013	-0.010	-0.001	-0.002
	(0.017)	(0.017)	(0.017)	(0.017)	(0.021)	(0.017)
Observations	5,046	5,046	5,177	5,177	3,333	4,751

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 for Panel A and whether the individual donated for Panel B. The results are based on regressing the dependent variable on dummies for each channel of unit donations schemes, only using data from treatments with a large unit size and the pure money donation treatment. The difference between the columns lies in the exclusion of observations and the precise definition of the dependent variable (see description in Appendix A.4).

A.5 Additional tables

Table A.6: Attrition rates across treatments

	Attrition rate		Observations
Treatment	Overall	Donation	Observations
A. Pure schemes			
Money Donation	0.047	0.016	1,353
Unit Donation – Small	0.044	0.022	1,365
Unit Donation – Large	0.028	0.019	1,518
B. Intermediate schemes			
Info – Small	0.046	0.015	1,277
Info & Frame – Small	0.045	0.019	1,367
Info – Large	0.044	0.016	1,206
Info & Frame – Large	0.051	0.018	1,306
p-value (χ^2-test)	0.074	0.845	

The table provides an overview of the attrition rates across treatments considering all observations with treatment assignment irrespective of whether they satisfy the pre-registered exclusion criteria. Note that the treatment assignment happened when the donation ask was to be presented. The number of observations with the respective treatment assignment is shown in the last column. The attrition rate "overall" refers to the fraction of observation that do not complete the experiment. The attrition rate "donation" refers to the fraction of observations that drop out during the donation decision (i.e., they do not submit any donation amount or they submit a positive donation without making a decision of whether to confirm the donation). The last row reports the p-values from testing whether the corresponding attrition rate significantly differs across treatments based on a χ^2-test.

A.6 Details of pilot experiment

A.6.1 Design

The pilot experiment builds on a donation ask administered to subjects during an unrelated online survey. Similar to the main experiment in the paper, we implemented different versions of the donation ask, including a pure money donation, pure unit donation, and some intermediate schemes. For the donation ask, we partnered with Sign of Hope e.V. and used the treatment of malnourished children with a special nutritional paste and high energy cookies in a bush clinic in South Sudan. This service offered practicable units and prices for our experiment. The associated expenses amounted to \$0.50 per day or \$3.50 per week.

Each subject had an endowment of \$7 and decided how much of this endowment to donate to Sign of Hope e.V. for the provision of the nutritional treatment. Subjects made this choice

under one of six treatments, which are summarized in Table A.7.[27] As in the main experiment, we implemented three "pure" schemes (Panel A): one pure money donation scheme and two pure unit donation schemes with different unit sizes. The two unit sizes were (i) a *one-day* nutritional ration per child at a price of \$0.50 (small) and (ii) a *one-week* nutritional ration per child at a price of \$3.50 (large). In contrast to the pure money donation scheme, the pure unit donation schemes provided information about the cost per unit, framed the ask in terms of physical units instead of money, and imposed a grid that restricted donations to complete units of the charitable good.

For the large unit size, we also implemented intermediate schemes (Panel B) that built on a strict subset of the three features that jointly make up a unit donation scheme. The first is similar to a money donation scheme but provides information on the cost per unit of the charitable good (Info – Large). The second additionally frames the ask in physical units instead of money (Info & Frame – Large). Both of these intermediate schemes have a direct counterpart in the main experiment. The third intermediate scheme in the pilot experiment does not have a direct counterpart. It provides information on the cost per unit and restricts donations to complete units of the charitable good but does not frame the ask in physical units (Info & Grid – Large). Although it seems rather uncommon in practice to introduce a donation grid without framing donations in physical units, and it is arguably also less intuitive, we included this additional intermediate treatment to be able to identify whether the effect of introducing a unit frame depends on whether a donation grid is already in place.

We conducted the experiment online recruiting U.S. residents from the online labor market Amazon Mechanical Turk (AMT). 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

[27]The difference across the six treatments were directly reflected in the wording of the donation ask. Detailed instructions are available upon request.

Table A.7: Treatments

Treatment	Info	Frame	Grid	Unit size
A. Pure schemes				
Money Donation	No	No	No	—
Unit Donation – Small	Yes	Yes	Yes	Small
Unit Donation – Large	Yes	Yes	Yes	Large
B. Intermediate schemes				
Info – Large	Yes	No	No	Large
Info & Frame – Large	Yes	Yes	No	Large
Info & Grid – Large	Yes	No	Yes	Large

The table provides an overview of the different treatments in our pilot experiment. Info: whether information about the cost per unit of the charitable good is provided. Frame: whether the ask is framed in terms of physical units (instead of money). Grid: whether the choice set is restricted to full units of the charitable good. Unit size: whether one physical unit is a one-day nutritional ration (small) or a one-week nutritional ration (large).

(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 session (80% power and 5% significance level). For comparability, we apply the same exclusion criteria as pre-registered for our main experiment.[28] This leaves us with a sample of 865 subjects.

A.6.2 Results

Table A.8 reports the average donations (including non-donors), the share of donors, and the number of observations across the six treatment groups. For the treatments with unit framing, the average dollar donation corresponds to the average number of nutritional rations donated times the cost per unit. In line with the analysis of the main experiment, tables A.9 and A.10 report estimation results from OLS regressions for average donations and the propensity to give, respectively. A difference in these analyses is that the incremental effects of the three features of unit donation schemes can only be estimated for the large unit size and that we are able to identify the interaction effect between framing the ask in physical units and imposing a donation grid that

[28] In contrast to the main experiment, the results in the pilot experiment are somewhat sensitive towards different exclusion criteria.

restricts donations to complete units.

Table A.8: Donations

Treatment	Average donation	Share of donors	N
A. Pure schemes			
Money Donation	0.99 (1.58)	0.48 (0.50)	149
Unit Donation – Small	0.98 (1.55)	0.58 (0.49)	158
Unit Donation – Large	1.08 (2.06)	0.24 (0.43)	123
B. Intermediate schemes			
Info – Large	1.18 (1.89)	0.45 (0.50)	150
Info & Frame – Large	1.18 (2.01)	0.33 (0.47)	135
Info & Grid – Large	1.14 (2.01)	0.27 (0.45)	150

Standard deviations in parentheses.

For average donations, neither the total effect of a unit donation scheme nor the incremental effects (for the large unit size) are significantly different from zero (Table A.9). The fact that the largest average donation level among the pure schemes is found for unit donations with a large unit size resembles the pattern from the main experiment.

For the propensity to give, we observe a familiar result that is also supported by statistical significance: Unit donations affect the extensive margin and this effect depends on the unit size (columns 1 and 2 of Table A.10). While a large unit size leads to a decrease in the propensity to give, a small unit size facilitates giving. Different from the main experiment is, however, the result that the introduction of a donation grid and to some extent the framing in units seem to be key drivers of the effect for the large unit size (columns 3 to 6 of Table A.10).[29] Since the pilot experiment applied different unit sizes (i.e., \$0.5 and \$3.5 instead of \$1 and \$30) and a different endowment level (i.e., \$7 for sure instead of \$90 subject to random implementation), these difference in incremental effects might just highlight the importance of contextual factors such as the exact unit size.

[29]The pilot experiment allowed to differentiate between the scenarios where the unit frame is introduced before or after the donation grid. While the interaction effect of the the unit frame and the donation grid is not statistically significant (columns 5 and 6 of Table A.10), the point estimate might be interpreted as offering some suggestive evidence that the effect of a unit frame (donation grid) is reduced if a donation grid (unit frame) is already in place.

Table A.9: Effect on donations

	Pure schemes		Incremental effects – Large unit			
	(1)	(2)	(3)	(4)	(5)	(6)
Unit Donation – Small[a]	-0.010	-0.006				
	(0.178)	(0.183)				
Unit Donation – Large[b]	0.087	0.066				
	(0.226)	(0.232)				
Info			0.199	0.200	0.184	0.168
			(0.189)	(0.191)	(0.202)	(0.204)
Frame			-0.030	0.001	0.000	0.067
			(0.169)	(0.172)	(0.232)	(0.237)
Grid			-0.064	-0.120	-0.035	-0.058
			(0.168)	(0.169)	(0.225)	(0.226)
Frame × grid					-0.062	-0.134
					(0.339)	(0.347)
p-value ($a = b = 0$, F-test)	0.903	0.949				
p-value ($a = b$, F-test)	0.663	0.756				
Controls	No	Yes	No	Yes	No	Yes
Observations	430	418	707	691	707	691
R^2	0.001	0.026	0.001	0.025	0.001	0.026

Robust standard errors are in parentheses, $^*p < 0.1$, $^{**}p < 0.05$, $^{***}p < 0.01$. Each column corresponds to a separate OLS regression. The dependent variable is the amount of money the charity receives and the pure money donation treatment always serves as baseline. In columns 1 and 2, only data from the treatments with pure solicitation schemes are considered. In columns 3 to 6, only data from treatments with a large unit size and the pure money donation treatment are considered. *Info* refers to providing cost-per-unit information. *Frame* refers to framing the ask in terms of physical units. *Grid* refers to restricting donations to full units of the charitable good. Controls 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.

Table A.10: Effect on propensity to give

	Pure schemes		Incremental effects – Large unit			
	(1)	(2)	(3)	(4)	(5)	(6)
Unit Donation – Small[a]	0.106*	0.093				
	(0.057)	(0.057)				
Unit Donation – Large[b]	-0.233***	-0.247***				
	(0.057)	(0.057)				
Info			-0.044	-0.046	-0.023	-0.026
			(0.054)	(0.054)	(0.058)	(0.058)
Frame			-0.076*	-0.075*	-0.120**	-0.117**
			(0.039)	(0.040)	(0.058)	(0.059)
Grid			-0.138***	-0.157***	-0.180***	-0.197***
			(0.039)	(0.040)	(0.055)	(0.055)
Frame × grid					0.091	0.087
					(0.079)	(0.080)
p-value ($a = b = 0$, F-test)	0.000	0.000				
p-value ($a = b$, F-test)	0.000	0.000				
Controls	No	Yes	No	Yes	No	Yes
Observations	430	418	707	691	707	691
R^2	0.076	0.116	0.036	0.059	0.038	0.061

Robust standard errors are in parentheses, *$p < 0.1$, **$p < 0.05$, ***$p < 0.01$. Each column corresponds to a separate OLS regression. 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 data from the treatments with pure solicitation schemes are considered. In columns 3 to 6, only data from treatments with a large unit size and the pure money donation treatment are considered. *Info* refers to providing cost-per-unit information. *Frame* refers to framing the ask in terms of physical units. *Grid* refers to restricting donations to full units of the charitable good. Controls 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.

A.7 Examples of unit donation schemes

We conducted a targeted web search for examples of fundraising activities that employ a unit donation scheme, resulting in Appendix Table A.11 below. Many of the forty listed sample activities are carried out by popular charities in the US, Europe, or Australia. For example, five of the fundraising activities are carried out by charities included in Forbes' list of America's Top 100 Charities (2022).[30] Our search was informed by such lists of popular charities and partly targeted for unit donations by adding keywords such as "gift catalogue," "virtual gifts," or "gifts for good". While all of the included fundraising activities employ a unit donation scheme, some additionally offer ways to simply give money.

Clicking the name of an example in Table A.11 takes the reader to the website of the fundraising activity. The links and examples have been last accessed and verified on August 18, 2023.

Table A.11: Examples of fundraising activities that employ unit donation schemes

1. APE Malaysia (Plant a Tree)	21. Isha Oureach (Cauvery Calling)
2. Black Jaguar Foundation	22. Jewish National Fund USA (Plant Trees)
3. Australian Koala Foundation (Adopt a Koala)	23. Planet Tree
4. Battersea Dogs & Cats Home (Virtual Gifts)	24. Ripple Effect (Gifts)
5. British Red Cross (Virtual Charity Gifts)	25. Royal National Lifeboat Institution (Virtual Gifts)
6. Catholic Relief Services (Gift Catalog)	26. Salvation Army Australia (Wishes Gift Catalogue)
7. Child Fund Australia (Gifts for Good)	27. Stiftung Unternehmen Wald
8. Children's Hospice South West (Virtual Gifts)	28. Team Trees
9. Christian Aid (Charity Gifts)	29. The Barn (Donate a Tree)
10. Compassion International (Sponsor a Child)	30. Treedom
11. Ecosia Tree Store	31. Tree-Nation
12. Family Giving Tree (Backpack Smiles Program)	32. Trees That Count
13. Food for the Poor (Gift Catalog)	33. Trillion Tree Campaign
14. Friends for the East Cobb Park (Store)	34. Unicef Canada (Survival Gifts)
15. Glasgow Children's Hospital Charity (Gifts for Good)	35. Unicef USA (Market)
16. Green Forest Fund (Forest Donation)	36. WISH (Gift Catalogue)
17. Grow My Tree	37. Woodland Trust (Dedications)
18. Guide Dogs (Virtual Gifts)	38. World Vision Australia (Gifts)
19. Heifer International (Gift Catalog)	39. World Vision Germany (Das Gute Geschenk)
20. I Plant A Tree	40. World Vision USA (Sponsor a Child)

[30]The corresponding charities are Catholic Relief Services, Compassion International, Food for The Poor, Unicef USA, World Vision USA. Forbes' list of America's Top 100 Charities (2022) can be accessed here (last accessed on August 18, 2023).