No Substitute for the Real Thing:

The Importance of In-Context Field Experiments in Fundraising

Indranil Goswami

University at Buffalo, School of Management

goswami4@buffalo.edu

Oleg Urminsky

University of Chicago, Booth School of Business

oleg.urminsky@chicagobooth.edu

Abstract:

We present a complete empirical case study of fundraising campaign decisions that demonstrates the unique importance of in-context field experiments. We first design novel matching-based fundraising appeals. We then discuss the assumptions needed to derive theory-based predictions from the standard impure altruism model, and solicit expert opinion about the potential performance of our interventions. Both theory-based and experts' predictions suggested improved fundraising performance from framing a matching intervention as crediting donors for the matched funds, whereas predictions for the other appeals were more ambiguous. However, the results of a natural field experiment with prior donors of a non-profit instead showed a significantly poorer performance from employing the "giving-credit" framing. This surprising finding was replicated in a second natural field experiment, to confirm the ground truth, at least within a specific context. In contrast, experts lacked consensus about a conditional matching scheme, which in fact did not improve fundraising. Theoretically, our results highlight the limitations of both impure altruism models and expert opinion in predicting complex "warm glow" motivation. More practically, our results question the availability of useful guidance and suggest the indispensability of field testing for behavioral interventions in fundraising.

Keywords: Donation, Matching, Altruism, Warm Glow, Motivation, Field Experiment

1. Introduction

One of the most common solicitation techniques used in fundraising is matching – communicating to prospective donors that an external donor has committed to making a contribution based on the amount given by prospective donors. A matching solicitation can be thought of as a conditional leadership gift that uses a commitment to match others' contributions at a given rate, sometimes limited to the maximum amount the leader is willing to give (Karlan & List, 2007). Matching solicitations often promise to match every dollar donated, which we refer to as a "standard match." Such matches are often equal-match (e.g., 1:1) but both higher match ratios, e.g., 2:1, 3:1, etc. (Dove, 2000; Karlan & List, 2007) and lower match ratios, e.g., 1:3 (Karlan, List, & Shafir, 2011) have also been used. Popular press reports describe matching as a "staple of fund-raising" (Leonhardt, 2008), and a large body of academic work has studied matching solicitations (Andreoni & Payne, 2013).

The empirical results from research on matching solicitations, however, have been extremely mixed. There is some evidence that matching improves fundraising outcomes (Eckel & Grossman, 2003; Bekkers, 2015; Karlan & List, 2007, 2012; Martin & Randal, 2009; Meier, 2007). At the same time, other papers have failed to find a positive effect, or have even reported a negative effect of matching (Baker, Walker, & Williams, 2009; Davis, Millner, & Reilly, 2005; Huck & Rasul, 2011; Karlan, List, & Shafir, 2011; Rondeau & List, 2008).

One particular concern about the effects of matching on funds raised is the potential for "crowding out" behavior. Donors may scale back their contributions in response to a match offer that makes each dollar donated "go farther" (Adena & Huck, 2017; Huck, Rasul, & Shephard, 2013). Similarly, a higher match ratio (compared to a standard 1:1 match) does not always increase fundraising performance (Karlan & List, 2007). Speculations in the literature attribute

such behavior to scope-insensitivity for quality signals (Karlan & List, 2007) and lack of attention to price information (Eckel & Grossman, 2017).

How can a fundraiser navigate the possibilities and decide on the best matching solicitation to use? What sources of guidance should the fundraiser rely on to make an informed decision about the offer design? In this paper, we show that commonly available sources of guidance, both the implications of theoretical models and the opinions of experts, can fall short of correctly predicting the results of novel fundraising tactics. As a result, in-context field experiments appear to be indispensable for identifying optimal strategies in fundraising.

We explore two types of novel matching interventions: reframing who gets credit for matched donation funds and setting a cutoff or a threshold below which donated funds are not matched. We first turn to a basic model of "warm glow" and find that the model is under-specified to derive direct predictions as to the efficacy of interventions. However, we argue that, under reasonable additional assumptions, the model suggests that appeals using the novel framing intervention may improve fundraising. Next, we present the advice of experienced fund managers, collected in two surveys, which largely echoes both the predictions and basis for reasoning of the model. Finally, we present tests of whether these predictions match actual donor behavior in two separate natural field studies in which decision-makers were unaware that they were participating in an experiment. The findings from the field reveal markedly opposite results: the novel framing interventions that were deemed most promising raised significantly less money than the regular framing.

The goal of this paper is to assess the adequacy of available sources of policy guidance in contrast with in-context field experiments as the source of "ground truth," focusing on the domain of fundraising. Given the myriad and complex ways in which framing, cognitive

processes, and contextual influences can affect warm-glow preferences, our results highlight the limited usefulness of model derivations and expert opinions in correctly anticipating the actual effects of fundraising interventions. We demonstrate that the relevant theoretical model of impure altruism (Andreoni, 1990) represents a useful framework that can accommodate many alternative outcomes, but does not generally make unambiguous predictions needed for decision-making without making significant additional assumptions.

If experts reason according to the theoretical models but also have the experience to choose reasonable assumptions to fill in the gaps in the theoretical model, experts may make the accurate predictions needed to correctly choose optimal interventions. However, our results suggest that although experts' reasoning does correspond to the key elements of the theoretical model, experts were unable to accurately predict the outcomes. Therefore, we conclude that while both model predictions and expert advice can provide a useful initial starting point for designing charity appeals, these approaches are no replacement for in-context field experiments to determine the outcomes of behavioral interventions.

The paper proceeds as follows. In the next section, we introduce our proposed interventions and assess assumptions under which current theoretical models of impure altruism make predictions for the outcomes of these interventions. In sections 3 and 4, we report the predictions of professional fundraising managers and highlight general convergence of guidance obtained from these two sources. Next, we contrast these predictions with the actual results of two natural field experiments, the second a pre-registered confirmatory replication of the first (sections 5 and 6). Our results represent a self-contained, "empirical case-study" demonstrating that the existing academic guidance as well as fundraisers' own experience-based intuitions poorly anticipate the real outcomes in the field. We conclude in section 7 with a discussion of

the implications of our findings, for theories of altruism, for the validity of expert opinion, and for fundraising practices.

2. **Predictions from Theoretical Models as Initial Guidance to the Fundraiser**

The standard model of altruistic behavior in fundraising, based on Andreoni (1990; also see Karlan & List, 2007), can be written as:

$$U_i = F(y_i, G, g_i) \tag{1}$$

Here an individual agent i gets utility from private consumption y_i, the total quantity of funds G raised by a charity, and the agent's own private contribution to charity g_i. Assuming y_i, G, g_i are all normalized to the same units, e.g., dollars; the consumption bundle (y_i, g_i) is related by the budget constraint $y_i + g_i \leq w_i$. Assuming that utilities are additively separable, the total utility can be written as:

$$U_i = u(y_i) + \delta_i h(G + g_i) + \gamma_i f(g_i) \tag{2}$$

It is typically assumed that $u(\cdot), h(\cdot), and \ f(\cdot)$ are identical across people and each is concave and increasing in y_i, G and g_i respectively (Lange, List, & Price, 2007). The component $\delta_i h(G + g_i)$ represents pure altruism – the utility a person receives from the charity having the funds – which depends on the individual's weight on pure altruism δ_i (e.g., which might, in turn, depend on factors such as beliefs about the quality of the organization, List & Lucking-Reiley, 2002). The component $\gamma_i f(g_i)$ represents the individual-specific utility, or "warm glow," that a donor receives from personally contributing funds, over and above the utility of the charity having those funds. The individual experiences more warm glow if they personally donate a larger amount g_i, or if other factors increase the importance γ_i of their own donation (e.g., boosting the ego; Andreoni, 1990; emphasizing personal donor benefits; List, Murphy, Price &

James, 2019). In deciding how much to donate, the benefits from pure altruism and warm glow are traded-off against the cost, due to the donor's loss of utility from foregone private consumption $u(y_i)$.

2.1   Matching Solicitations

Next, we present an extension of the standard impure altruism model that explicitly incorporates matching donations (adapted from Karlan & List 2006). Consider a k: 1 match, such that every dollar donated to charity is matched by $\$k$ from an external donor (i.e., the match-funder). In this case, a donation of g_i yields $(k+1)\,g_i$ of funds, for a multiplier of $\Phi =$ k+1. If potential donor i believes that n other individual donors will each give an average of g, the total amount of money raised by the n other donors, including the match, is $G = n\Phi g$. The utility of potential donor i when making private contribution g_i can then be expressed as:

$$U_i = u(w_i - g_i) + \delta_i h(G + \Phi g_i) + \gamma_i f(g_i) \tag{3}$$

The first order condition (FOC) for optimal individual giving under this model occurs when the marginal utility of foregone consumption is equal to the marginal benefit of donating from pure altruism and warm glow, up to the budge constrain *w*:

$$u'(w_i - g_i) = \Phi \delta_i h'(G + \Phi g_i) + \gamma_i f'(g_i) \tag{4}$$

2.2 Prior Empirical Findings and the Standard Matching Solicitations Model

The FOC in (4) provides an important theoretical framework for understanding donation decisions and makes some specific predictions. In particular, when the matching multiplier (Φ) is higher or people derive higher utility from pure altruism (δ_i) or derive more utility from warm glow (γ_i) based on their own donation, they will donate more, all else equal (Meier & Frey, 2004; Crumpler & Grossman, 2008). However, flexibility in the functional forms, the fact that the decision-weight parameters (δ_i and γ_i) are not observed, and the challenge of translating

differences in real-world fundraising contexts into the model collectively means that the model may fail to generate unambiguous predictions for interventions of interest. In fact, recent empirical findings have raised questions about the seemingly obvious prediction that higher matching multipliers ($\Phi > 2$) will result in more funds raised (Karlan & List, 2007; but see Meier & Frey, 2004). The problem is that in real-world contexts "all-else-equal" may be a very strong assumption and even a seemingly simple intervention, such as a higher match, may have other effects.

For example, higher matching multiplier Φ may serve as a credible quality signal (Karlan & List 2007), either directly or by signaling more co-operation from others (Bekkers, 2015; Eckel & Grossman, 2003; also see Frey & Meier, 2004; Shang & Croson, 2009), thereby bolstering the pure-altruism benefit δ_i. On the other hand, a higher matching multiplier Φ can suggest to a potential donor that the total funds raised will increase, either directly because of the multiplier or indirectly by increasing the number of other donors. When this happens, the anticipated marginal utility from pure altruism (e.g., from increasing the total amount raised by the charity) will decrease and the individual's donation decision will then be relatively more driven by warm-glow preferences (Ribar & Wilhelm, 2002; Crumpler & Grossman, 2008). As a result, seeing a higher matching level might induce a donor to give less, as the benefits of matching funds crowd out the benefit of one's own contribution, particularly if warm-glow benefits are relatively low.

Other research has suggested that factors in the donation context may independently affect how much warm-glow utility $\gamma_i f(g_i)$ people derive from their own donation g_i. For example, the nature of solicitor-solicitee interaction (DellaVigna, List, & Malmendier, 2012), attractiveness of the solicitor (Landry, Lange, List, Price, & Rupp, 2006), generous

acknowledgment and recognition one's contribution (Harbaugh, 1998), or psychological benefits of associating with the charity (e.g., Escalas & Bettman, 2003) have been theorized to increase warm glow (e.g., by boosting γ_i) and, if so, to increase the benefits of personally giving. However, further complicating the issue, such interventions could also signal higher charity quality which might have an ambiguous effect on pure-altruism benefit as discussed earlier (i.e., could increase pure-altruism benefit via δ_i or could decrease marginal benefit of one's own donation if the donor believes total funds raised from others, G, will increase). Furthermore, such interventions could potentially even reduce warm glow, if seen as cynical attempts to manipulate donors.

Therefore, the impure altruism model generally does not make unambiguous predictions about how matching solicitations will affect fundraising compared to a no-match control treatment. The model typically makes straightforward predictions only under the "all-else-equal" assumption that a change in the match appeal will only affect one parameter, and will not impact other parts of the model. When an intervention has multiple potentially conflicting impacts on motivation, as described above for matching, the impure altruism model is particularly uninformative as to the net effects. This is particularly problematic for the literature's ability to inform fundraisers, who often use matching as a strategy to raise money (Dove, 2000). Next, we introduce two novel variations of matching incentives and explore whether they would be predicted to be effective in increasing funds raised, first from the perspective of the academic literature (as captured in the impure altruism model of charitable giving) and then from the perspective of professions fundraisers' beliefs.

2.3 Predictions for Novel Matching Campaign Strategies.

2.3.1   Giving Credit to the Donor Framing

First, we propose a "giving-credit" framing, in which we suggest to the donor that the match is being added to the *donor's* contribution instead of being made as a separate donation by the *match-funder*. Previous research has demonstrated framing effects on donation decisions. In particular, rebate framing (e.g., give $10 to the charity and get back $5 from a third party) has been shown to underperform compared to a financially equivalent match framing (e.g., give $5 to the charity and a third party will give the charity a $5 match; Blumenthal, Kalambokidis, & Turk, 2012; Davis, Millner, & Reilly, 2005; Eckel & Grossman, 2003). This has been attributed to a differential misunderstanding of the consequences of matching subsidies (Davis et al., 2005) or to differential beliefs about others' donations (Bekkers 2015). For these interventions, what the model would predict a-priori depends on assumptions about how the framing is interpreted.

Our "giving-credit" framing is intended to operate as a mental accounting intervention (Zhang & Sussman, 2017), adding the match amount to the donor's perceived own contribution g_i, so that the match increases not only the pure altruism utility but also the private warm-glow utility. Framing-based shifts in warm-glow have been tested by Tonin & Vlassopoulos (2010), who found increased motivation from informing workers that the more effort they chose to exert, the more of a pre-determined £15 charity donation would be credited to them. These results suggest that our proposed new "giving credit" framing could successfully prompt donors to incorporate the match into their perceived warm-glow utility. Should that occur, the first-order conditions for an individual donor would instead be:

$$u'(w_i - g_i) = \Phi\delta_i h'(G + \Phi g_i) + \Phi\gamma_i f'(\Phi g_i) \tag{5}$$

Given that the individual donation, g_i, is likely to be small (with respect to the budget constraint w_i), we can assume $f(\cdot)$ to be weakly monotonically increasing in that range. In this case, compared to standard matching (see equation 4), the "giving-credit" frame would increase

incremental utility from donating via the multiplier effect of matching on warm-glow

preferences, given that:

$$\Phi \gamma_i > \gamma_i \text{ for } \Phi > 1 \tag{6}$$

To derive a model prediction about the effect on donor behavior, we need to appeal to the

"all-else-equal" assumption that interventions only have the intended primary effect without

secondary effects on other parameters, as discussed earlier. In this case, we need to assume that

the "giving-credit" frame increases the *amount* of funds yielding warm glow but does not impact

other parameters in the model such as pure altruism value δ_i, the weight on warm-glow utility γ_i,

or believed funds raised G. Under this "all-else-equal" assumption, the warm glow model of

altruistic giving unambiguously predicts more funds raised with the credit-framed match,

compared to a regularly framed match that does not result in the match being included in the

perceived personal donation. Consequently, the "giving-credit" framing serves as a test case to

examine the validity of guidance offered by the theoretical model about how interventions affect

donations under the strong "all-else-equal" assumption. From a practical point of view, the

proposed framing is costless, unlike raising the match ratio, and therefore, the proposed framing

intervention has not only theoretical but also practical significance.

2.3.2 Threshold Matching Mechanism

Next we discuss a second potential intervention, a personalized donation-amount

threshold for matching, which has previously been proposed to reduce the potential crowding-out

effects of a matching offer (e.g., Sanders, Smith, & Norton, 2013). This proposal is broadly

consistent with prior research suggesting that implementing a match threshold for the number of

other donors (Anik, Norton, & Ariely 2014) or total funds raised (Baker et al., 2009) has a beneficial effect on funds raised.

Specifically, we propose that prior donors will have their new donations matched, for every dollar they contribute over and above their previous contribution. Defining p_i as donor i's most recent prior donation the individual's matching multiplier Φ_i now depends on their prior and current donation:

$$\Phi_i = 2 - min\left(1, \frac{p_i}{g_i}\right) \tag{7}$$

Clearly, this is a poorer match than a full 1:1 match, for which Φ would be equal to 2 for all is. We define $\breve{G}$ as a donor's belief about how much will be raised from other donors, including the incremental matches induced by those other donors' contributions. Under the threshold match offer, and again making the "all-else-equal" assumption (that other parameters will not be affected by the threshold match), the FOC will be the same as no match when $g_i \leq p_i$. However, there will be a discontinuity at $g_i = p_i$, such that the FOC will differ from the full match for $g_i > p_i$:

$$u'(w_i - g_i) = \begin{cases} \delta_i h'(\breve{G} + g_i) + \gamma_i f'(g_i) & \text{if } g_i \leq p_i \\ 2\delta_i h'(\breve{G} + 2g_i - p_i) + \gamma_i f'(g_i) & \text{if } g_i > p_i \end{cases} \tag{8}$$

Compare this to the FOC for a standard match (Equation 4). Giving less than or the same amount as the prior year is less attractive under the threshold match than under a standard match because the match would not apply, and pure altruism utility would be lower. What remains to be considered is whether the marginal utility of giving an amount $g_i > p_i$ is higher in the standard match or the threshold match, i.e.:

$$\Phi \delta_i h'(G + \Phi g_i) + \gamma_i f'(g_i) \quad vs. \quad 2\delta_i h'(\breve{G} + 2g_i - p_i) + \gamma_i f'(g_i)$$

Consider the case where $\Phi \geq 2$. In the threshold match (compared to the standard match), the multiplier of h' will be at least as large and h' will be evaluated at a lower value as long as $p_i > 0$. Under the assumption that $h'(\cdot)$ is decreasing (i.e., $h(\cdot)$ is concave), the marginal utility of donating $g_i > p_i$ is therefore higher in the threshold match. This suggests that people who would donate under either match will give more under the threshold match. However, those who would have given $g_i < p_i$ under the standard match might not find enough utility from donation to give when not matched under the threshold match.

Thus, the impure altruism model does not yield an unambiguous prediction, and additional assumptions are required. If we further assume stable revealed preferences of prior donors (i.e., since they found positive utility from giving p_i in the past without a match they would do so again), then the impure altruism model predicts that the threshold match would increase funds raised. Incorporating the earlier discussion on "giving-credit" framing, the combination of threshold match and credit framing should yield more donations than the threshold match alone.

The model-based predictions we have now derived by extending the impure altruism model are subject to the "all-else-equal" assumption, which could fail. For example, the threshold match could be seen as stingy, potentially signaling lower charity quality and reducing δ_i. The threshold match or "giving credit" framing could be seen as manipulative, potentially reducing γ_i, which would reduce the warm-glow benefits. Furthermore, a donor's beliefs about the positive or negative impact of the threshold match or the "giving credit" framing on other donors could result in higher or lower expectations about total funds raised from others (i.e. G or $\breve{G}$) than in the standard match. As a result, the model predictions are ambiguous without

making the additional assumptions discussed in this section. Next, we turn from the predictions

of the model to predictions from experienced professionals.

3. Study 1: Expert Opinion as Guidance to the Fundraiser

A different (and arguably more prevalent) source of guidance for charities than

theoretical economic models is fundraisers' experience and expertise, whether the charity's own

staff or peers with corresponding roles at other organizations. Indeed researchers recommend

collecting expert beliefs before conducting experiments (DellaVigna & Pope, 2017).

How would experts' beliefs compare to the model predictions? The beliefs of

fundraising experts could reflect the model implications, particularly if the model represents a

good description of reality and experts are well-calibrated. However, experts' beliefs could also

diverge from the model predictions, either because experts are less accurate than relatively

accurate statistical models (Dawes & Corrigan, 1974; Dawes, Faust, & Meehl, 1989), or because

experts have learned about donor's actual behavior which in fact systematically diverges from

the implications of an inaccurate model. To test this, we surveyed experts with practical

experience in raising money for non-profits, to measure their beliefs about the causal effects of

the proposed interventions. In particular, we elicited separate beliefs about participation rates

and donation size among those who participate, because these outcomes can be differentially

impacted by contextual factors (e.g., suggested donation size; Goswami & Urminsky, 2016a).

3.1 Design

We used the services of a professional online panel company to recruit fundraising

managers of non-profit organizations (N=105) for a brief survey. Participants had an average of

10.2 years of experience in fundraising-related work, and 66% of participants reported having worked in fundraising campaigns that specifically used matching contributions.

Experts read about a direct mail fundraising campaign for a non-profit and about the intended target audience (see Table 1 for a summary; the actual stimuli used in all studies are provided in the Online Appendix). Experts then read about each of the five different appeal messages discussed earlier: control (no matching), standard matching (i.e., 1:1), standard matching with "giving-credit" framing, threshold matching (i.e., 1: 1 above the prior amount) and threshold matching with "giving-credit" framing.

This within-subjects design elicits expert advice for multiple fundraising appeals simultaneously, which is similar to the approach used in recent research (e.g., DellaVigna & Pope, 2017). While this is different from how potential donors typically encounter appeals (one at a time), it realistically reflects the common experience of decision-makers, who evaluate multiple options in order to choose between them (e.g., marketing managers, Shen, Hsee, Wu, & Tsai, 2012). In particular, the "joint-evaluation" design used in the expert survey is consistent with how fundraisers evaluate the advantages and disadvantages of the fundraising strategies under consideration. By comparing multiple options, the managers can prioritize among strategies, or select different strategies for different target groups.

Experts saw five appeals (see Table 1) and compared four pairs of appeals. Specifically, participants contrasted standard matching to control, standard matching with "giving credit" framing to standard matching alone, threshold matching to standard matching, and threshold matching with "giving credit" framing to threshold matching alone.

For each pair, participants first evaluated the likelihood that participation rates (i.e., the number of people responding to the appeal) would be higher in one appeal versus the other. Then

they evaluated how likely it was that the average donation amount (i.e., among those who responded to the appeal with a non-zero donation) would be higher in one appeal compared to the other. For each of these questions, responses were captured using five-point Likert scales (1=Definitely Yes, 2=Probably Yes, 3=Cannot Predict, 4=Probably No, 5=Definitely No), comparing the efficacy of one appeal to the other in the pair. Lastly, a few follow up questions were asked, including their work experience, and an instructional manipulation check (Oppenheimer, Meyvis, & Davidenko, 2009) which participants needed to answer correctly to finish the survey.

#	Appeals	Solicitation text shown to experts
1	Control	"During our 75th Anniversary, we hope you will continue to join us in demonstrating your commitment to Chicago's art and artists by making a contribution today."
2	Standard Matching	"In recognition of the Organization's success over its 75-year history, a supporter has offered a matching grant to encourage you to increase your donation and invest in our future. This supporter will give $1 for EVERY $1 you contribute. **So, for every dollar you give**, we will receive two dollars in support of our programs — your dollar and a dollar from this supporter. Let's not lose this match — please give today!"
3	Standard Matching with "giving-credit" framing	"In recognition of the Organization's success over its 75-year history, a supporter has offered a matching grant to encourage you to increase your donation and invest in our future. This supporter **will add $1 to your contribution** for EVERY $1 you give. So, for each dollar you give, **we will receive two on your behalf** in support of our programs. Let's not lose this match—please give today!"
4	Threshold Matching	"In recognition of the Organization's success over its 75-year history, a supporter has offered a matching grant to encourage you to increase your donation and invest in our future. This supporter **will give $1 for every additional $1 you donate OVER your last gift**. So, for each dollar you add to the amount of your last contribution of $«PREVIOUS», we will receive two in support of our programs —your dollar and a dollar from this supporter. Let's not lose this match — please give today!"

| 5 | Threshold Matching with "giving-credit" framing | "In recognition of the Organization's success over its 75-year history, a supporter has offered a matching grant to encourage you to increase your donation and invest in our future.

 This supporter **will add \$1 to your contribution for every \$1 you donate OVER your last gift**. So, for every dollar you add to the amount of your last contribution of \$«PREVIOUS», **we will receive two dollars on your behalf** in support of our programs.

 Let's not lose this match—please give today!" |

Table 1: Appeals with actual descriptions that were shown to experts in Study 1. The placeholder $<<PREVIOUS>> in appeals 4 and 5 reminded the donor about his/her last contribution amount.

3.2 Results

The raw distribution of experts' responses is shown in Figure 1. Our analysis was intended to determine whether experts were significantly more likely to evaluate one of the solicitation variations as performing better than the other. Accordingly, we recoded responses "definitely" or "probably" favoring one appeal on the Likert scale as +2 and +1 respectively, neutral responses of "cannot predict" as 0, and responses "probably" or "definitely" favoring the other appeal as -1 and -2 respectively. We then compared the mean response of the recoded values to zero.

3.2.1 Predicted Participation

Comparing standard matching to control, 90% of the experts thought participation would be higher (M= 1.22 vs. 0, $t(104)=15.45$, $p<.001$) with standard matching and only 6% thought participation would be lower.[1] This overwhelmingly positive expectation is at odds with the

---

[1] Proportions do not add up to 100% because some people said, "cannot predict."

mixed empirical evidence in prior research. The consensus that matching improves participation could reflect experts' beliefs that matching would not crowd out donations in the altruism model, or could mean that experts relied on perceptions that their own experience with matching had been positive and did not consider the potential crowding out effect of matching.

More relevant to our research question, the experts further expected that the "giving-credit" framing would boost participation for matching solicitations. Comparing standard matching to "giving-credit" framing, 70% of the experts thought the "giving-credit" framing would yield higher participation, consistent with the model predictions we derived above, while only 14% thought participation would be lower (M= 0.74 vs. 0, $t(104)=7.92$, $p<.001$).

However, the experts were more pessimistic about threshold matching. Experts were split on whether such conditional matching would yield higher participation than standard matching, with 35% saying it would be higher and 40% saying it would be lower (M= 0.02 vs. 0, $t(104)=0.17$, $p=.867$). This is consistent with the lack of clear predictions for threshold matching we identified in the impure altruism model and the need for additional strong assumptions, which could vary across experts, in order to make a determination. Nevertheless, even in threshold matching offers, the experts were more likely to believe that the "giving-credit" framing would increase participation relative to the standard framing relative to (53%), rather than lowering participation (19%; $M = 0.39$ vs. 0, $t(104)=4.23$, $p<.001$), consistent with the model predictions.

3.2.2   Predicted Contribution Size

Overall, expert predictions regarding contribution size revealed similar patterns as their predictions for participation. Comparing standard matching to control, 63% of the experts thought contributions would be larger with standard matching, while only 17% thought contributions would be smaller (M= 0.67 vs.0, $t(104)=6.53$, $p<.001$). A majority of experts also

thought that the "giving-credit" framing would increase contribution amounts, with 65% responding that matching with the "giving-credit" framing would yield larger contributions than regular framing under standard matching, while only 15% thought they would be smaller (M= 0.64 vs.0, $t(104)=6.94$, $p<.001$).

Experts were split, but overall less optimistic about the effects of threshold matching on the amounts donors gave. Only 49% of the experts thought threshold matching would yield larger contributions than standard matching, and 32% thought it would result in smaller contributions (M= 0.21 vs.0, $t(104)=1.97$, $p=.051$). Nevertheless, a majority of experts predicted that the "giving-credit" framing would yield larger donations than regular framing even in a
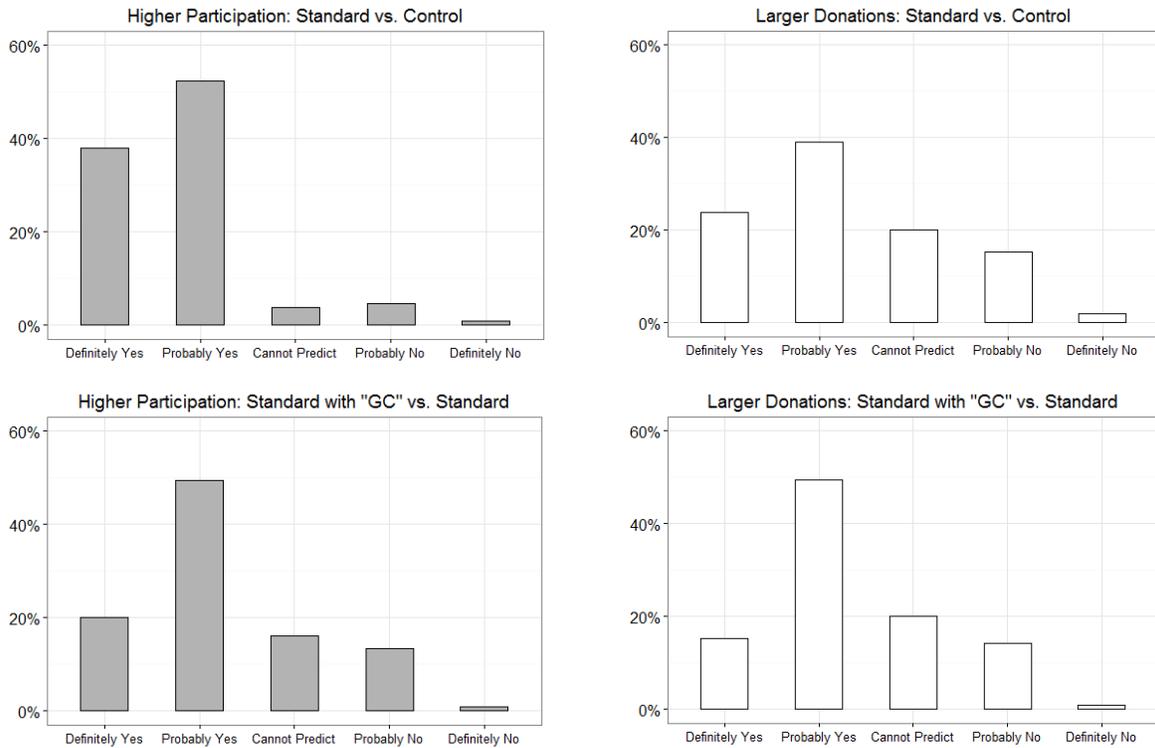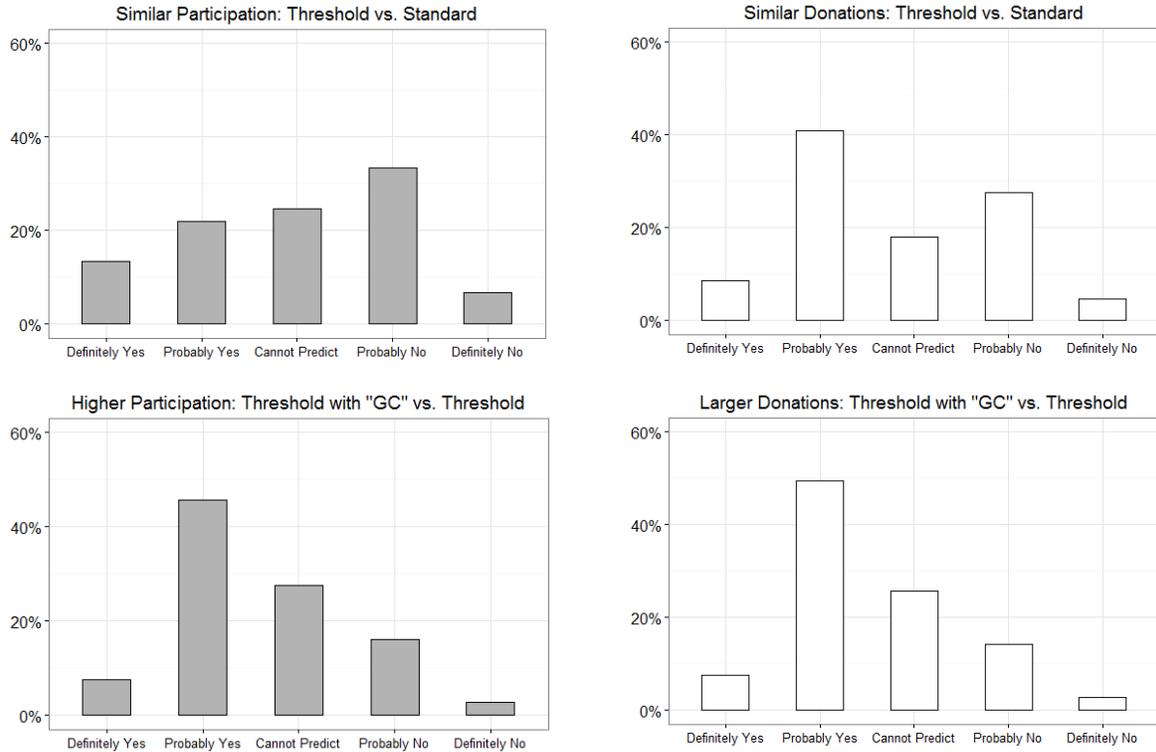
Figure 1: Distribution of expert responses in Study 1. The bars indicate % of experts agreeing to a particular rating point. The charts on the left indicate participation; where as those on the right indicate average contribution.

threshold matching appeal (57%), and few believed the reverse (17%; M= 0.45 vs.0, $t(104)=4.93$, $p=<.001$).

Overall, the results suggest that experts strongly agreed with the predictions of the impure altruism model: the "giving-credit" framing would outperform regular framing, whether using a standard or threshold match, but their predictions did not reflect consensus about the success of threshold matching compared to standard matching.

As discussed earlier, a simultaneous joint evaluation of potential fundraising strategies closely represents how such ideas are evaluated in practice. However, this raises the possibility that experts could mispredict the effects of interventions on donor behavior specifically because the donors, unlike the experts, only evaluate a single appeal in isolation (Shen et al., 2012). If

this is the case, expert fundraisers could make better decisions by splitting the task and examining one idea per person (or per group) before coming together to decide on the best approach.

To test for the robustness of our findings to experts' evaluation mode, we conducted another study in which we randomly assigned experts to first evaluate one of two fundraising appeals (separate evaluation) and only then introduced and had them evaluate the other appeal (allowing joint-evaluation tests). We also asked follow-up questions about the perceived effects of the appeals on potential donors' attitudes and behavior. This was done to more directly examine the extent to whether experts' reasoning corresponded to the components of the impure altruism model.

4. Study 2: Robustness of Expert Opinion to Evaluation Mode

4.1 Design

We used the services of the same professional online panel company to recruit N=200 managers responsible for designing or implementing fundraising strategies. Participants had an average of 10 years of experience in fundraising-related work, and 69% reported having worked in fundraising campaigns that specifically used matching contributions.

In this survey, we only compare standard 1:1 matching with and without the "giving-credit" framing (i.e, and we did not test threshold matching) to increase statistical power for examining differences in separate evaluations. Specifically, experts were first introduced to one of these two appeals (counter-balanced) and asked to rate the appeal on several measures. Then, on a separate page without prior notice, experts were asked to examine the other appeal which they also rated on the same measures. The details shared with the participants about the appeals,

the nature of charitable organization soliciting funds, the type of donors being solicited (i.e., prior donors only) and the mode of solicitation (i.e., postal mail) were similar to the previous survey (see Online Appendix).

Using balanced 6-point scales, participants first rated each appeal on its likelihood to increase participation and donation size. Next, on a separate page, experts reported their beliefs about the three main constructs of the impure altruism model in lay terminology: potential donors' feelings about the overall donation opportunity, warm-glow feelings, and perceived altruistic benefit (the opportunity to help others). Finally, on the same page, we elicited experts' beliefs about a few potential psychological determinants of donors' behavior: donors' feeling of personal responsibility for the funds going to the charity, as well as the appeals' ease of understanding and perceived coerciveness (see Online Appendix for full details of the stimuli used).

The appeal being evaluated was always displayed on the page where the participants answered these questions so that the experts did not have to rely on their memory. When experts evaluated the second appeal, both appeals were presented on the page, to facilitate comparison. Furthermore, experts were reminded about how they had rated the same question for the first appeal when they evaluated the second. This was again done to make sure that experts did not have to rely on their potentially incorrect memory when comparing the two fundraising appeals.

A few follow up questions were also asked, including work experience and an instructional manipulation check (Oppenheimer et al., 2009) that participants needed to complete correctly to finish the survey.

4.2 Results

4.2.1   Between-subject evaluations

Experts rated the "giving-credit" framing as similar in the likelihood of increasing participation to standard matching ($M_{Giving\ Credit}$= 4.17 vs. $M_{Standard\ Matching}$ = 3.99, $t(198)$=1.11, p=.268). Likewise, experts did not predict a higher average contribution among participating donors for the "giving-credit" framing ($M_{Giving\ Credit}$= 3.97 vs. $M_{Standard\ Matching}$ = 3.90, $t(198)$=0.40, p=.688). Therefore, experts did not perceive the overall efficacy of the two match framings differently when evaluating them separately. This is in contrast to the overwhelmingly more positive evaluation experts had for the "giving-credit" framing in Study 1, when they directly compared the two appeals.

Experts did perceive the giving-credit framing as impacting the constructs in the impure altruism model causing a significantly higher feelings of warm glow among donors ($M_{Giving\ Credit}$= 4.57 vs. $M_{Standard\ Matching}$ = 4.18, $t(198)$= 2.16, p=.032) and significantly higher perceptions as a good opportunity to help others ($M_{Giving\ Credit}$= 4.70 vs. $M_{Standard\ Matching}$ = 4.35, $t(198)$=2.09, p=.038). Both of these effects were completely mediated by a marginally significant indirect effect via higher expected positive feeling of personal responsibility for the funds raised by the charity (95% bootstrapped CI of the indirect effect = [-0.03, 0.46] and [-0.03, 0.46] respectively; see Online Appendix for additional details). Experts did not judge the two appeals differently in terms of ease of understanding (p=.731) or the extent to which donors might perceive the appeals as pushy or manipulative (p=.603).

Overall, separate evaluation of the standard match and the standard match with the credit framing appeal were seen as similarly effective by the experts. However, even the separate-evaluation expert judgments validated the model assumptions that potential donors were more likely to feel good about giving when a standard match is framed to give them credit for the funds received. The evidence suggested that this was on account of experts' beliefs that donors might feel more responsible for the funds raised by the charity when the appeal was framed to give donors the entire credit for the donation (i.e., including the matched amount).

4.2.2   *Within-subject evaluations*

Comparing the experts' ratings across the two potential appeals each expert rated (order counterbalanced) reveals a significantly more favorable view of the "giving-credit" framing compared to the standard framing. This was particularly the case when the framing was evaluated *after* first rating the standard matching appeal (see Figure 2). Experts predicted that the "giving-credit" framing would significantly increase participation compared to standard
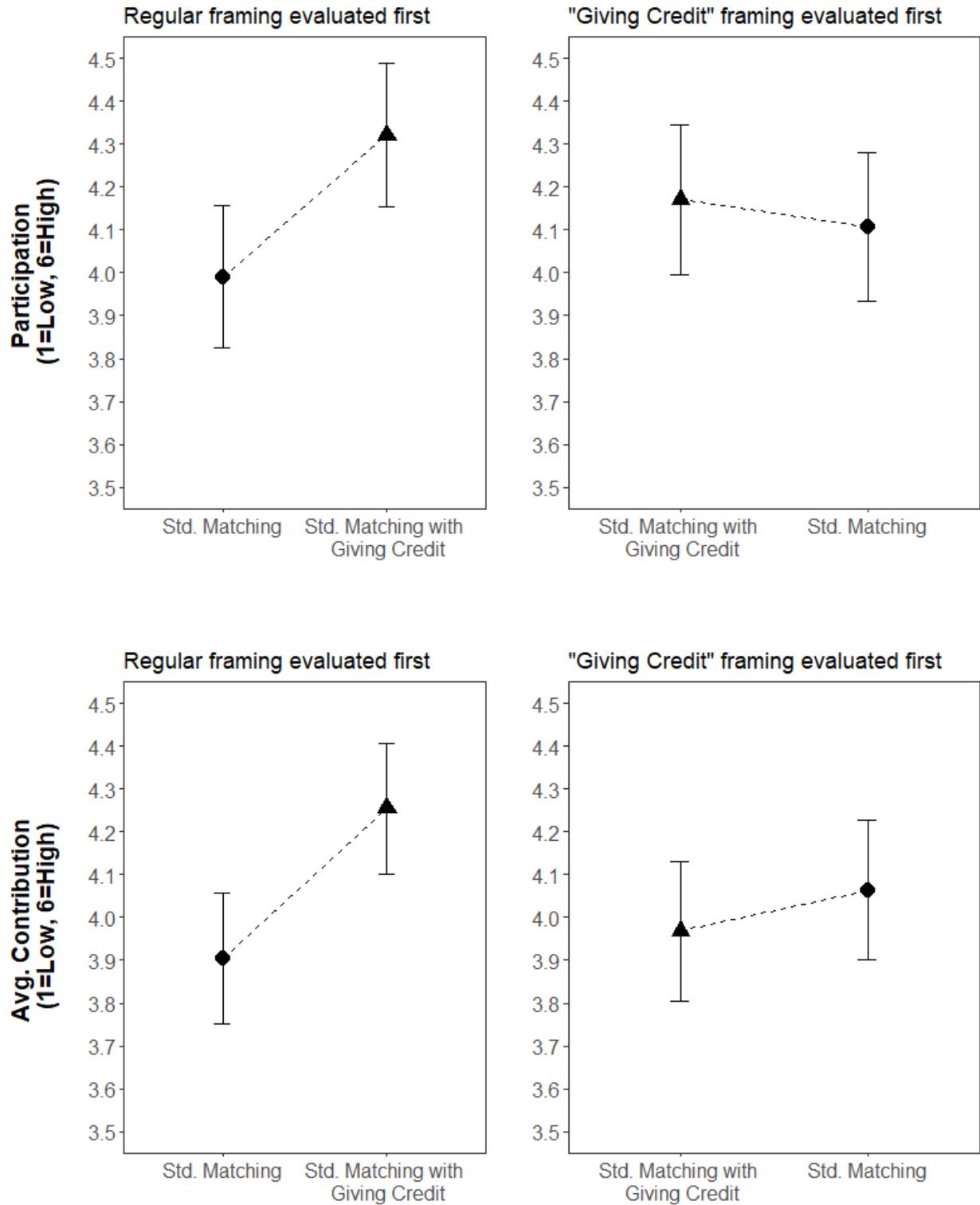
Figure 2: Expert ratings of the ability to increase participation (upper panel) and non-zero contribution (lower panel) in Study 2, measured on a 1 to 6 scale. The charts are broken by the order in which the appeals were evaluated. The vertical lines are 95% CI (corrected for repeated measures).

matching alone ($M_{\text{Giving Credit}}$ = 4.25 vs. $M_{\text{Standard Matching}}$ = 4.04, $t(199)$=2.38, p=.018), and would

marginally increase average dollar contribution from participating donors ($M_{\text{Giving Credit}}$ = 4.12 vs.

$M_{\text{Standard Matching}}$ = 3.98, $t(199)$=1.73, p=.085). In particular, the predictions favored the credit

framing when this novel appeal was evaluated after the standard matching appeal (participation:

$M_{\text{Giving Credit}}$ = 4.32 vs. $M_{\text{Standard Matching}}$ = 3.99, $t(105)$=2.77, p=.006, interaction with order of

evaluation: β=0.26, t=1.55, p=.122; average contribution: $M_{\text{Giving Credit}}$ = 4.25 vs. $M_{\text{Standard Matching}}$

= 3.90, $t(105)$=3.20, p=.002, interaction with order of evaluation: β=0.44, t=2.79, p=.005). The

experts' joint-evaluation predictions replicate the results of the prior survey (Study 1) using a

different research design and elicitation approach.

Experts in joint evaluation also rated the "giving-credit" framing as significantly better at

increasing donors' feelings of warm glow($M_{\text{Giving Credit}}$ = 4.58 vs. $M_{\text{Standard Matching}}$ = 4.30,

$t(199)$=3.63, p<.001). Consistent with the assumptions we made in the model-based predictions

derived earlier, experts' higher warm glow predictions mediated their more positive evaluation

of the "giving-credit" framing appeal in terms of both participation (indirect effect 95% CI =

[0.08, 0.28]) and donation size (indirect effect 95% CI = [0.08, 0.26]).

Furthermore, compared to the standard matching appeal, experts believed that potential

donors' would perceive the "giving-credit" framing as providing a better opportunity to help

others (i.e., a measure of pure altruism; $M_{\text{Giving Credit}}$ = 4.67 vs. $M_{\text{Standard Matching}}$ = 4.44,

$t(199)$=3.38, p<.001). Experts' higher judgment of the pure altruism benefits also mediated their

more positive evaluation of the "giving-credit" framing appeal in terms of both participation

(indirect effect 95% CI = [0.06, 0.24]) and donation size (indirect effect 95% CI = [0.06, 0.22]).

Finally, experts' overall joint-evaluation judgments indicated that the "giving-credit" framing would be perceived by donors as a more beneficial opportunity to donate (i.e., a measure of perceived total utility from giving; $M_{Giving\ Credit} = 4.69$ vs. $M_{Standard\ Matching} = 4.52$, $t(199)=2.33$, $p=.020$). Furthermore, the higher perceived overall benefits mediated experts' more positive evaluation of the "giving-credit" framing appeal both in terms of expected participation (indirect effect 95% CI = [0.02, 0.21]) and expected donation size (indirect effect 95% CI = [0.02, 0.18]).

Experts also predicted that donors would feel more responsible for the money raised through the "giving-credit" appeal compared to the standard matching appeal ($M_{Giving\ Credit} = 4.35$ vs. $M_{Standard\ Matching} = 4.00$, $t(199)=4.42$, $p<.001$). Expectations about donors' greater feeling of personal responsibility mediated experts' more favorable judgment of the "giving-credit" framing over a standard matching appeal, both in terms of participation (indirect effect 95% CI = [0.12, 0.30]) as well as donation size (indirect effect 95% CI = [0.11, 0.29]). Furthermore, as was observed for separate evaluation, positive feeling of personal responsibility for the funds raised in the "giving credit" framing partially mediated the effect of the "giving credit" framing on generating higher feelings of warm glow among donors (95% bootstrapped CI of the indirect effect = [0.09, 0.30]) and completely mediated the effect of the framing on higher perceptions as a good opportunity to help others (95% bootstrapped CI of the indirect effect = [0.13, 0.33]).

Even when an appeal is seen as potentially more effective in theory, fundraisers may be reluctant to use it based on concerns about unintended negative consequences in practice. However, experts did not perceive the "giving-credit" framing as more pushy or manipulative, and in fact actually found it less so, compared to the standard matching appeal ($M_{Giving\ Credit} = 2.70$ vs. $M_{Standard\ Matching} = 2.86$, $t(199)=2.10$, $p=.037$). Experts also did not anticipate that donors

would find the "giving-credit" appeal more difficult to understand compared to the standard matching appeal ($M_{\text{Giving Credit}}$ = 4.74 vs. $M_{\text{Standard Matching}}$ = 4.75, $t(199)$<1).

4.3 Discussion

Overall, these results suggest that experts' predictions (particularly in joint evaluation) parallel our assumptions in extending the theoretical model of impure altruism. Experts expected donors viewing a "giving-credit" appeal to feel more responsible for the funds raised. As developed in our extended impure altruism model, experts then predicted that the "giving-credit" framing would yield significantly more warm-glow feelings among potential donors and they would perceive it as a better opportunity to contribute. These beliefs, in turn, mediated their overall impressions – consistent with the model – that the "giving-credit" framing would results in better fundraising outcomes than the standard matching appeal.

However, the experts' reasoning potentially violated the "all-else-equal" assumption, in that they also perceived the "giving credit" framing as increasing purely altruistic benefit to the donor. Furthermore, experts' predictions were affected by both the evaluation mode and order. Their efficacy predictions were less conclusive in separate evaluation, and in joint evaluation when rating the credit framing appeal first. Further analyses (see Online Appendix) suggest that order effects in how experts perceived donor-utility from the two appeals may account for the order effects in experts' efficacy predictions.

Lastly, we briefly mention one other potential source of guidance, other than academic models and expert opinion. Survey research (i.e., of potential donors) is rarely used in fundraising, and when it is used, it tends to focus on donor attitudes towards nonprofits rather than testing fundraising tactics.[2] However, surveys are a widely used approach to predicting

---

[2] E.g., see the 2018 Global Trends in Giving Report (2018), Nonprofit Tech for Good, https://givingreport.ngo/

outcomes in other domains (e.g., voting, consumer decisions). For completeness, we also tested the fundraising tactics using a survey of laypeople (e.g., potential retail donors), with each participant responding to one appeal (i.e., separate evaluation). The results are inconclusive, similar to the separate-evaluation expert data, with no significant evidence that the "giving-credit" framed appeal would perform better, but also no indication that using the framing would negatively impact fundraising and no significant differences from the threshold match (see Online Appendix for the details of this additional study).

Overall, the sources of information discussed to this point would suggest to the fundraiser that using the "giving-credit" framing has little risk and is likely to yield better results than the standard match, particularly if jointly evaluating more than one intervention when making the decision. These sources of information would suggest more uncertainty about the effect of the threshold match, failing to yield a single consensus prediction. How sufficient and accurate would these sources of guidance be for a diligent fundraiser trying to do employ best practices to decide on the final campaign design? To assess this question, we conducted a fundraising field experiment in collaboration with a community-based non-profit in Chicago.

.

5. Study 3: Field Experiment to Evaluate Guidance

5.1 Design

The non-profit conducting the fundraising campaign was a small but well-established arts organization with less than 15 employees and a long history in the community. It promotes young artists by organizing exhibitions and workshops and also offers various art classes, including summer art classes for children. The non-profit was planning to conduct its annual fundraising campaign, and as part of celebrating its 75th anniversary, had secured a leadership

gift from one of its patrons for that year's campaign. The organization leveraged the leadership

grant to run a matching campaign during this fundraising drive, with five different randomized

mail-based solicitations. This experiment, unlike the survey experiment, represents a natural field

experiment (Harrison & List, 2004) in that decision-makers did not know that the fundraising

appeals were part of an experiment.

The organization sent out mailers with a letter signed by the Deputy Director, a pledge

card, and a prepaid self-addressed envelope. Mailers were sent to the organization's list of 3588

potential retail donors. The experimentally-manipulated matching offers, however, were only

sent to the people who had previously donated, which constituted 1480 mailings. Targeting prior

donors is common in fundraising field studies that use mailers (Goswami & Urminsky, 2016;

Huck & Rasul, 2011; Karlan & List, 2007, 2012; Karlan, List, & Shafir, 2011; List & Lucking-

Reiley, 2002), because of substantially higher participation rates, potentially due in part to a

greater willingness to open and read the solicitation. The targeted prior donors were primarily

small-amount contributors (median last contribution: $45) who had previously either bought a

membership, enrolled in classes, attended an event, or contributed in some other way to the

organization.

The matching offer for each experimental condition, when applicable, was presented both

in the body of the letter and in a summary of the matching offer printed on the back flap of the

self-addressed envelope (see Online Appendix for full details of the stimuli used). The prior

donors were each sent one of the five experimental mailers, using a 2(Matching Mechanism: 1:1

standard vs. threshold) x 2(Framing: regular vs. "giving credit") + 1 (no-match control)

between-subjects randomized design. Mailers were sent out in the first week of September 2014.

Contributions were recorded until February 2015 (i.e., for about five months), by which time

contributions to the campaign had largely ended (only two contributions were received in February).

5.2 Results

　　We analyzed three outcomes: participation, average contribution among donors (i.e., conditional upon sending in a donation), and net money raised, as in the experts' surveys.

5.2.1　Actual Participation

　　Averaging across experimental conditions, the overall contribution rate was 5.6%.[3] The participation level in the standard 1:1 matching condition (8.1%) was directionally higher than in the control condition (5.1%), but the difference was not significant ($\chi^2(1)=2.25$, $p=.133$). This result is consistent with the mixed results in the prior literature on the effects of using matching solicitations with prior donors, but inconsistent with the near-consensus opinion among experts in Study 1, 90% of who thought that matching would be effective in increasing participation.
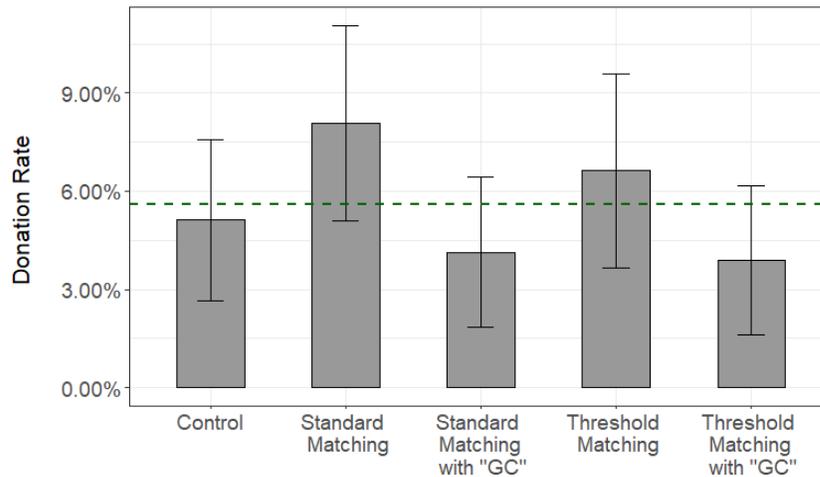
Figure 2: Participation in various experimental conditions in Study 3. The overall participation rate of 5.6% is indicated with the dotted horizontal line. The vertical lines are 95% CI.

---

[3] The raw distribution of contributions obtained in the various conditions is available in the Online Appendix.

More importantly, we find no evidence that the "giving-credit" framing improved donation rates, and the observed difference instead points in the opposite direction. Contrary to both the predictions of the extended impure altruism model and the expert practitioners, when the solicitation was framed to give donors credit for the matching funds, the participation rate was *lower* than the regular framing, significantly under the standard match (4.1% vs. 8.1%; $\chi^2(1)$=4.06, p=.043) and directionally under the threshold match (3.9% vs. 6.6%, %; $\chi^2(1)$=2.08, p=.148). Overall, collapsing across standard and threshold matches, the "giving-credit" framing significantly reduced participation (4.0% vs. 7.4%; $\chi^2(1) = 6.21$, p=.013). The detrimental effect of the "giving-credit" framing did not vary depending on the matching mechanism used (standard vs. threshold: β=0.149, z=0.281, p=.778).

The effects of threshold (vs. standard) matching did not diverge from the model and expert predictions, but was inconsistent with recent academic endorsements of threshold-based matching (Sanders et al., 2013). We found no detectable improvements in participation using a threshold match compared to a full match either under the regular framing (6.6% vs. 8.1%; $\chi^2(1)$=0.45, p=.499) or under the "giving-credit" framing (3.9% vs. 4.1%; $\chi^2(1)$=0.02, p=.878). Consequently, across the various framing manipulations, there was no overall difference in participation for the different types of matching mechanisms (5.2% vs. 6.2%; $\chi^2(1)$ =0.52, p=.471), consistent with the equivocal implications of the model (absent additional assumptions) and with the mixed predictions of the experts.

Overall, although both the sources of guidance may have correctly captured the various levers affecting prosocial motivation, they failed to predict the extent and direction of how warm-glow motivation might be affected by solicitation framing, at least in this case.

Consequently, the effect of the "giving-credit" framing on participation was favorably estimated by both the sources, whereas empirical evidence found a significantly detrimental effect of this framing on participation, particularly when compared to standard matching. However, expert and model predictions resonated with the empirical results that found an ambiguous effect of the threshold matching mechanism over the standard matching mechanism. Finally, while experts were overwhelmingly positive about the effect of a standard matching appeal over a no-match appeal, the empirical results were, at best, directional, consistent with the mixed implications from the model.

5.2.2 Actual Contribution Size

Next, using log-transformations to account for the skew in the donation amounts, we calculated the average donation size per condition (see Fig. 3).[4]
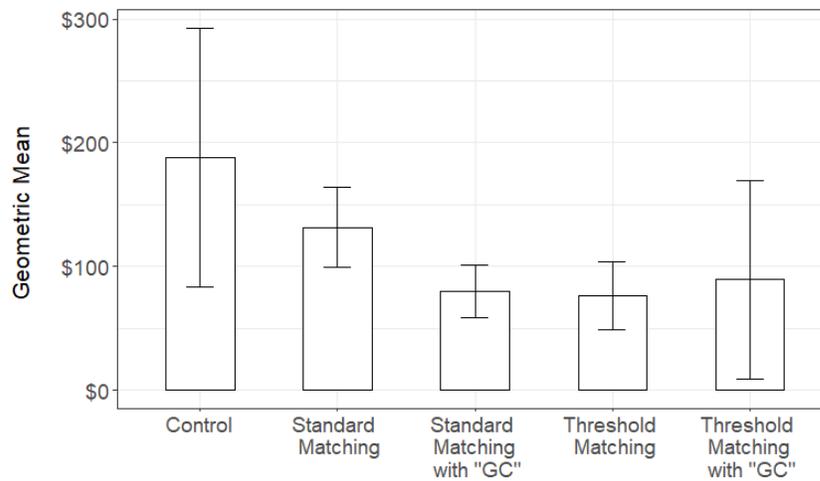
Figure 3: Average contribution among donors in Study 3. The vertical lines are 95% CI.

---

[4] For robustness, we also examined average contribution and net contribution using non-parametric tests. We also examined the raw responses after employing both Grubbs Test and Winsorizing to handle outliers. The results are reported in the Online Appendix, as well as results after controlling for covariates.

Those prior donors who gave in this campaign contributed directionally less in the standard 1:1 match than in the control condition ($t(40)=1.34$, $p=0.185$; see Figure 3). Again this highlights the double-edged nature of standard matching, which is consistent with some interpretations of the theoretical model and illustrates the necessity of making additional assumptions to use the impure altruism model for policy predictions.

More importantly, we find no evidence that the "giving-credit" framing increased contribution amounts. In fact, the "giving-credit" framing significantly reduced contributions relative to regular framing for the standard 1:1 match offer ($t(36)=2.43$, $p=.020$) and resulted in similar donations under threshold matching ($t(27)<1$). The effect of framing (regular vs. "giving credit") did not significantly differ by match type (standard 1:1 vs. threshold: $\beta=0.650$, $t=1.57$, $p=.121$). Therefore, both model-based and joint-evaluation expert guidance incorrectly predicted positive effects of the "giving-credit" match, and even experts in the separate-evaluation mode failed to correctly anticipate the negative effects.

The goal of the threshold match was specifically to reduce the "crowding out" effects of a standard match and thereby yield larger donations among those who give. The threshold matching intervention failed in this regard, yielding significantly smaller contributions than the standard match ($t(42)=2.59$, $p=.013$) under the regular framing, and no difference under "giving-credit" framing ($t(21)<1$). Collapsing across different types of framing, the threshold match yielded directionally lower contributions compared to a standard matching solicitation ($t(65)=1.63$, $p=.107$), among those choosing to donate. This directional but inconclusive result is somewhat consistent with the lack of clear prediction from the model and with the inconsistent predictions of the experts.

Overall, the results for donation size largely paralleled the results for participation. The empirical results of the "giving-credit" framing systematically diverged from the predictions, whereas the lack of difference between the standard match and the threshold match aligned with the lack of clear model implication and with the lack of expert consensus. Finally, the empirical results of the standard matching appeal over an appeal without any matching on donation amounts were more consistent with the ambiguous implications of the model and diverged from the positive opinion of the experts (63% reported an improvement in donation outcomes).

5.2.3 *Actual Net Money Raised*

To assess the net effects, incorporating both the number of donors and how much each donor gave, we compared the log-transformed average money raised per mailing (including zero contributions) across conditions. On account of directionally higher participation, the standard 1:1 match raised directionally more money than the control no-match condition ($t(633)=1.26$, $p=.208$).
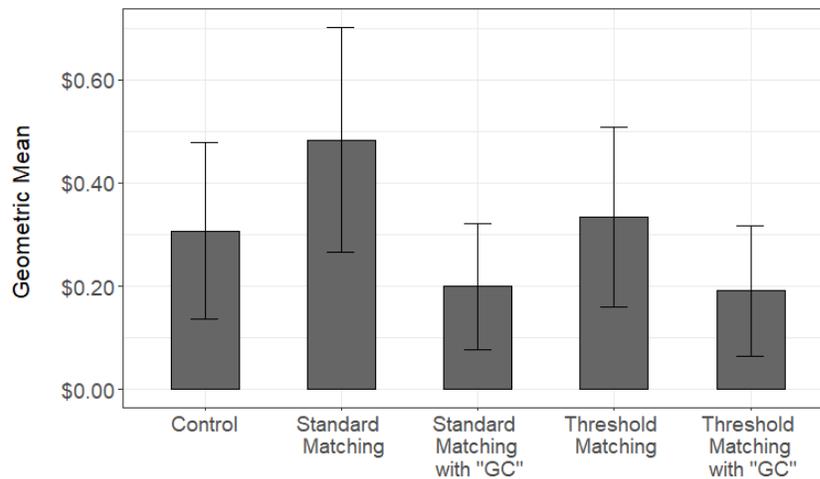
Figure 4: Net donations per mailing in Study 3. The vertical lines are 95% CI.

However, we find no evidence that more money is raised when using the "giving-credit" framing than regular framing. In fact, the "giving-credit" framing raised significantly *less* money per person under standard matching ($t(610)=2.28$, $p=.022$) and directionally less under threshold matching ($t(553)=1.32$, $p=.188$). The effect of framing (regular vs. "giving credit") did not significantly differ by match type (standard 1:1 vs. threshold: $\beta=0.100$, $t=0.78$, $p=.431$). Overall, collapsing across standard and threshold matching, "giving-credit" framing significantly reduced the money raised per mailing compared to the regular framing ($t(1165)=2.63$, $p=.008$). To the degree that net money raised or the number of donors participating are the primary metrics of concern to a fundraiser, these results would be disappointing for the fundraiser, particularly given the expectations set by the prior guidance.

Combining the effect on participation and average contribution, there was no significant effect of threshold (vs. standard) matching on net money raised under either the regular framing ($t(592)=1.05$, $p=.295$) or under the "giving-credit" framing ($t(571)<1$). Combining across the framing manipulations, there was no overall difference in net effect for the different types of matching mechanisms ($t(1165)<1$). This suggests that the theorized potential of a threshold matching mechanism to arrest the crowding out effects of a standard matching mechanism (Sanders et al., 2013) did not occur in practice. However, at the same time, the lack of a difference is not inconsistent with the equivocal implications of the model and with the disagreement among the experts.

5.3 Discussion

The results of the field study are odds with some of the expectations a fundraiser would have from both academic and industry expert sources of guidance. Both the impure altruism model and the majority of expert practitioners predicted better fundraising performance when

using the "giving-credit" framing. However, the "giving-credit" framing not only failed to improve fundraising but instead consistently reduced the outcomes. In addition, while some academics have advocated for threshold matching, the impure altruism model yields inconclusive predictions (without strong additional assumptions) and experts were split on whether it would be more effective.

It is noteworthy how few experts predicted the outcome of this study. Only 12% in Study 1 and 18% in Study 2 predicted that the "giving-credit" framing would do worse (vs. regular framing, both using standard matching) and only 9% in Study 1 predicted that threshold matching would not make a difference (vs. standard matching, both using regular framing). In fact, none of the 105 experts in Study 1 correctly predicted both the effects of the "giving-credit" framing and of the threshold match.

The results of the field experiment cannot be explained as a failed manipulation (i.e. donors not being affected by the framing). There is a consistent decrease in the "giving-credit" framing compared to the regular framing used in standard matches across the three key metrics: participation, average contribution, and net money raised. Furthermore, threshold matching with the "giving-credit" framing was directionally worse than threshold matching alone for both participation as well as for net money raised. Such consistency in results would be unlikely if potential donors did not notice the experimental manipulation.

Nevertheless, the results are not extremely strong, and the multiple tests involved in our analyses increase the risk of false-positive results. With the benefit of hindsight, the five-condition study was underpowered to detect the size of effects when comparing across conditions that were observed. Therefore, before we can definitively conclude that this field study established a ground truth contrary to the recommendations from theoretical models and

from experts, it would be useful to conduct a higher-powered confirmatory replication test, with pre-registered comparisons.

To do so, we again partnered with the same organization, in the Spring of 2018, to conduct a new fundraising experiment, three and a half years after the first study. Given that the number of prior donors constrains the sample size, the most feasible approach to increase statistical power was to reduce the number of conditions. Thus, in this new study we focused the research design on one key comparison: "giving-credit" framing versus regular framing for a standard 1:1 match.

6. Study 4: Field Replication as a Test of Generalizability Across Campaigns

6.1 Design

The non-profit organization generally runs its annual campaign in the Fall of every year, but they agreed to run an additional campaign, in which we implemented our two-condition experiment, in the Spring. The study and the analysis plan were pre-registered (viewable at http://aspredicted.org/blind.php?x=na3yk9). Several aspects of the design were similar to the previous field experiment. First, participants were not aware that they were taking part in an experiment. Second, mailers were sent out with a letter signed by the Deputy Director, a pledge card, and a prepaid self-addressed envelope. The experimental intervention was implemented both in the letter as well as on the self-addressed envelope.

However, there were a few differences compared to the previous field experiment. Mailers were sent to 3646 people, of which 3036 were prior donors, and the remaining 610 were non-donors. Prior donors who had responded to the Fall 2017 campaign and had donated more than $250 were excluded from the campaign. Likewise, donors for whom the organization had

other upcoming fundraising plans, typically individually customized, were excluded prior to randomization. The median last contribution from prior donors in the new study was $190, which was higher than in the previous study.

Non-donors were people who had never donated to the organization but had attended a free event hosted by the organization in the past five years. The sample was randomly divided into two experimental cells: one group received a standard 1:1 matching solicitation and the other received a 1:1 matching solicitation with the "giving-credit" framing (see Online Appendix for details). Note that while the threshold matching scheme precluded the use of non-donors in Study 3, the use of only standard matching in this experiment (with either the regular framing or the "giving-credit" framing) allows us to potentially include prospective donors.

All letters were sent out in the second week of May 2018. We collected responses until the end of the second week of August 2018 – a period of over three months from the start of the campaign.

6.2 Results

There was only one donation (of $50) received from a non-donor (who had responded to the standard 1:1 matching solicitation). Therefore, the analysis below only considers data from the prior donors, although the conclusions do not differ if the non-donors are included.

Averaging across experimental conditions, the overall contribution rate was 3.1%.[5] However, replicating the prior field experiment, the participation level in the standard 1:1 matching condition (4.1%; see Figure 5, first panel) was significantly higher than in the "giving-credit" framing condition (1.9%; $\chi^2(1)=12.34$, $p<.001$).

---

[5] The raw distribution of contributions obtained in the various conditions is available in the Online Appendix.

As in the original field experiment, we used log-transformed donation amounts to account for skew in the data. As shown in the middle panel of Figure 5, the average donation size among those who gave did not significantly differ between the two conditions ($t(91) < 1$). In the previous field study, we had found that the "giving-credit" framing yielded significantly smaller contributions among participating donors when the standard 1:1 match was used. While we do not replicate this finding, we again find no evidence that the "giving-credit" framing *increases* the size of donations, as predicted by the theoretical model and by expert fundraisers.
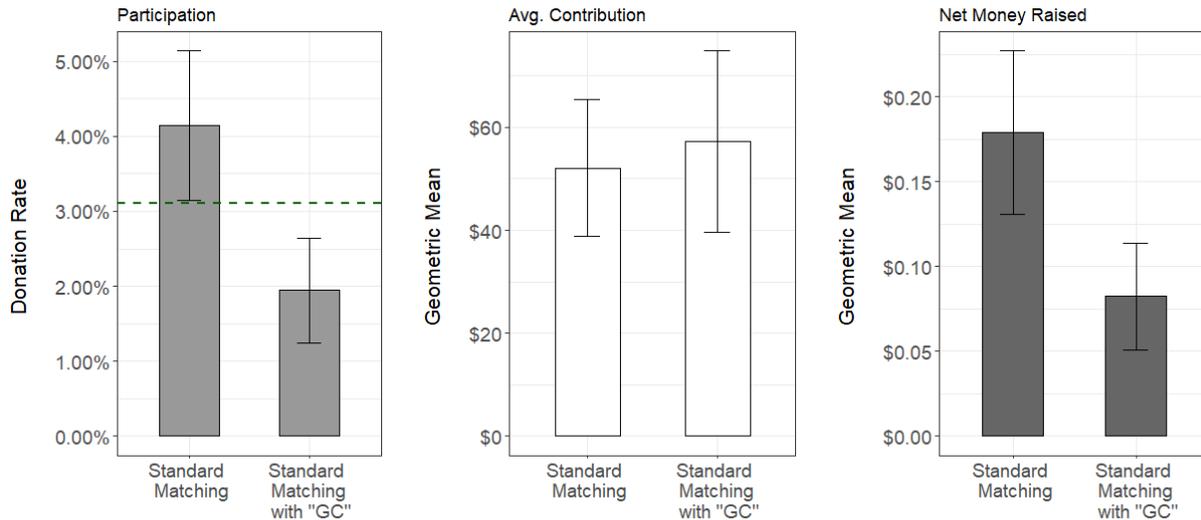
Figure 5: Participation, average contribution among donors, and net donations per mailing in Study 4. The overall participation rate of 3.1% is indicated with a dotted horizontal line on the left-hand chart. The vertical lines are 95% CI.

Overall, the standard 1:1 match raised significantly more money per mailing than the "giving-credit" framing ($t(3034)=3.33$, $p<.001$), driven by the difference in donation rates. Therefore, in this pre-registered and higher-powered field replication, we confirm that the "giving-credit" framing was significantly less effective than the regular framing of the matching

solicitation. These results are robust to using nonparametric statistical tests, excluding outliers, or controlling for covariates.[6]

6.3 Discussion

In the replication study, a larger sample size and pre-registration were employed to conduct confirmatory tests of the "giving-credit" findings in Study 3. The lower performance of the "giving-credit" framing was replicated in the same fundraising context, driven by the replicated difference in donation rates.

7. General Discussion

In this paper, we explore the adequacy of the sources of guidance available to a professional fundraiser choosing whether or not to implement a novel form of matching solicitation, involving either alternative framing or a customized minimum threshold for matching. We compare the guidance the fundraiser could receive from two sources: (1) an extended version of the theoretical impure altruism model of donation behavior, and (2) the opinions of expert fundraisers. In general, these sources of guidance predicted that the "giving-credit" manipulation would either have no effect (if people failed to incorporate the match into their warm-glow utility) or a positive effect and did not make a clear prediction for threshold matching.

Given the common reluctance of fundraisers to conduct field experiments, our hypothetical fundraiser might well decide to implement the "giving-credit" framing (with or without a threshold match) based on one or more of these sources of guidance. The results of two expert surveys, including one where the evaluation modality strongly mimicked how donors

---

[6] For robustness, we conducted non-parametric tests and used both a Grubbs Test and Winsorizing to deal with outliers. The results are reported in the Online Appendix.

might evaluate an appeal, did not highlight any potential downsides of the new framing appeal. The results of our field experiment suggest that this decision, reasonably based on the likely sources of information available to the fundraiser, might be a serious mistake in the current fundraising context. The results of both the original field experiment and a follow-up pre-registered replication field experiment consistently find strong evidence that the "giving-credit" framing would result in significantly *worse* outcomes for the fundraising organization.

It is important to note that the "ground truth" identified in our field experiments might be context-specific. Our studies were conducted in one particular fundraising setting, with one donor pool, and we cannot know the degree to which these findings generalize across fundraising campaigns. In fact, research has repeatedly found that the effects of behavioral interventions vary by field context (Alcott & Mullainathan, 2012). For example, although Landry et al. (2006) found a positive effect of solicitor-solicitee interaction in a door-to-door campaign, in a subsequent study (List & Price, 2009) that matched solicitor-solicitee in terms of race and gender in a door-to-door fundraising drive failed to improve the performance of the campaign. Our findings highlight the complexity of the psychology of warm-glow motivation and consequently, the limitations of model-based predictions and expert forecasts for novel situations. Thus, our findings demonstrate the importance of not only field experiments in general, but sufficiently-powered, *in-context*, field experiments.

7.1 Implications for research on fundraising

Why did the seemingly promising "giving-credit" framing of fundraising appeals fail in the field? It appears that potential donors may have failed to incorporate the intended benefits into their warm-glow utility. Warm-glow preferences were first proposed to explain empirical anomalies that were difficult to reconcile with a theory based on pure altruism (Andreoni

1988;1990). Notwithstanding the improvements this new theory afforded to our understanding of altruistic behavior, our results suggest that more model development and empirical research on which factors facilitate or inhibit warm-glow preferences is needed before we can reliably predict the effects of novel fundraising interventions on donation behavior.

One possibility is that the "giving-credit" framing was seen as mixing egoistic benefits (i.e., benefits to self) with altruistic benefits (i.e., benefits to others), which some research has suggested reduces the performance of appeals, compared to only one or the other benefit (Feiler, Tost, & Grant, 2012; Dubé, Luo, & Fang, 2015). The researchers have suggested that this happens because messages employing mixed motives are construed as an overt attempt to persuade, which might then be seen as a coercive nudge (e.g., Fitzsimons & Lehmann, 2004), inhibiting warm glow. While we do not know if that is the case in our field studies, it is notable that experts' opinions elicited in Survey 2 on specifically this possibility did not reveal a concern that the "giving credit" manipulation would be seen as manipulative.

Another possibility is a generalization of intuitions that underlie social loafing (Latané, Williams, & Harkins, 1979). By telling potential donors that the leader would add to specifically their own donation, the potential donors might have felt less accountable for their own donation and a low sense of ownership of the resulting "joint" donation, undercutting their motivation to donate. The experts failed to anticipate this possibility and in Study 2 made the exact opposite prediction, that the "giving credit" framing would increase feelings of responsibility for the funds raised.

It is also possible that the "giving-credit" framing was more cognitively demanding to process and potential donors, therefore, deferred their decisions, resulting in a lower donation rate. However, to the degree that the response of the potential donors to the "giving-credit"

framing reflects any of these impressions of the "giving-credit" appeals, neither our extension of the impure altruism model nor the fundraising experts anticipated them. In fact, the experts in Study 2 rated both appeals as equally easy or difficult to understand.

Of course, our findings in no way invalidate the impure altruism model either, but instead illustrate its limitations when used to make decisions. The impure altruism-modeling framework is flexible enough to accommodate all of these possibilities, given additional assumptions or parameters. However, while such a modeling approach could describe the results *post hoc*, it would not provide the kind of *ex-ante* model predictions that are needed as a source of guidance to evaluate the viability of novel fundraising solicitations. It might be reasonable to expect experts, using reasoning based on the model and filling in the missing assumptions based on their experience, to provide better guidance. However, although expert-reasoning did closely parallel the constructs in the model, experts were not able to consistently predict the outcomes tested.

By highlighting the incompleteness of the theory of warm glow, our findings raise important questions that would need to be addressed in future research to develop analytical models that can make more precise predictions in the domain of fundraising. Perhaps these findings may motivate research that moves "from field back to lab," such that non-predicted findings in the field motivate more basic research in lab settings (i.e., as suggested by Bartels, Hastie & Urminsky 2018). However, that would require capturing the key psychological factors at play in a donor's decisions in the field and successfully replicating them in a lab setting.

The discrepancy between expert predictions and the ground truth established in our field experiments (at least in this particular setting) also raises interesting questions (similar to those raised by DellaVigna & Pope 2017) about the conditions under which expert intuitions will and will not predict field outcomes. A better understanding of how donors made their choices would

enable a comparison to experts' theories of how donors make choices and may help answer these questions. Our evidence suggests that experts may have taken into account explicit tradeoffs in motivation (e.g., that the threshold match had a lower match rate but incentivized donors to give more than before), but failed to consider opposing motivational forces that were implicit (e.g., the potentially detrimental effect of "giving-credit" framing on warm glow) or involved higher-order strategic behavior (e.g., the crowding-out effect in matching solicitations). Being more cognizant of these complex motivational factors might make experts better calibrated about their uncertainty when evaluating new fundraising appeals.

7.2 Implications for fundraising practices.

Consider a fundraiser who relied on reasonable sources of information and chose to simply implement the "giving-credit" framing with threshold matching, instead of running an experiment. What would this fundraiser learn from the experience? Unfortunately, the fundraiser would have been unlikely to learn much from the observational data that results from just running a novel campaign, due to the lack of a comparison and the resulting inability to conclude reliably what the counterfactual donations would have been. As a result, fundraisers are unlikely to update their beliefs effectively, resulting in the perpetuation of the inaccurate expert opinions we have documented. Absent a controlled trial, as in our field experiment, the fundraiser would not have learned that the "giving-credit" intervention was a costly mistake.

The promise of theory-based decision making is that it provides generalizable guidance. However, many practitioners might not be surprised to hear that theoretical economic models developed by academics sometimes generate implications that do not hold up in the field. In fact, prior field experiments have documented other findings that may be rationalizable *ex-post* under the impure altruism model with specific assumptions, but which contradict plausible *a*

priori interpretations of the model (Andreoni, 1988; Eckel & Grossman, 2003; Karlan & List, 2007).

Practitioners who are skeptical of academic predictions may believe that they or their experienced colleagues will predict better. However, in our data, professional fundraising managers overwhelmingly and incorrectly predicted that the "giving-credit" framing would perform better than the regular framing. Other fundraising managers might put less trust in expert opinions but be confident that with a bit of data about donors, they could choose the best option. However, our low-cost incentive-compatible experiment with online participants, reported in the Online Appendix, provided directional evidence that the "giving-credit" framing was better than the standard framing. Thus, this kind of survey research also failed to identify the inferiority of the "giving-credit" framing.

Taken together, the results strongly support a pessimistic view of the fundraiser's ability to accurately predict actual outcomes without field experiment data in the relevant context. In this pessimistic view, we echo recent work which concludes that the combination of reasoning processes in a decision may result in different outcomes in different contexts (Goswami & Urminsky, 2016a) and that even field results from one setting may not generalize to another (Alcott & Mullainathan, 2012). While our findings about the weakness of the "giving-credit" framing relative to a typical match framing have been shown to be robust within a single context, replicated in two studies conducted three and half years apart, our data cannot speak to the robustness of the difference across different fundraising contexts. Thus, contrary to the conclusions of many academic papers, we do not recommend that fundraisers rely on our findings to make decisions about the type of framed match to use.

Instead, our positive recommendation for fundraisers is to simply test planned interventions in the field before full implementation, and to continue testing new ideas in the field, whether generated from theoretical models, empirical academic research, other fundraisers' seemingly successful practices, or expert intuitions. Concerns about unintended negative consequences of such experimentation, due to people's perceived dislike of experiments, seem quite unfounded (Mislavsky, Dietvorst, & Simonsohn, 2019). While such experiments are not costless, doing so is well within the reach of most fundraising organizations and the learning can far outweigh the minimal costs (Goswami & Urminsky, 2016b). In fact, many marketing organizations (particularly those operating online) have not only adopted experimentation but have restructured their marketing activities around experimentation, to the point where field testing is an ongoing and seamless aspect of their everyday practice (Brynjolfsson & Mcafee, 2011). There is simply no substitute for in-context field experiments to test the consequences of fundraising interventions.

References

Adena, M., & Huck, S. (2017). Matching donations without crowding out? Some theoretical considerations, a field, and a lab experiment. *Journal of Public Economics*, *148*, 32–42.

Alcott, H., & Mullainathan, S. (2012). External Validity and Program Selection Bias. *NBER Working Paper*, *18373*.

Andreoni, J. (1988). Privately provided public goods in a large economy: the limits of altruism. *Journal of Public Economics*, *35*(1), 57–73.

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

Andreoni, J., & Payne, A. A. (2013). Charitable Giving. *Handbook of Public Economics*, 5, 1.

Anik, L., Norton, M. I., & Ariely, D. (2014). Contingent Match Incentives Increase Donations. *Journal of Marketing Research*, *51*(6), 790–801.

Baker, R. J., Walker, J. M., & Williams, A. W. (2009). Matching contributions and the voluntary provision of a pure public good: Experimental evidence. *Journal of Economic Behavior & Organization*, *70*(1), 122–134.

Bartels, Daniel M., Reid Hastie, & Oleg Urminsky. Connecting Laboratory and Field Research in Judgment and Decision Making: Causality and the Breadth of External Validity. *Journal of applied research in memory and cognition*, no. 1 (2018): 11-15.

Bartels, Daniel M., Trevor Kvaran, & Shaun Nichols. "Selfless giving." *Cognition* 129, no. 2 (2013): 392-403.

Bekkers, R. (2015). When and why matches are more effective subsidies than rebates. In *Replication in experimental economics* (pp. 183–211). Emerald Group Publishing Limited.

Blumenthal, M., Kalambokidis, L., & Turk, A. (2012). Subsidizing charitable contributions with a match instead of a deduction: what happens to donations and compliance? *National Tax Journal*, *65*(1), 91.

Crumpler, H., & Grossman, P. J. (2008). An experimental test of warm glow giving. *Journal of public Economics*, 92(5-6), 1011-1021.

Davis, D. D., Millner, E. L., & Reilly, R. J. (2005). Subsidy schemes and charitable contributions: a closer look. *Experimental Economics*, *8*(2), 85–106.

Dawes, R. M., & Corrigan, B. (1974). Linear models in decision making. *Psychological Bulletin*, *81*(2), 95.

Dawes, R. M., Faust, D., & Meehl, P. E. (1989). Clinical versus actuarial judgment. *Science*, *243*(4899), 1668–1674.

DellaVigna, S., List, J. A., & Malmendier, U. (2012). Testing for altruism and social pressure in charitable giving. *The Quarterly Journal of Economics*, *127*(1), 1–56.

DellaVigna, S., & Pope, D. (2017). What motivates effort? Evidence and expert forecasts. *The Review of Economic Studies*, *85*(2), 1029–1069.

Dove, K. E. (2000). *Conducting a Successful Capital Campaign: The New, Revised, and Expanded Edition of the Leading Guide to Planning and Implementing a Capital Campaign*. Jossey-Bass.

Dubé, J. P., Luo, X., & Fang, Z. (2015). Self-signaling and prosocial behavior: A cause marketing mobile field experiment (No. w21475). National Bureau of Economic Research.

Eckel, C. C., & Grossman, P. J. (2003). Rebate versus matching: does how we subsidize charitable contributions matter? *Journal of Public Economics*, *87*(3), 681–701.

Eckel, C. C., & Grossman, P. J. (2008). Subsidizing charitable contributions: a natural field
    experiment comparing matching and rebate subsidies. *Experimental Economics*, *11*(3),
    234–252.

Eckel, C., & Grossman, P. J. (2017). Comparing rebate and matching subsidies controlling for
    donors' awareness: Evidence from the field. *Journal of Behavioral and Experimental
    Economics*, *66*, 88–95.

Escalas, J. E., & Bettman, J. R. (2003). You are what they eat: The influence of reference groups
    on consumers' connections to brands. *Journal of Consumer Psychology*, *13*(3), 339–348.

Feiler, D. C., Tost, L. P., & Grant, A. M. (2012). Mixed reasons, missed givings: The costs of
    blending egoistic and altruistic reasons in donation requests. *Journal of Experimental
    Social Psychology*, 48(6), 1322-1328

Fitzsimons, G. J., & Lehmann, D. R. (2004). Reactance to recommendations: When unsolicited
    advice yields contrary responses. *Marketing Science*, 23(1), 82-94.

Frey, B. S., & Meier, S. (2004). Social comparisons and pro-social behavior: Testing"
    conditional cooperation" in a field experiment. *The American Economic Review*, *94*(5),
    1717–1722.

Goswami, I., & Urminsky, O. (2016a). When Should the Ask Be a Nudge? The Effect of Default
    Amounts on Charitable Donations. *Journal of Marketing Research*, *53*(5), 829–846.

Goswami, I., & Urminsky, O. (2016b, December 29). When and How Fundraisers Should
    Suggest How Much to Donate, HBR.org

Harbaugh, W. T. (1998). The prestige motive for making charitable transfers. *The American
    Economic Review*, *88*(2), 277–282.

Harrison, G. W., & List, J. A. (2004). Field experiments. *Journal of Economic Literature*, *42*(4),
    1009–1055.

Huck, S., & Rasul, I. (2011). Matched fundraising: Evidence from a natural field experiment. *Journal of Public Economics*, *95*(5), 351–362.

Huck, S., Rasul, I., & Shephard, A. (2013). Comparing charitable fundraising schemes: Evidence from a natural field experiment and a structural model.

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

Karlan, D., & List, J. A. (2012). How can Bill and Melinda Gates increase other people's donations to fund public goods? National Bureau of Economic Research.

Karlan, D., List, J. A., & Shafir, E. (2011). Small matches and charitable giving: Evidence from a natural field experiment. *Journal of Public Economics*, *95*(5), 344–350.

Karlan, D. S., & List, J. A. (2006). *Does Price Matter in Charitable Giving? Evidence from a Large-Scale Natural Field Experiment* (SSRN Scholarly Paper). Rochester, NY: Social Science Research Network.

Landry, C. E., Lange, A., List, J. A., Price, M. K., & Rupp, N. G. (2006). Toward an understanding of the economics of charity: Evidence from a field experiment. *The Quarterly Journal of Economics*, *121*(2), 747–782.

Landry, C. E., Lange, A., List, J. A., Price, M. K., & Rupp, N. G. (2010). Is a Donor in Hand Better than Two in the Bush? Evidence from a Natural Field Experiment. *The American Economic Review*, *100*(3), 958–983.

Landry, C. E., Lange, A., List, J. A., Price, M. K., & Rupp, N. G. (2011). *The hidden benefits of control: Evidence from a natural field experiment*. National Bureau of Economic Research.

Lange, A., List, J. A., & Price, M. K. (2007). Using lotteries to finance public goods: Theory and experimental evidence. *International Economic Review*, 48(3), 901-927.

Latané, B., Williams, K., & Harkins, S. (1979). Many hands make light the work: The causes and consequences of social loafing. *Journal of Personality and Social Psychology*, *37*(6), 822.

Leonhardt, D. (2008, March 9). What Makes People Give? *The New York Times*.

List, J. A., & 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.

List, J. A., & Price, M. K. (2009). The role of social connections in charitable fundraising: Evidence from a natural field experiment. *Journal of Economic Behavior & Organization*, 69(2), 160-169.

List, J. A., Murphy, J. J., Price, M. K., & James, A. G. (2019). Do Appeals to Donor Benefits Raise More Money than Appeals to Recipient Benefits? Evidence from a Natural Field Experiment with Pick. Click. Give.

Martin, R., & Randal, J. (2009). How Sunday, price, and social norms influence donation behaviour. *The Journal of Socio-Economics*, *38*(5), 722–727.

Meier, S. (2007). Do subsidies increase charitable giving in the long run? Matching donations in a field experiment. *Journal of the European Economic Association*, *5*(6), 1203–1222.

Meier, S., & Frey, B. S. (2004). Matching donations: subsidizing charitable giving in a field experiment.

Mislavsky, R., Dietvorst, B. J., & Simonsohn, U. (2019). The minimum mean paradox: A mechanical explanation for apparent experiment aversion. *Proceedings of the National Academy of Sciences*, 116(48), 23883-23884.

Oppenheimer, D., Meyvis, T., & Davidenko, N. (2009). Instructional manipulation checks: Detecting satisficing to increase statistical power, *Journal of Experimental Social Psychology*. 45 (4): 867–872.

Ribar, D. C., & Wilhelm, M. O. (2002). Altruistic and joy-of-giving motivations in charitable behavior. *Journal of Political Economy*, *110*(2), 425–457.

Rondeau, D., & List, J. A. (2008). Matching and challenge gifts to charity: evidence from laboratory and natural field experiments. *Experimental Economics*, *11*(3), 253–267.

Sanders, M., Smith, S., & Norton, M. I. (2013). Non-standard matches and charitable giving.

Shen, Luxi, Christopher K. Hsee, Qingsheng Wu, and Claire I. Tsai. "Overpredicting and underprofiting in pricing decisions." *Journal of Behavioral Decision Making* 25, no. 5 (2012): 512-521.

Shang, J., & Croson, R. (2009). A field experiment in charitable contribution: The impact of social information on the voluntary provision of public goods. *The Economic Journal*, 119(540), 1422–1439.

Tonin, M., & Vlassopoulos, M. (2010). Disentangling the sources of pro-socially motivated effort: A field experiment. *Journal of Public Economics*, 94(11-12), 1086-1092.

Zhang, C. Y., & Sussman, A. B. (2017). The role of mental accounting in household spending and investing decisions. *Client Psychology. New York: Wiley*.

Online Appendix

Contents

Experimental Stimuli: Survey of Experts (Study 1)

Introduction

We are planning to **test a few matching fundraising solicitations on prior donors** of a local non-profit. The non-profit promotes young artists by organizing exhibitions and workshops. It also offers summer art classes for children.

The solicitations will be sent using postal mail. The mail will include an appeal letter, a pledge card, and a return envelope.

Random groups of donors will be sent different matching solicitations, and we are interested to compare the groups on participation (**average donate rate**) and the amount donated by participating donors (**average donation amount**).

We are interested in your opinion about these matching fundraising solicitations. There are no right or wrong answers.

We are **planning to test five (5) different appeal letters**. A random group of **prior donors will see only one letter**.

Below you will see the actual texts (shown within quotation signs) in these letters. Please review them carefully before answering a few questions about them.

Details about the five appeals (including control) shown to the experts

1. Control

"During our 75th Anniversary, we hope you will continue to join us in demonstrating your commitment to Chicago's art and artists by making a contribution today."

2. Standard Matching

"In recognition of the Organization's success over its 75-year history, a supporter has offered a matching grant to encourage you to increase your donation and invest in our future.

This supporter will give $1 for EVERY $1 you contribute. **So, for every dollar you give**, we will receive two dollars in support of our programs — your dollar and a dollar from this supporter.

Let's not lose this match — please give today!"

3. Standard Matching with Credit to the Donor

"In recognition of the Organization's success over its 75-year history, a supporter has offered a matching grant to encourage you to increase your donation and invest in our future.

This supporter **will add $1 to your contribution** for EVERY $1 you give. So, for each dollar you give, **we will receive two on your behalf** in support of our programs.

Let's not lose this match—please give today!"

4. Incremental Matching

"In recognition of the Organization's success over its 75-year history, a supporter has offered a matching grant to encourage you to increase your donation and invest in our future.

This supporter **will give $1 for every additional $1 you donate OVER your last gift**. So, for each dollar you add to the amount of your last contribution of $«PREVIOUS», we will receive two in support of our programs —your dollar and a dollar from this supporter.

Let's not lose this match — please give today!"

[the placeholder $<<PREVIOUS>> reminded the donor about his/her last contribution amount]

5. Incremental Matching with Credit to the Donor

"In recognition of the Organization's success over its 75-year history, a supporter has offered a matching grant to encourage you to increase your donation and invest in our future.

This supporter **will add $1 to your contribution for every $1 you donate OVER your last gift**. So, for every dollar you add to the amount of your last contribution of $«PREVIOUS», **we will receive two dollars on your behalf** in support of our programs.

Let's not lose this match—please give today!"

[the placeholder $<<PREVIOUS>> reminded the donor about his/her last contribution amount]

Illustrative example of a comparison (Standard matching with regular framing vs. Control)

Considering the control and the standard matching conditions, shown below once again, please answer the two questions that follow.

1. Control

"During our 75th Anniversary, we hope you will continue to join us in demonstrating your commitment to Chicago's art and artists by making a contribution today."

2. Standard Matching

"In recognition of the Organization's success over its 75-year history, a supporter has offered a matching grant to encourage you to increase your donation and invest in our future.

This supporter will give $1 for EVERY $1 you contribute. **So, for every dollar you give**, we will receive two dollars in support of our programs — your dollar and a dollar from this supporter.

Let's not lose this match — please give today!"

Compared to the **Control** condition, do you think *participation* (i.e., number of people responding to the appeal) would be HIGHER in the **Standard Matching** condition?

Definitely Yes	Probably Yes	Cannot Predict	Probably No	Definitely No
○	○	○	○	○

Compared to the **Control** condition, do you think *average donation amount* (i.e., non-zero dollar amount donated by those who decided to respond to the appeal) would be HIGHER in the **Standard Matching** condition?

Definitely Yes	Probably Yes	Cannot Predict	Probably No	Definitely No
○	○	○	○	○

Experimental Stimuli: Survey of Experts (Study 2)

Introduction after passing screener

(1/4) Thank you for your answers. The main survey will begin now. This will take approximately 5-10 minutes to complete.

We are doing some academic research on fundraising solicitations and your feedback will be immensely valuable to better understand the effectiveness of fundraising strategies.

(2/4) One common solicitation technique used in fundraising is **matching donations.** There could be several types of matching. For example, every dollar donated could be matched by a dollar from a generous benefactor.

(3/4) We are interested in **testing matching-based fundraising campaigns which target prior donors** of an actual local non-profit. The non-profit promotes young artists by organizing exhibitions and workshops. It also offers summer art classes for children.

The solicitations will be sent using postal mail. The mail will include an appeal letter, a pledge card, and a return envelope.

Randomized groups of donors will each be sent a different matching solicitations, and **we are interested in how you would evaluate these matching fundraising solicitations.**

(4/4) **We are interested in your opinion** about these matching fundraising solicitations. There are no right or wrong answers.

Main questions asked for the standard matching with regular framing (Appeal A). Appeal A is evaluated first in this illustrative example.

<u>Appeal A</u>

"For a limited time, a supporter has offered a matching grant to encourage you to increase your donation and invest in our future. This supporter will give $1 for EVERY $1 you contribute. So, for each dollar you give, we will receive two dollars in support of our programs — YOUR DOLLAR AND A DOLLAR FROM THIS SUPPORTER.

Let's not lose this match — please give today!"

How would you rate this appeal in terms of its ability to increase **participation** (i.e., the number of people responding to the appeal)?

1. Low ability to increase participation	2	3	4	5	6. High ability to increase participation

How would you rate this appeal in terms of its ability to increase **donation** (i.e., the amount donated by those who send money in response to the appeal)

1. Low ability to increase donation	2	3	4	5	6. High ability to increase donation

Follow-up questions asked for the standard matching with regular framing (Appeal A). Appeal A is evaluated first in this illustrative example.

Appeal A

"For a limited time, a supporter has offered a matching grant to encourage you to increase your donation and invest in our future. This supporter will give $1 for EVERY $1 you contribute. So, for each dollar you give, we will receive two dollars in support of our programs – YOUR DOLLAR AND A DOLLAR FROM THIS SUPPORTER.

Let's not lose this match – please give today!"

Please rate the degree to which you think potential donors would see this appeal as an overall beneficial opportunity to donate?

1. Poor opportunity to donate	2	3	4	5	6. Good opportunity to donate

Please rate the degree to which you think this appeal would make potential donors feel personally good about giving?

1. Low impact on feeling good	2	3	4	5	6. High impact on feeling good

Please rate this appeal on the degree to which you think potential donors would feel that they are helping others?

1. Low feeling of helping others	2	3	4	5	6. High feeling of helping others

Please rate this appeal on the degree to which you think potential donors would feel personally responsible for the funds that the non-profit will receive?

1. Low responsibility for the funds received	2	3	4	5	6. High responsibility for the funds received

Please rate this appeal on the degree to which you think potential donors would find it easy to understand the terms of the matching campaign?

1. Not at all easy to understand	2	3	4	5	6. Very easy to understand

Please rate the degree to which you think this appeal would feel pushy or manipulative to potential donors?

1. Not at all pushy or manipulative	2	3	4	5	6. Highly pushy or manipulative

Transition before within-subject evaluation of the next appeal.

Now you will see the relevant portion from a <u>different</u> **appeal letter. A different randomized group** of prior donors **would receive this letter.**

Main questions for the "giving-credit" framing (Appeal B). Appeal B is evaluated second in this illustrative example

The difference between the messages is highlighted in different colors.

Appeal A

"For a limited time, a supporter has offered a matching grant to encourage you to increase your donation and invest in our future. This supporter will give $1 for EVERY $1 you contribute. So, for each dollar you give, we will receive two dollars in support of our programs – YOUR DOLLAR AND A DOLLAR FROM THIS SUPPORTER.

Let's not lose this match – please give today!"

Appeal B

"For a limited time, a supporter has offered a matching grant to encourage you to increase your donation and invest in our future. This supporter will ADD $1 TO YOUR CONTRIBUTION for EVERY $1 you give. So, for each dollar you give, we will receive TWO DOLLARS ON YOUR BEHALF in support of our programs.

Let's not lose this match–please give today!"

How would you rate **Appeal B** in terms of its ability to increase **participation** (i.e., the number of people responding to the appeal)?

For comparison, your rating of **Appeal A** on the same question was: 4

1. Low ability to increase participation	2	3	4	5	6. High ability to increase participation

How would you rate **Appeal B** in terms of its ability to increase **donation** (i.e., the amount donated by those who send money in response to the appeal)

For comparison, your rating of **Appeal A** on the same question was: 4

1. Low ability to increase donation	2	3	4	5	6. High ability to increase donation

Follow-up questions for the "giving-credit" framing (Appeal B). Appeal B is evaluated second in this illustrative example.

1

The difference between the messages is highlighted in different colors.

Appeal A

"For a limited time, a supporter has offered a matching grant to encourage you to increase your donation and invest in our future. This supporter will give $1 for EVERY $1 you contribute. So, for each dollar you give, we will receive two dollars in support of our programs – YOUR DOLLAR AND A DOLLAR FROM THIS SUPPORTER.

Let's not lose this match – please give today!"

Appeal B

"For a limited time, a supporter has offered a matching grant to encourage you to increase your donation and invest in our future. This supporter will ADD $1 TO YOUR CONTRIBUTION for EVERY $1 you give. So, for each dollar you give, we will receive TWO DOLLARS ON YOUR BEHALF in support of our programs.

Let's not lose this match—please give today!"

Please rate the degree to which you think potential donors would see **Appeal B** as an overall beneficial opportunity to donate?

For comparison, your rating of **Appeal A** on the same question was: 3

1. Poor opportunity to donate	2	3	4	5	6. Good opportunity to donate

---

Please rate the degree to which you think **Appeal B** would make potential donors feel personally good about giving?

For comparison, your rating of **Appeal A** on the same question was: 4

1. Low impact on feeling good	2	3	4	5	6. High impact on feeling good

2

Please rate **Appeal B** on the degree to which you think potential donors would feel that they are helping others?

For comparison, your rating of **Appeal A** on the same question was: 3

1. Low feeling of helping others	2	3	4	5	6. High feeling of helping others

---

Please rate **Appeal B** on the degree to which you think potential donors would feel personally responsible for the funds that the non-profit will receive?

For comparison, your rating of **Appeal A** on the same question was: 3

1. Low responsibility for the funds received	2	3	4	5	6. High responsibility for the funds received

---

Please rate **Appeal B** on the degree to which you think potential donors would find it easy to understand the terms of the matching campaign?

For comparison, your rating of **Appeal A** on the same question was: 3

1. Not at all easy to understand	2	3	4	5	6. Very easy to understand

---

Please rate the degree to which you think **Appeal B** would feel pushy or manipulative to potential donors?

For comparison, your rating of **Appeal A** on the same question was: 3

1. Not at all pushy or manipulative	2	3	4	5	6. Highly pushy or manipulative

Experimental Stimuli: Field Experiment (Study 3)

Letter sent to prior donors in control condition

<div align="right">September 5, 2014</div>

«Name»

«Company»

«Address»

«City», «State» «Postal_Code»

Dear «Short_Salutation»,

Art enters our lives at different moments, both intentionally and unexpectedly. For some, it is a brief yet memorable encounter; for others, a long-term relationship that has been cultivated over years. And for many more, art is an essential part of life—something that has always been there, engrained in everything you do. Whatever your relationship, the fact that art begins and ends with people is universal. Art exists solely because of the people who communicate through it, interpret it, share in it—you.

At the Hyde Park Art Center, we work to make sure that anyone in our city can participate and progress in the visual arts. With your help, we provide long-term arts education both within our award-winning facility and inside of our neighboring south side Chicago Public Schools. Alongside this work, we nurture artistic advancement and launch diverse Chicago artists into the international contemporary art dialogue.

Successfully carrying out and intertwining these differing activities has grown our audience to over 45,000 participants each year and gained us national recognition as a model for how an organization can develop its city's artists while remaining accessible and relevant to its immediate community.

During our 75th Anniversary, we hope you will continue to join us in demonstrating your commitment to Chicago's art and artists by making a contribution to the Hyde Park Art Center today.

By investing in the Art Center you will: provide artists at all levels the opportunity to challenge their practice and take the next step in their career; empower students to learn new skills through art and become positive leaders amongst their peers; and, continue to build a vibrant community of art participants and supporters in Chicago.

We truly appreciate your involvement and support, and hope to see you soon!

Thank you,

Christina Jensen
Deputy Director

P.S. Please join us on Saturday, September 13 from 12 - 9 PM for our free 75th Anniversary BBQ Block Party Bash. You can find out more about the Block Party, all of our programs, and make a gift online at hydeparkart.org.

Letter sent to prior donors in standard matching with regular framing condition

September 5, 2014

«Name»

«Company»

«Address»

«City», «State» «Postal_Code»

Dear «Short_Salutation»,

Art enters our lives at different moments, both intentionally and unexpectedly. For some, it is a brief yet memorable encounter; for others, a long-term relationship that has been cultivated over years. And for many more, art is an essential part of life—something that has always been there, engrained in everything you do. Whatever your relationship, the fact that art begins and ends with people is universal. Art exists solely because of the people who communicate through it, interpret it, share in it—you.

At the Hyde Park Art Center, we work to make sure that anyone in our city can participate and progress in the visual arts. With your help, we provide long-term arts education both within our award-winning facility and inside of our neighboring south side Chicago Public Schools. Alongside this work, we nurture artistic advancement and launch diverse Chicago artists into the international contemporary art dialogue.

Successfully carrying out and intertwining these differing activities has grown our audience to over 45,000 participants each year and gained us national recognition as a model for how an organization can develop its city's artists while remaining accessible and relevant to its immediate community.

During our 75th Anniversary, we hope you will join us in demonstrating your commitment to Chicago's art and artists by making a contribution to the Hyde Park Art Center. **In recognition of the Art Center's success over its 75 year history, a supporter has offered a matching grant to encourage you to increase your donation and invest in our future.**

This supporter will give $1 for EVERY $1 you contribute. **So, for each dollar you give, we will receive two dollars in support of our programs—your dollar and a dollar from this supporter.**

By investing in the Art Center you will: provide artists at all levels the opportunity to challenge their practice and take the next step in their career; empower students to learn new skills through art and become positive leaders amongst their peers; and, continue to build a vibrant community of art participants and supporters in Chicago.

We truly appreciate your involvement and past support, and hope that you will help us take advantage of this matching grant and give today!

Thank you,

Christina Jensen
Deputy Director

P.S. Please join us on Saturday, September 13 from 12 - 9 PM for our free 75th Anniversary BBQ Block Party Bash. You can find out more about the Block Party, all of our programs, and make a gift online at hydeparkart.org.

Letter sent to prior donors in standard matching with "giving-credit" framing condition

September 5, 2014

«Name»

«Company»

«Address»

«City», «State» «Postal_Code»

Dear «Short_Salutation»,

Art enters our lives at different moments, both intentionally and unexpectedly. For some, it is a brief yet memorable encounter; for others, a long-term relationship that has been cultivated over years. And for many more, art is an essential part of life—something that has always been there, engrained in everything you do. Whatever your relationship, the fact that art begins and ends with people is universal. Art exists solely because of the people who communicate through it, interpret it, share in it—you.

At the Hyde Park Art Center, we work to make sure that anyone in our city can participate and progress in the visual arts. With your help, we provide long-term arts education both within our award-winning facility and inside of our neighboring south side Chicago Public Schools. Alongside this work, we nurture artistic advancement and launch diverse Chicago artists into the international contemporary art dialogue.

Successfully carrying out and intertwining these differing activities has grown our audience to over 45,000 participants each year and gained us national recognition as a model for how an organization can develop its city's artists while remaining accessible and relevant to its immediate community.

During our 75th Anniversary, we hope you will join us in demonstrating your commitment to Chicago's art and artists by making a contribution to the Hyde Park Art Center. **In recognition of the Art Center's success over its 75 year history, a supporter has offered a matching grant to encourage you to increase your donation and invest in our future.**

This supporter will add $1 to your contribution for EVERY $1 you give. **So, for each dollar you give, we will receive two on your behalf in support of our programs.**

By investing in the Art Center you will: provide artists at all levels the opportunity to challenge their practice and take the next step in their career; empower students to learn new skills through art and become positive leaders amongst their peers; and, continue to build a vibrant community of art participants and supporters in Chicago.

We truly appreciate your involvement and past support, and hope that you will help us take advantage of this matching grant and give today!

Thank you,

Christina Jensen
Deputy Director

P.S. Please join us on Saturday, September 13 from 12 - 9 PM for our free 75th Anniversary BBQ Block Party Bash. You can find out more about the Block Party, all of our programs, and make a gift online at hydeparkart.org.

Letter sent to prior donors in threshold matching with regular framing condition

September 5, 2014

«Name»

«Company»

«Address»

«City», «State» «Postal_Code»

Dear «Short_Salutation»,

Art enters our lives at different moments, both intentionally and unexpectedly. For some, it is a brief yet memorable encounter; for others, a long-term relationship that has been cultivated over years. And for many more, art is an essential part of life—something that has always been there, engrained in everything you do. Whatever your relationship, the fact that art begins and ends with people is universal. Art exists solely because of the people who communicate through it, interpret it, share in it—you.

At the Hyde Park Art Center, we work to make sure that anyone in our city can participate and progress in the visual arts. With your help, we provide long-term arts education both within our award-winning facility and inside of our neighboring south side Chicago Public Schools. Alongside this work, we nurture artistic advancement and launch diverse Chicago artists into the international contemporary art dialogue.

Successfully carrying out and intertwining these differing activities has grown our audience to over 45,000 participants each year and gained us national recognition as a model for how an organization can develop its city's artists while remaining accessible and relevant to its immediate community.

During our 75th Anniversary, we hope you will join us in demonstrating your commitment to Chicago's art and artists by making a contribution to the Hyde Park Art Center. **In recognition of the Art Center's success over its 75 year history, a supporter has offered a matching grant to encourage you to increase your donation and invest in our future.**

This supporter will give $1 for every additional $1 you donate OVER your last gift. **So, for each dollar you add to the amount of your last contribution of $«Gift», we will receive two in support of our programs—your dollar and a dollar from this supporter.**

By investing in the Art Center you will: provide artists at all levels the opportunity to challenge their practice and take the next step in their career; empower students to learn new skills through art and become positive leaders amongst their peers; and, continue to build a vibrant community of art participants and supporters in Chicago.

We truly appreciate your involvement and past support, and hope that you will help us take advantage of this matching grant and give today!

Thank you,

Christina Jensen

Deputy Director

P.S. Please join us on Saturday, September 13 from 12 - 9 PM for our free 75th Anniversary BBQ Block Party Bash. You can find out more about the Block Party, all of our programs, and make a gift online at hydeparkart.org.

Letter sent to prior donors in threshold matching with "giving-credit" framing condition

September 5, 2014

«Name»

«Company»

«Address»

«City», «State» «Postal_Code»

Dear «Short_Salutation»,

Art enters our lives at different moments, both intentionally and unexpectedly. For some, it is a brief yet memorable encounter; for others, a long-term relationship that has been cultivated over years. And for many more, art is an essential part of life—something that has always been there, engrained in everything you do. Whatever your relationship, the fact that art begins and ends with people is universal. Art exists solely because of the people who communicate through it, interpret it, share in it—you.

At the Hyde Park Art Center, we work to make sure that anyone in our city can participate and progress in the visual arts. With your help, we provide long-term arts education both within our award-winning facility and inside of our neighboring south side Chicago Public Schools. Alongside this work, we nurture artistic advancement and launch diverse Chicago artists into the international contemporary art dialogue.

Successfully carrying out and intertwining these differing activities has grown our audience to over 45,000 participants each year and gained us national recognition as a model for how an organization can develop its city's artists while remaining accessible and relevant to its immediate community.

During our 75th Anniversary, we hope you will join us in demonstrating your commitment to Chicago's art and artists by making a contribution to the Hyde Park Art Center. **In recognition of the Art Center's success over its 75 year history, a supporter has offered a matching grant to encourage you to increase your donation and invest in our future.**

This supporter will add $1 to your contribution for every $1 you donate OVER your last gift. **So, for every dollar you add to the amount of your last contribution of $«Gift», we will receive two dollars on your behalf in support of our programs.**

By investing in the Art Center you will: provide artists at all levels the opportunity to challenge their practice and take the next step in their career; empower students to learn new skills through art and become positive leaders amongst their peers; and, continue to build a vibrant community of art participants and supporters in Chicago.

We truly appreciate your involvement and past support, and hope that you will help us take advantage of this matching grant and give today!

Thank you,

Christina Jensen
Deputy Director

P.S. Please join us on Saturday, September 13 from 12 - 9 PM for our free 75th Anniversary BBQ Block Party Bash. You can find out more about the Block Party, all of our programs, and make a gift online at hydeparkart.org.

Pledge Card included in all conditions

Thank you for your support!

O $50 O $75 O $100 O $250 O $500 O $1,000* O $2,500* O Other $ _____

O I'd like to support the Art Center all year long by making a monthly gift of $ _____ ending on _____
                                                                                                Month   Year

*Gifts of $1,000+ give you access to *Ruth's Circle*, the Art Center's group of dedicated supporters who, like the group's namesake Ruth Horwich, impact Chicago's art and artists directly by deeply investing in the Art Center's exhibition, residency, education, and outreach programs. For more info visit hydeparkart.org.

Board of Directors

Chair: Janis Kanter **Vice Chair**: Julie Guida **Secretary**: Richard Wright **Treasurer**: Nancy Fishman **Honorary Chair**: The late Ruth Horwich**
Dawoud Bey • Jillisa Brittan • Martha Clinton • Louis D'Angelo • Erika Dudley • Lawrence J. Furnstahl** • Theaster Gates • Deone Jackman** • Kineret Jaffe • Justine Jentes
Lisa Kornick • Edward G. Lance IV** • Trinita Logue • Lauren Moltz • Jason Saul • Robert Sullivan • Greg Thompson • Barbara Wagner • Angela Williams Walker

**former board chair

Name (as you wish to be recognized)   O I would like my gift to remain anonymous.
                                                        O My company matches employee gifts (form enclosed).
Address   O I would like to learn more about my planned giving options.

City   State   Zip   O This gift is in honor of: _____

Email   Phone   Address
O Check enclosed to Hyde Park Art Center
Please charge my: O Visa O MasterCard O American Express   City   State   Zip   Hyde Park
                                                                                                          ART
Card #   Exp. Date   **Donate or become a member online at hydeparkart.org**   CEN
                                                        Your gift is tax deductible as provided by law.   TER

Return envelope in control condition

Join!
Celebrate the Hyde Park Art Center community,
and help make 75 our best year yet!

Hyde Park **ART**CENTER
5020 S. Cornell Avenue
Chicago, IL 60615

Return envelope in standard matching with regular framing condition

Join!
Celebrate the Hyde Park Art Center community, and help make 75 our best year yet!

In recognition of the Art Center's success over its 75 year history, a supporter has offered a matching grant to encourage you to donate and invest in our future.

This supporter will give $1 for EVERY $1 you contribute. **So, for every dollar you give, we will receive two dollars in support of our programs —your dollar and a dollar from this supporter.** Let's not lose this match—please give today!

Hyde Park **ART** CENTER
5020 S. Cornell Avenue
Chicago, IL 60615

Return envelope in standard matching with "giving-credit" framing condition

Join!
Celebrate the Hyde Park Art Center community, and help make 75 our best year yet!

In recognition of the Art Center's success over its 75 year history, a supporter has offered a matching grant to encourage you to donate and invest in our future.

This supporter will add $1 to your contribution for EVERY $1 you give. So, for each dollar you give, we will receive two on your behalf in support of our programs. Let's not lose this match—please give today!

Hyde Park **ART** CENTER
5020 S. Cornell Avenue
Chicago, IL 60615

Return envelope in threshold matching with regular framing condition

Return envelope in threshold matching with "giving-credit" framing condition

Experimental Stimuli: Field Experiment (Study 4)

Letter sent to prior donors in standard matching with regular framing condition

<div align="right">May 7, 2018</div>

[Long Salutation]
[Address Lines]
[City], [State], [Postal Code]

"The Art Center is a key component of the community. It is the space where people gather to share ideas, projects, and experiences. The Art Center has allowed me to meet people and to better know our neighborhood, its history, and its community."   –Hyde Park Art Center
Student

<div align="right">Spring 2018 Portrait Painting Class with Teaching Artist Randall Miller</div>

Dear [Short Salutation],

Behind the Coca Cola machine that serves as a secret passageway at Hyde Park Art Center, the Oakman Clinton School & Studios reverberate with creative energy. Sometimes the spaces are quiet and artists are focused. At other times, the studios buzz with conversation, critique, instruction, and exchange of ideas between people of all different backgrounds. Seven days a week, art projects are started, reworked, and completed.

On Saturday mornings, the drawing and painting studio fills with people who know each other well. Some artists have taken this class for years and are honing their craft. "Our Portrait Painting class is like a community within the community," says teaching artist Randall Miller. "Many of the artists have been taking Portrait for years, nurturing friendships as well as individual talent. There is an amazing collective wisdom to the group; techniques, ideas about materials, and even coupons for art supplies are shared freely." At the same time, new students are quickly welcomed into the micro-community of the classroom and the larger community of the Art Center.

<div align="center">76</div>

Whether you are a long-time class-taker, or you have never been behind the "Coke door," your personal investment of money, time, or other resources is what makes the Art Center thrive. **We hope you will continue to support these creative communities by making a financial contribution to Hyde Park Art Center today.**

For a limited time, a supporter has offered a matching grant to encourage you to increase your donation and invest in our future.

This supporter will GIVE $1 for EVERY $1 you contribute. **So, for each dollar you give, we will receive two dollars in support of our programs—YOUR DOLLAR AND A DOLLAR FROM THIS SUPPORTER.**

Hyde Park Art Center is one of the only places in Chicago where art makers of all levels, ages, and stages come together in an inclusive learning environment. Each person's perspectives are specific and personal, but also contribute to an environment of exchange and conversation where the whole is greater than the sum of its parts. "I've been working with Hyde Park Art Center for some time, and it's been a pleasure being part of such a diverse community," says DaLawn Simpson, a regular figure model for the Portrait Painting class and others such as Sculpture: Portrait & Figure, and The Figure in Watercolor. (Simpson is pictured above as the subject of students' paintings.) "Society would find it very beneficial to have more facilities like this."

In an increasingly polarized society, institutions that bridge the economic, racial, and geographic lines that divide us through art-making, like those in Hyde Park Art Center's studios, are more important now than ever.

Your contribution today will help the Art Center continue offering 200 skill-based courses annually in painting, drawing, ceramics, textiles, printmaking, digital media, and more while ensuring all spaces in the building are vibrant and diverse learning environments. **Because of supporters like you, the Art Center is able to welcome both long-time class-takers and newcomers who might not otherwise be able to participate to learn skills like portrait painting.**

We truly appreciate your involvement and hope that you will help us take advantage of this matching grant and give today!

Sincerely,

Kate Lorenz

Executive Director

Letter sent to prior donors in standard matching with "giving-credit" framing condition

<div align="right">May 7, 2018</div>

[Long Salutation]
[Address Lines]
[City], [State], [Postal Code]

"The Art Center is a key component of the community. It is the space where people gather to share ideas, projects, and experiences. The Art Center has allowed me to meet people and to better know our neighborhood, its history, and its community." —Hyde Park Art Center
Student

<div align="right">Spring 2018 Portrait Painting Class with Teaching Artist Randall Miller</div>

Dear [Short Salutation],

Behind the Coca Cola machine that serves as a secret passageway at Hyde Park Art Center, the Oakman Clinton School & Studios reverberate with creative energy. Sometimes the spaces are quiet and artists are focused. At other times, the studios buzz with conversation, critique, instruction, and exchange of ideas between people of all different backgrounds. Seven days a week, art projects are started, reworked, and completed.

On Saturday mornings, the drawing and painting studio fills with people who know each other well. Some artists have taken this class for years and are honing their craft. "Our Portrait Painting class is like a community within the community," says teaching artist Randall Miller. "Many of the artists have been taking Portrait for years, nurturing friendships as well as individual talent. There is an amazing collective wisdom to the group; techniques, ideas about materials, and even coupons for art supplies are shared freely." At the same time, new students are quickly welcomed into the micro-community of the classroom and the larger community of the Art Center.

Whether you are a long-time class-taker, or you have never been behind the "Coke door," your personal investment of money, time, or other resources is what makes the Art Center thrive. **We hope you will continue to support these creative communities by making a financial contribution to Hyde Park Art Center today.**

For a limited time, a supporter has offered a matching grant to encourage you to increase your donation and invest in our future.

This supporter will ADD $1 TO YOUR CONTRIBUTION for EVERY $1 you give. **So, for each dollar you give, we will receive TWO DOLLARS ON YOUR BEHALF in support of our programs.**

Hyde Park Art Center is one of the only places in Chicago where art makers of all levels, ages, and stages come together in an inclusive learning environment. Each person's perspectives are specific and personal, but also contribute to an environment of exchange and conversation where the whole is greater than the sum of its parts. "I've been working with Hyde Park Art Center for some time, and it's been a pleasure being part of such a diverse community," says DaLawn Simpson, a regular figure model for the Portrait Painting class and others such as Sculpture: Portrait & Figure, and The Figure in Watercolor. (Simpson is pictured above as the subject of students' paintings.) "Society would find it very beneficial to have more facilities like this."

In an increasingly polarized society, institutions that bridge the economic, racial, and geographic lines that divide us through art-making, like those in Hyde Park Art Center's studios, are more important now than ever.

Your contribution today will help the Art Center continue offering 200 skill-based courses annually in painting, drawing, ceramics, textiles, printmaking, digital media, and more while ensuring all spaces in the building are vibrant and diverse learning environments. **Because of supporters like you, the Art Center is able to welcome both long-time class-takers and newcomers who might not otherwise be able to participate to learn skills like portrait painting.**

We truly appreciate your involvement and hope that you will help us take advantage of this matching grant and give today!

Sincerely,

Kate Lorenz

Executive Director

Pledge Card included in all conditions

Grey areas do not print: to indicate glue areas

Hyde Park ART CENTER

Yes! I want to support Chicago's Art, Artists & Creative Community!

O $50 O $100 O $250 O $500 O $1,000* O $2,500* O $5,000* O Other $ _____

O I'd like to make this an ongoing monthly gift ending on _____ (credit/debit cards only)
                                                                              Month   Year

Donate or become a member online at: **www.hydeparkart.org/donate**

*Giving at this level includes you as a member of Ruth's Circle, the Art Center's dedicated group of annual supporters who receive additional benefits.

_____
Name (as you wish it to appear in donor listings)

_____
Address

_____
City   State   Zip

_____
Email   Phone

O Check enclosed to Hyde Park Art Center
Please charge my: O Visa O MasterCard O American Express

_____
Card #   Exp. Date   CVV

O I would like for my gift to remain anonymous.

O My company matches employee gifts.

O I would like to learn more about leaving a legacy in my will.

O This gift is in honor of: _____

_____

_____
Address

_____
City   State   Zip

Thank you for your generosity!

80

Return envelope in standard matching with regular framing condition

Return envelope in standard matching with "giving-credit" framing condition

Study 4 pre-registration from aspredicted.org
http://aspredicted.org/blind.php?x=na3yk9

CONFIDENTIAL - FOR PEER-REVIEW ONLY

Matching Field Study 2018 (#11631)

Created: 06/06/2018 11:13 AM (PT)
Shared: 09/08/2018 11:37 PM (PT)

This pre-registration is not yet public. This anonymized copy (without author names) was created by the author(s) to use during peer-review. A non-anonymized version (containing author names) will become publicly available only if an author makes it public. Until that happens the contents of this pre-registration are confidential.

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?
A matching solicitation that gives donors credit for dollars obtained via matching ("giving-credit" intervention) will perform no better than a standard matching solicitation, although standard theories of impure altruism will predict at least a weakly better performance of the giving-credit intervention. We predict that the giving-credit intervention will perform worse than standard matching.

3) Describe the key dependent variable(s) specifying how they will be measured.
We will track three DVs: participation, average non-zero contribution, and average money raised per mail

4) How many and which conditions will participants be assigned to?
Two between-subject conditions:

Condition 1: Standard 1:1 matching.
The operative text in the solicitation letter will say: "So, for each dollar you give, the Center will receive two dollars in support of our programs "your dollar and a dollar from this supporter."

Condition 2: Giving-Credit matching.
The operative text in the solicitation letter will say: "The supporter will add $1 to your contribution for every $1 you give. So, for each dollar you give, we will receive two dollars on your behalf in support of our programs."

5) Specify exactly which analyses you will conduct to examine the main question/hypothesis.
This field study is meant to collect fresh data and replicate the results of a prior field study that we ran. So, we intend to run the same set of analyses with the new data.

Primary Analysis: We will do a t-test comparing the mean values of money raised per mail in the two experimental conditions. We will do a t-test comparing the mean values of non-zero contributions in the two experimental conditions. Finally, we will compare the average participation in the two experimental conditions using a Chi-Square test.

Secondary Analysis: We will collect information on covariates that might be good predictors of the DVs of interest. These covariates include last donated amount, last donation date, median income (based on zip code), total lifetime donation amount, the total number of prior donations. We will examine the effect of experimental conditions controlling for these variables, and the potential moderating effect of these variables on the effect of experimental conditions.

In addition, we are trying to get data from our partner on a few additional covariates like the first donation amount (and date) and the largest donation amount (and date). If we get this data, we will also run the above analyses with these variables.

Finally, unlike our previous field experiment, in this experiment, we will have prior-donors as well as a smaller group of non-donors. We will examine the potential moderating effect of this variable (i.e., donor type) on the effect of experimental conditions. We will also analyze these two groups separately since many of the covariates will be absent for non-donors.

6) Describe exactly how outliers will be defined and handled, and your precise rule(s) for excluding observations.
We will log-transform all donation amounts before analysis. Our partner has excluded high-stake potential donors from the campaign who are generally targeted using individually customized strategies, however, we will still plan to examine the distribution of past donation amounts, and make sure there are no outliers.

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.
Around 3600 mailers will be sent - around 3000 will be prior donors and the rest will be non-donors. We will track responses for around 3 months before looking at the data.

Verify authenticity: http://aspredicted.org/blind.php?x=na3yk9

Version of AsPredicted Questions: 2.00

Additional Analysis: Survey of Experts (Study 2)

1.   Between-subject evaluations

1.1   Mediation Effects

Mediating role of personal resonponsibility in the relationship between "giving-credit" framing and feelings of warm glow.
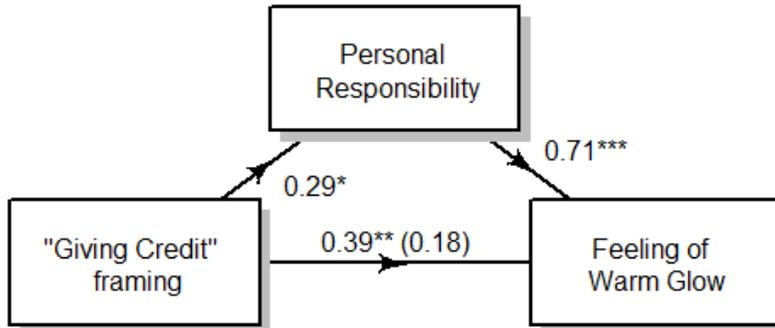
$*<.10; **<.05; ***<.01$

DV: Feeling of warm glow	β	SE	t	p
Intercept	4.18	0.13	33.30	<.001
"GC" appeal	0.39	0.18	2.16	.032

DV: Personal responsibility	β	SE	t	p
Intercept	3.90	0.12	33.12	<.001
"GC" appeal	0.29	0.17	1.72	.087

DV: Feeling of warm glow	β	SE	t	p
Intercept	1.41	0.24	5.87	<.001
Personal responsibility	0.71	0.06	12.56	<.001
"GC" appeal	0.18	0.14	1.34	.181

Mediating role of personal resonponsibility in the relationship between "giving-credit" framing and perceptions as a good opportunity to help others (measure of pure altruism)
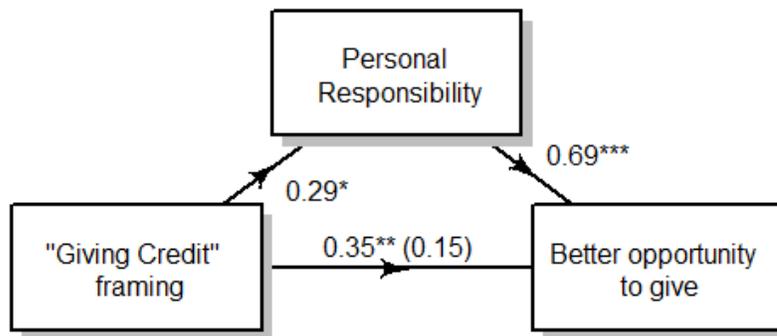
*<.10; **<.05;***<.01

DV: Better opportunity to give	β	SE	t	p
Intercept	4.35	0.12	37.54	<.001
"GC" appeal	0.35	0.17	2.09	.038

DV: Personal responsibility	β	SE	t	p
Intercept	3.90	0.12	33.12	<.001
"GC" appeal	0.29	0.17	1.72	.087

DV: Better opportunity to give	β	SE	t	p
Intercept	1.62	0.21	7.76	<.001
Personal responsibility	0.69	0.05	14.17	<.001
"GC" appeal	0.15	0.12	1.22	.224

2. *Within-subject evaluations*

2.1 *Mediation Effects*

Mediating role of warm glow in the relationship between "giving-credit" framing and beliefs about participation.
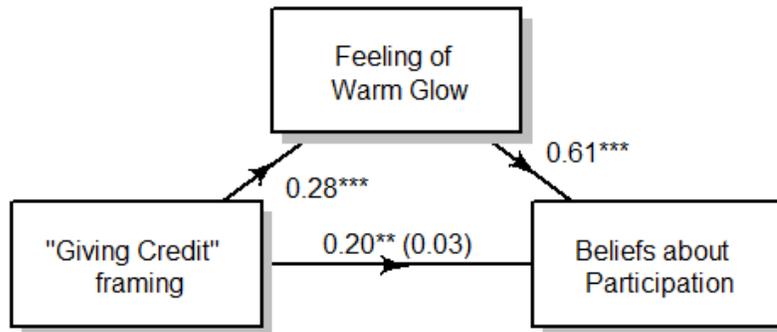
*<.10; **<.05;***<.01

DV: Beliefs about participation	β	SE	t	p
Intercept	4.05	0.08	48.22	<.001
"GC" appeal	0.20	0.09	2.38	.018

DV: Feeling of warm glow	β	SE	t	p
Intercept	4.30	0.09	48.16	<.001
"GC" appeal	0.28	0.08	3.63	<.001

DV: Beliefs about participation	β	SE	t	p
Intercept	1.41	0.18	8.07	<.001
Feeling of warm glow	0.61	0.04	16.16	<.001
"GC" appeal	0.03	0.07	0.43	.671

Mediating role of warm glow in the relationship between "giving-credit" framing and beliefs about dollars donated.
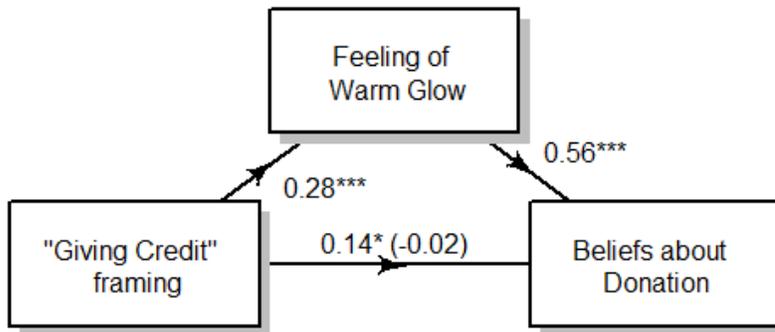
$*<.10; **<.05;***<.01$

DV: Beliefs about donation	β	SE	t	p
Intercept	3.98	0.08	48.82	<.001
"GC" appeal	0.14	0.08	1.73	0.084

DV: Feeling of warm glow	β	SE	t	p
Intercept	4.30	0.09	48.16	<.001
"GC" appeal	0.28	0.08	3.63	<.001

DV: Beliefs about donation	β	SE	t	p
Intercept	1.53	0.17	8.78	<.001
Feeling of warm glow	0.56	0.04	15.09	<.001
"GC" appeal	-0.02	0.07	-0.33	0.742

Mediating role of pure altruism in the relationship between "giving-credit" framing and beliefs about participation.
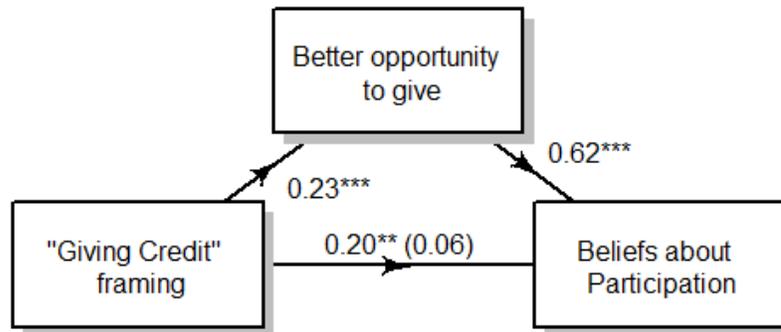
*<.10; **<.05;***<.01

DV: Beliefs about participation	β	SE	t	p
Intercept	4.05	0.08	48.22	<.001
"GC" appeal	0.20	0.09	2.38	.018

DV: Better opportunity to give	β	SE	t	p
Intercept	4.44	0.08	53.17	<.001
"GC" appeal	0.23	0.07	3.38	<.001

DV: Beliefs about participation	β	SE	t	p
Intercept	1.28	0.20	6.48	<.001
Better opportunity to give	0.62	0.04	14.83	<.001
"GC" appeal	0.06	0.08	0.77	0.442

Mediating role of pure altruism in the relationship between "giving-credit" framing and beliefs about dollars donated.
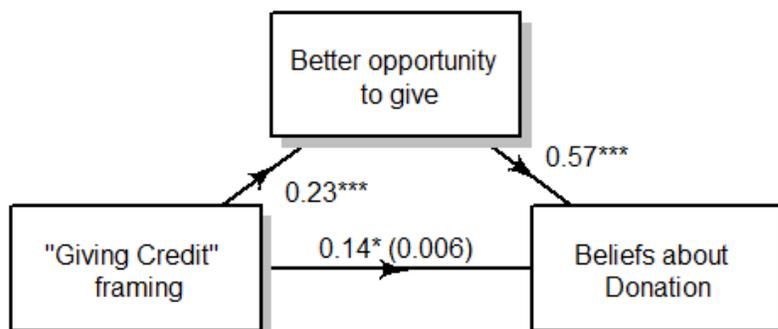
*<.10; **<.05;***<.01

DV: Beliefs about donation	β	SE	t	p
Intercept	3.98	0.08	48.82	<.001
"GC" appeal	0.14	0.08	1.73	.084

DV: Better opportunity to give	β	SE	t	p
Intercept	4.44	0.08	53.17	<.001
"GC" appeal	0.23	0.07	3.38	<.001

DV: Beliefs about donation	β	SE	t	p
Intercept	1.46	0.20	7.33	<.001
Better opportunity to give	0.57	0.04	13.47	<.001
"GC" appeal	0.006	0.07	0.09	.930

Mediating role of total perceived utility of giving in the relationship between "giving-credit" framing and beliefs about participation.
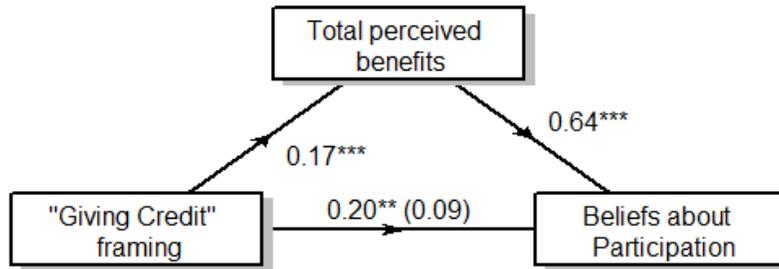
*<.10; **<.05;***<.01

DV: Beliefs about participation	β	SE	t	p
Intercept	4.05	0.08	48.22	<.001
"GC" appeal	0.20	0.09	2.38	.018

DV: Total perceived benefits	β	SE	t	p
Intercept	4.52	0.08	55.57	<.001
"GC" appeal	0.17	0.07	2.33	.021

DV: Beliefs about participation	β	SE	t	p
Intercept	1.14	0.20	5.65	<.001
Total perceived benefits	0.64	0.04	15.16	<.001
"GC" appeal	0.09	0.07	1.30	.196

Mediating role of total perceived utility of giving in the relationship between "giving-credit" framing and beliefs about dollars donated.
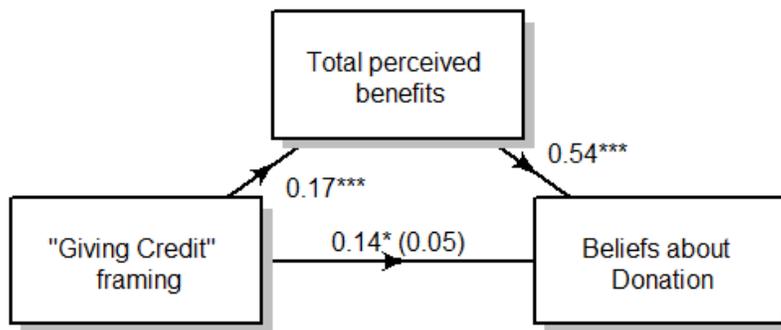
*<.10; **<.05;***<.01

DV: Beliefs about donation	β	SE	t	p
Intercept	3.98	0.08	48.82	<.001
"GC" appeal	0.14	0.08	1.73	.084

DV: Total perceived benefits	β	SE	t	p
Intercept	4.52	0.08	55.57	<.001
"GC" appeal	0.17	0.07	2.33	.020

DV: Beliefs about donation	β	SE	t	p
Intercept	1.51	0.21	7.13	<.001
Total perceived benefits	0.54	0.04	12.37	<.001
"GC" appeal	0.05	0.07	0.69	.489

Mediating role of personal resonponsibility in the relationship between "giving-credit" framing and beliefs about participation
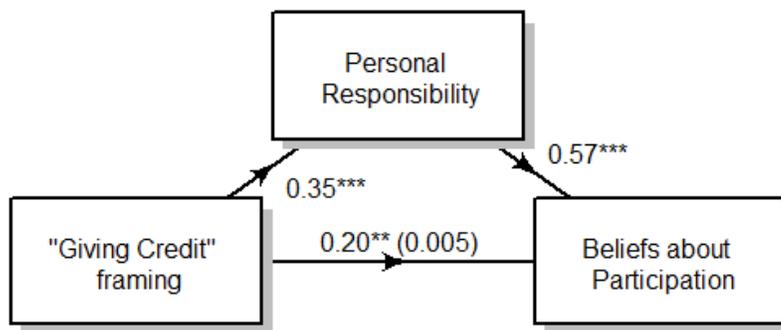
*<.10; **<.05;***<.01

DV: Beliefs about participation	β	SE	t	p
Intercept	4.05	0.08	48.22	<.001
"GC" appeal	0.20	0.09	2.38	.018

DV: Personal responsibility	β	SE	t	p
Intercept	4.01	0.09	46.33	<.001
"GC" appeal	0.35	0.08	4.42	<.001

DV: Beliefs about participation	β	SE	t	p
Intercept	1.76	0.18	9.88	<.001
Personal responsibility	0.57	0.04	13.95	<.001
"GC" appeal	0.005	0.08	0.06	.949

Mediating role of personal resonponsibility in the relationship between "giving-credit" framing and beliefs about dollar donated
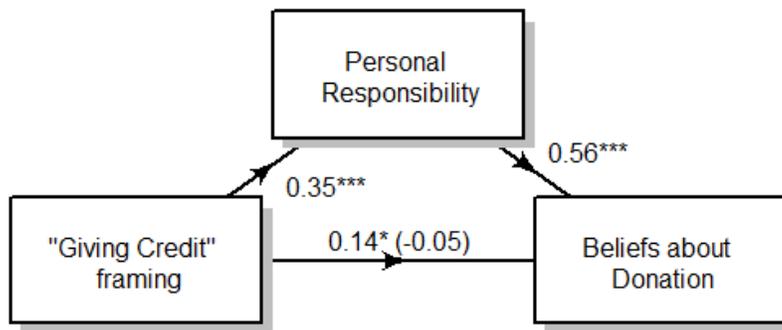
*<.10; **<.05;***<.01

DV: Beliefs about donation	β	SE	t	p
Intercept	3.98	0.08	48.82	<.001
"GC" appeal	0.14	0.08	1.73	.084

DV: Personal responsibility	β	SE	t	p
Intercept	4.01	0.09	46.33	<.001
"GC" appeal	0.35	0.08	4.42	<.001

DV: Beliefs about donation	β	SE	t	p
Intercept	1.75	0.17	10.17	<.001
Personal responsibility	0.56	0.04	14.08	<.001
"GC" appeal	-0.05	0.07	-0.80	.423

Mediating role of personal resonponsibility in the relationship between "giving-credit" framing and feelings of warm glow (incomplete mediation)
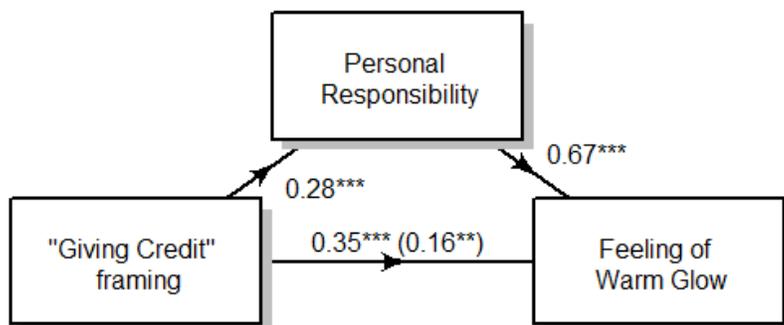
$*<.10; **<.05; ***<.01$

DV: Feeling of warm glow	β	SE	t	p
Intercept	4.01	0.09	46.33	<.001
"GC" appeal	0.35	0.08	4.42	<.001

DV: Personal responsibility	β	SE	t	p
Intercept	4.30	0.09	48.16	<.001
"GC" appeal	0.28	0.08	3.63	<.001

DV: Feeling of warm glow	β	SE	t	p
Intercept	1.12	0.17	6.76	<.001
Personal responsibility	0.67	0.04	18.79	<.001
"GC" appeal	0.16	0.06	2.50	.013

Mediating role of personal resonponsibility in the relationship between "giving-credit" framing and perceptions as a good opportunity to help others (measure of pure altruism)
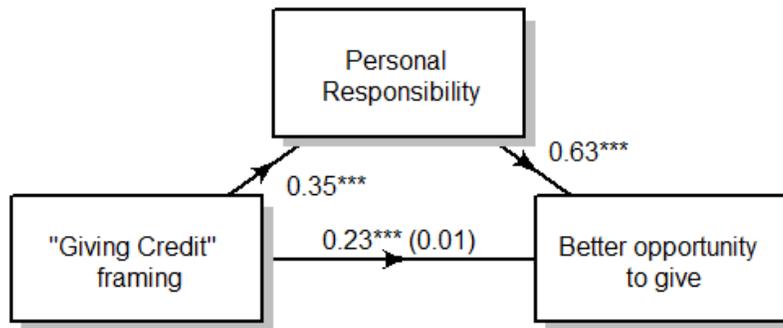
*<.10; **<.05;***<.01

DV: Better opportunity to give	β	SE	t	p
Intercept	4.44	0.08	53.17	<.001
"GC" appeal	0.23	0.07	3.38	<.001

DV: Personal responsibility	β	SE	t	p
Intercept	4.01	0.09	46.33	<.001
"GC" appeal	0.35	0.08	4.42	<.001

DV: Better opportunity to give	β	SE	t	p
Intercept	1.91	0.15	12.60	<.001
Personal responsibility	0.63	0.03	18.04	<.001
"GC" appeal	0.01	0.06	0.24	0.81

94

2.2 Order Effects

When experts evalued the two appeals: standard matching with regular framing and the standard matching with "giving-credit" framing, in a counterbalanced fashion, the order of evaluation affected their estimates. We report significant and marginally significant order effects here. In particular, the order effect was marginally significant when experts evaluated the perceived warm-glow benefits of the two appeals, and was significant when they evaluated the total perceived benefit from giving, and perceived personal responsibility for the funds rasied by the charity. No order effects were observed when experts evaluated the appeals on perceived good opportunity to help others (i.e., pure altruism), coerciveness of the appeals, or ease of understanding the appeals.

Warm-glow utility

DV: Warm-glow ratings	β	SE	t	p
Intercept	4.17	0.12	34.08	<.001
"GC" appeal	0.25	0.17	1.43	.152
"GC" evaluated first	0.41	0.10	3.87	<.001
"GC" appeal * "GC" evaluated first	-0.27	0.15	-1.77	.078
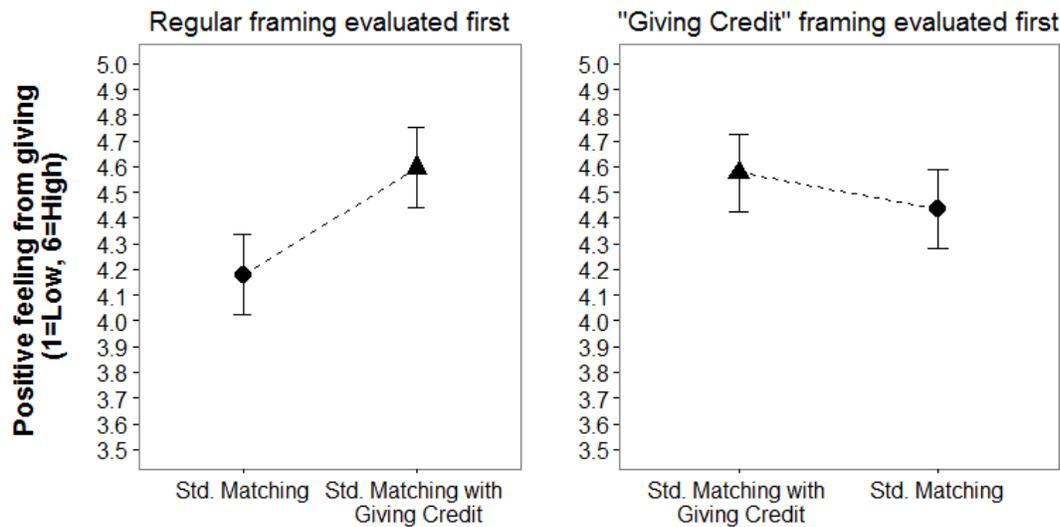
Total perceived utility of giving

DV: Warm-glow ratings	β	SE	t	p
Intercept	4.43	0.11	39.68	<.001
"GC" appeal	0.18	0.16	1.12	.262
"GC" evaluated first	0.32	0.10	3.23	.001
"GC" appeal * "GC" evaluated first	-0.32	0.14	-2.21	.028
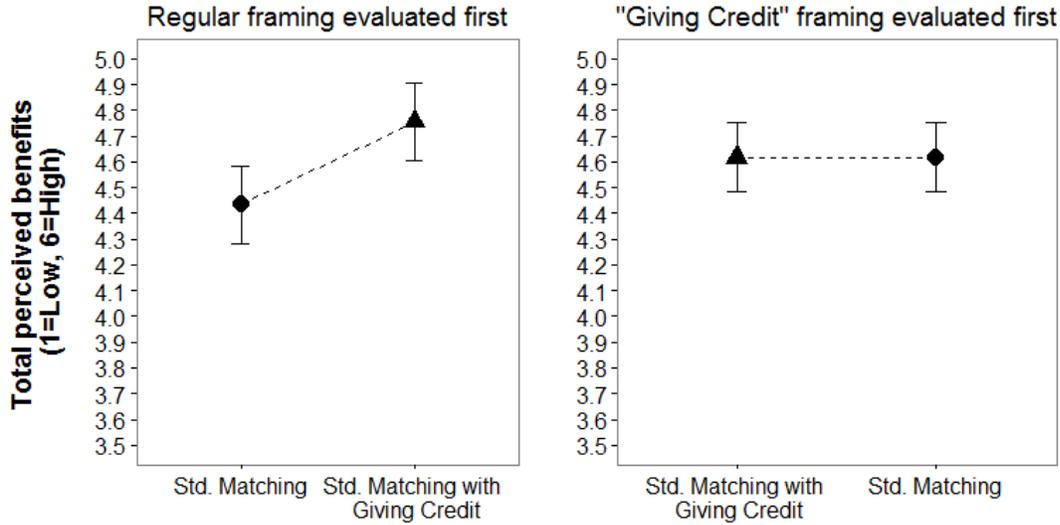
Feeling of personal responsibility

DV: Warm-glow ratings	β	SE	t	p
Intercept	3.90	0.12	32.94	<.001
"GC" appeal	0.23	0.17	1.34	.181
"GC" evaluated first	0.60	0.11	5.71	<.001
"GC" appeal * "GC" evaluated first	-0.54	0.15	-3.50	<.001
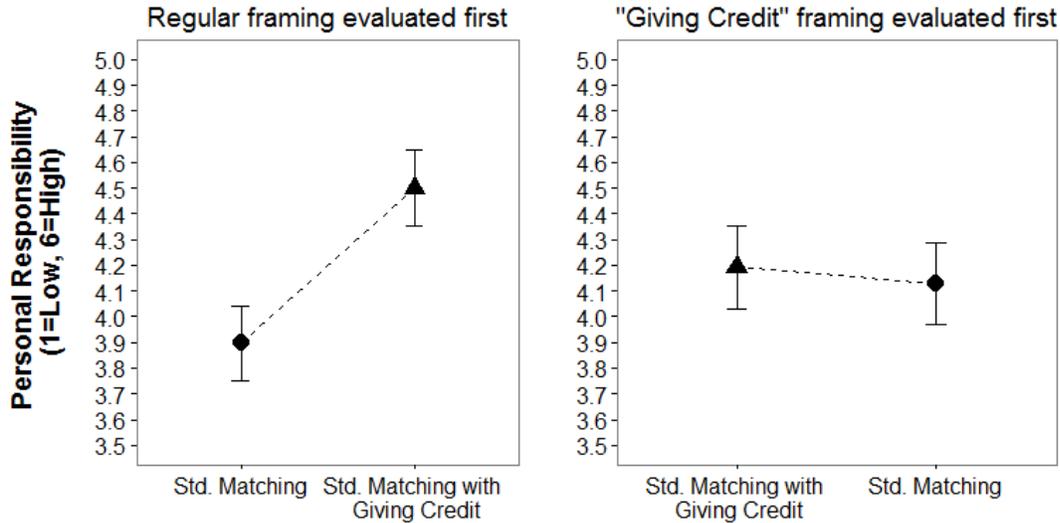
Additional Analysis: Field Experiment (Study 3)

1. Additional Results: Randomization Check

Online Table 1: The table examines the balance of the five experimental cells. The variables examined are Last Donation Amount ($), Median Household Income ($), Lifetime Transaction Amount ($), Lifetime Transaction Count. Due to certain technical problems (migration to a new MIS, etc.) we could not retrieve the Last Donation Amount figures for 127 prior donors. The non-profit did not share demographic information about the donors like age, gender, education, or income, and we use publicly available data (www.psc.isr.umich.edu/dis) to retrieve median household income from zip codes.

	Control	1:1	1:1 + "GC"	Threshold	Threshold + "GC"	F	p
Last Donation Amount ($)	63.51	68.66	78.25	74.21	79.20	1.66	.155
Median Household Income ($)*	54526.85	54713.19	55019.63	52983.56	54771.48	0.22	.926
Lifetime Transaction Amount ($)	1736.20	2142.11	702.97	561.60	682.78	1.53	.188
Lifetime Transaction Count	5.5	5.1	3.6	3.9	3.8	5.32	<.001

*based on zip-code

The table shows that the randomization for the field experiment worked for all the variables except the lifetime transaction count. Below, we reanalyzed the main results of the study after controlling for this covariate.

Participation: Controlling for lifetime transaction count, the participation was marginally higher with standard matching compared to control (β=0.58, z=1.66, p=.093). Adding "giving-credit" framing to a 1:1 match reduced participation directionally (β= -0.55, z=1.51, p=.132). Likewise, adding "giving-credit" framing to a threshold match also reduced participation directionally (β= -0.53, z=1.35, p=.175). Overall, "giving-credit" framing reduced participation compared to the regular framing across the two matching mechanisms (β= -0.55, z=2.07, p=.038). In the regression controlling for lifetime transaction count, there was no significant difference between a threshold match compared to a standard match, both using a regular framing (β= -0.12, z=0.37, p=.708).

Average (non-zero) Contribution: Among donors, controlling for lifetime transaction count, the average amount raised in the regular 1:1 matching condition was not statistically different from the control condition (β= -0.35, t=1.31, p=.197). However, adding "giving-credit" framing to a 1:1 match reduced the average donation significantly (β= -0.49, t=2.34, p=.025). The threshold matching mechanism was also severely detrimental for average contribution relative to full matching (β= -0.54, t=2.49, p=.016), and adding a "giving-credit" framing also did not result in a significant reduction (β= 0.14, t=0.35, p=.728). Overall, controlling for lifetime transaction count, there was no significant decrease in contributions from

the "giving credit" framing compared to regular framing, across different matching mechanisms (β= -0.21, t=0.96, p=.338).

Net Money Raised: Controlling for lifetime transaction count, the net money raised per mailer in the regular 1:1 matching condition was not statistically different from the control condition (β= -0.15, t=1.52, p=.129). However, adding "giving-credit" framing to a 1:1 match reduced the net money raised per mailer marginally (β= -0.16, t=1.72, p=.085). The threshold matching mechanism did not reduce net money raised per mailer significantly compared to regular matching (β= -0.06, t=0.66, p=.509), and adding a "giving-credit" framing did not reduce money raised any further (β= -0.11, t=1.29, p=.196). Overall, controlling for lifetime transaction count, there was a significant decrease in the net money raised per mailer from the "giving credit" framing compared to regular framing, across different matching mechanisms (β= -0.14, t=2.24, p=.025).

Therefore, overall, the results reported in the main paper were substantively replicated even after controlling for lifetime transaction count.

2. *Distribution of actual non-zero donations in the five experimental conditions, including control*
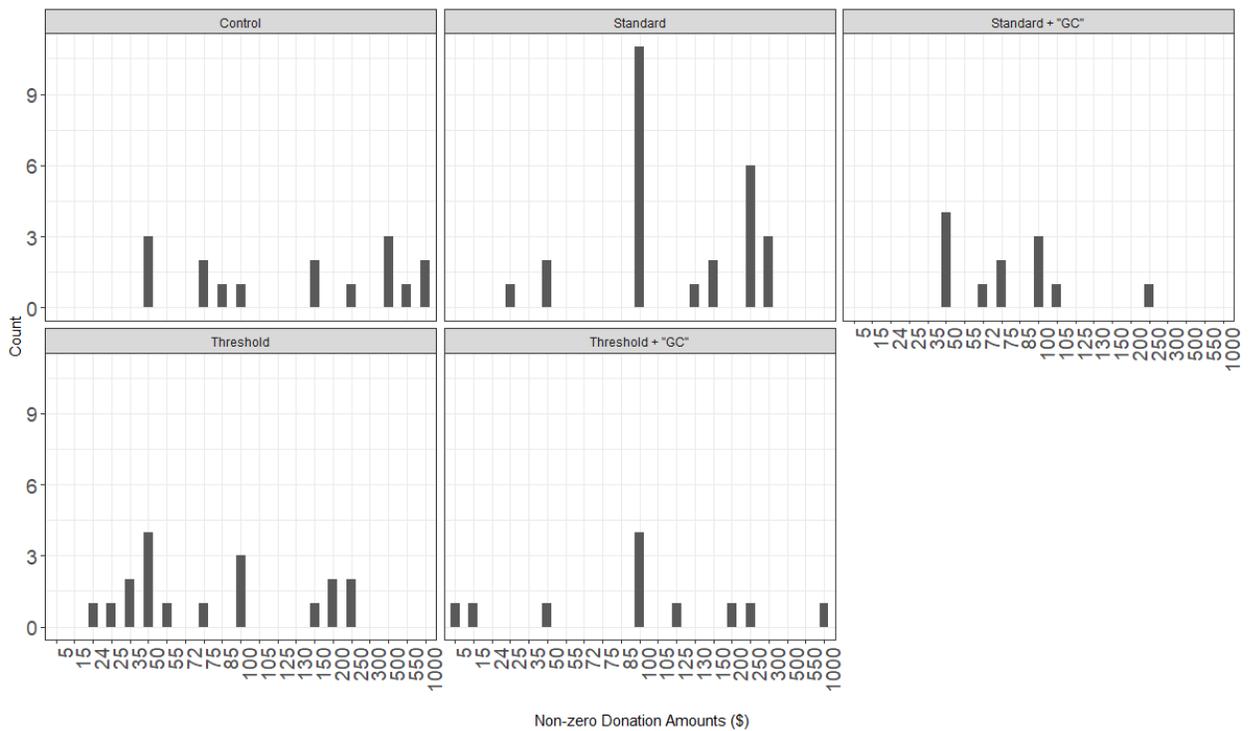
3. Non-parametric Analysis

We used the Wilcoxon rank sum test to perform non-parametric analysis for average contribution and net amount raised in the campaign, to account for skewed data.

Average (non-zero) Contribution: Using the Wilcoxon tests, "giving-credit" framing significantly reduced average contribution compared to regular framing for a 1:1 match (p=.010), although the regular match did not yield statistically distinguishable contribution compared to control (p=.545). Reducing the matching multiplier, by introducing a threshold matching, reduced contributions compared to full matching with regular framing (p=.013); and credit framing for threshold matches did not improve performance significantly (p=.481). Overall, combining the various matching mechanisms, the results of "giving-credit" framing was not statistically different from regular framing (p=.255).

Net Money Raised: Non-parametric Wilcoxon tests confirmed that a "giving-credit" framing significantly reduced net money raised compared to regular framing for a 1:1 match (p=.036), although a 1:1 match was not a significant improvement over control (p=.140). The threshold matching mechanism did not improve performance compared to a full match (p=.434); and adding a "giving-credit" framing to the threshold mechanism was marginally detrimental (p=.155). Overall, combining both matching mechanisms, the "giving credit" framing raised significantly less money per mailing compared to regular framing (p=.011).

The results using non-parametric tests further confirms while that the effect of "giving-credit" framing on contribution upon participation is ambiguous, there is indeed a significant decrease in net money raised with "giving-credit" framing. The findings suggest that the decrease in net money raised with "giving credit" framing is largely driven by a decrease in participation.

In sum, the conclusions drawn in the paper hold if we use non-parametric tests that are more robust to skewed data for analyzing statistical significance.

4. Analysis of Raw Donation Amount after Handling Outliers

We attempted to flag outliers in the raw donation amounts using multiple techniques: Iterative Grubbs' test that assumes the univariate data set comes from a normal distribution, and Winsorizing that does not impose any distributional assumptions on the data set. Both 90% and 95% Winsorizing were used. The results of all three approaches are described below.

4.1 Iterative Grubbs' test: The test detected seven outliers, all on the higher end of the data set i.e., donations > $300. These donations were replaced by the highest non-outlier donation amount, i.e., $300.

4.1.1 Average (non-zero) Contribution: Among donors, the average money raised in control was $177.18. The average amount raised in the regular 1:1 matching condition was $155.96 (*ns* vs. control, *t*(40)<1). However, adding "giving-credit" framing to a 1:1 match raised only $89.75, on average, from participating donors. This reduction was significant (*t*(36)=2.41, *p*=.021). Therefore, the decrease in average contribution in a 1:1 matching solicitation on account of "giving-credit" framing was robust to outlier treatment using Grubbs' test. The threshold matching mechanism was also severely detrimental for average contribution relative to full matching ($99.94; *t*(42)=2.19, *p*=.033), and adding a "giving-credit" framing did not increase contributions significantly ($122.27; *t*(27)<1). Overall, using this outlier handling strategy, there was a marginal decrease in contributions from the "giving credit" framing compared to regular framing, across different matching mechanisms ($105.30 vs $133.04, *t*(65)=1.29, *p*=.199).

4.1.2 Net Money Raised: The net revenue here should be interpreted as outlier-recoded average donation times the probability of donating. The net money raised per mailer was $9.05 in control and was $12.59 in the regular matching condition (*t*(633)<1). However, adding the "giving credit" framing to a 1:1 match significantly reduced money raised ($3.71; *t*(610)=2.86, *p*=.004). The threshold matching mechanism was also marginally detrimental compared to full matching ($6.61; *t*(592)=1.73, *p*=.083), and adding a "giving-credit" framing reduced net money raised further, though this reduction was not significant ($4.75, *t*(553)<1). Overall, across different matching mechanisms, "giving-credit" framing raised significantly lower money per mailer compared to regular framing ($4.23 vs $ 9.85, t(1165)=2.76, *p*=.006).

4.2 90% Winsorizing: The test detected nine outliers – five in the lower end of the data set (< $35) and four on the upper end (>$500). The outliers at the lower end were replaced by the lowest non-outlier donation amount, i.e., $35. The outliers at the upper end were replaced by the highest non-outlier donation amount, i.e., $500.

4.2.1 Average (non-zero) Contribution: Among donors, the average money raised in control was $252.18, and a 1:1 match generated significantly lower contributions ($156.34; *t*(40)=2.11, *p*=.041). Moreover, adding the "giving-credit" framing to a 1:1 match reduced contributions even further ($89.75; *t*(36)=2.43, p=.019). Therefore, once again, the decrease in average contribution in a 1:1 matching solicitation on account of the "giving-credit" framing was robust to outlier treatment. The threshold matching mechanism also reduced average contribution relative to a regularly framed 1:1 match ($101.01; *t*(42)=2.19, *p*=.034), and adding the "giving-credit" framing did not increase contributions significantly ($145.00; *t*(27)=1.13, *p*=.269). Overall, using this outlier handling strategy, there was a directional decrease in contributions from the "giving-credit" framing compared to regular framing, across different matching mechanisms ($116.17 vs $133.75, *t*(65)<1).

4.2.2 Net Money Raised: The net revenue here should be interpreted as outlier-recoded average donation times the probability of donating. The net money raised per mailer in control was $12.89 and that in the regular matching condition was $12.62 (*t*(633)<1). However, adding the "giving-credit" framing to a 1:1 match reduced money raised significantly ($3.71; *t*(610)=2.86, *p*=.004). The threshold matching

mechanism was also marginally detrimental compared to full matching ($6.69; $t(592)=1.72$, $p=.086$), and adding a "giving-credit" framing reduced net money raised further, though this reduction was not significant ($5.63, $t(553)<1$). Overall, across different matching mechanisms, "giving-credit" framing raised significantly lower money per mailer compared to regular framing ($4.66 vs $ 9.91, t(1165)=2.43, $p=.015$).

4.3. 95% Winsorizing: The test detected six outliers – three in the lower end of the data set (< $25) and three on the upper end (>$550). The outliers at the lower end were replaced by the lowest non-outlier donation amount, i.e., $25. The outliers at the upper end were replaced by the highest non-outlier donation amount, i.e., $550.

4.3.1. Average (non-zero) Contribution: Among donors, the average money raised in control was $261.56, and a 1:1 match generated significantly lower contributions ($155.96; $t(40)=2.22$, $p=.032$). Moreover, adding a "giving-credit" framing to a 1:1 match reduced contributions even further ($89.75; $t(36)=2.41$, $p=.021$). Therefore, once again, the decrease in average contribution in a 1:1 matching solicitation on account of "giving-credit" framing was robust to outlier treatment. The threshold matching mechanism also reduced average contribution relative to a regularly framed 1:1 match ($100.00; $t(42)=2.19$, $p=.033$), and adding a "giving-credit" framing did not increase contributions significantly ($147.72; $t(27)=1.14$, $p=.265$). Overall, using this outlier handling strategy, there was a directional decrease in contributions from the "giving-credit" framing compared to regular framing, across different matching mechanisms ($117.47 vs $133.07, $t(65)<1$).

4.3.2 Net Money Raised: The net revenue here should be interpreted as outlier-recoded average donation times the probability of donating. The net money raised per mailer in control was $13.37 and that in the regular matching condition was $12.59 ($t(633)<1$). However, adding the "giving-credit" framing to a 1:1 match reduced money raised significantly ($3.71; $t(610)=2.86$, $p=.004$). The threshold matching mechanism was also marginally detrimental compared to full matching ($6.62; $t(592)=1.73$, $p=.084$), and adding a "giving-credit" framing reduced net money raised further, though this reduction was not significant ($5.74, $t(553)<1$). Overall, across different matching mechanisms, "giving-credit" framing raised significantly lower money per mailer compared to regular framing ($4.71 vs $ 9.86, t(1165)=2.35, $p=.019$).

Using a series of outlier detection and handling strategies using the raw, untransformed donation data, there was a robust decrease in net money raised per mailing with "giving-credit" framing compared to regular framing although the results for average contribution among those donating was more ambiguous. Overall, the results substantively replicate the findings reported in the paper, suggesting that the reported findings are robust to alternative analysis strategies.

5. Lasso Regressions

We used the Double-Lasso covariate selection method (Urminsky, Hansen, & Chernozhukov 2016[7]) to test whether there were covariates in the data which should be controlled for when estimating the effect of the various appeals on participation, average non-zero contribution, and net money. Controlling for empirically supported covariates can increase statistical power and correct for potential failures in randomizing participants to conditions. However, the analysis failed to find sufficient empirical support for including any additional covariates in any of the three models (i.e., participation, average non-zero contribution, and net money raised). This suggests that controlling for additional covariates is unlikely to make any of the regression estimates more accurate.

6. Potential Moderators

We examined potential moderation of the experimental interventions by Last Donation Amount, Median Household Income, Lifetime Transaction Amount, and Lifetime Transaction Count of the relationship between each of the condition pairs and participation, contribution upon participation, net contribution. We also examined moderation by these covariates of the interaction between overall matching mechanism (threshold, standard) and overall framing ("giving-credit", regular). For brevity, we report significant interactions ($p<.05$), along with interpretations of the results.

Moderation by Last Donation Amount

Online Table 2: For high last donation amount (mean + 1SD), "giving-credit" framing decreased average net contribution, whereas for low last donation amount (mean - 1SD) there was a small increase with "giving-credit" framing.

DV: Log of Donation Amount (net)	β	SE	t	p
(Intercept)	-0.52	0.25	-2.05	.041
Condition = Standard +"GC" vs. Standard	0.60	0.34	1.76	.079
Last Donation Amount	0.17	0.06	2.67	.008
Condition x Last Donation Amt.	-0.17	0.08	-1.96	.050

---

[7] Urminsky, O., C. Hansen & V. Chernozhukov, The Double-Lasso Method for Principled Variable Selection, *UChicago Working Paper,* 2016

Moderation by Lifetime Transaction Amount

Online Table 3: For high lifetime transaction amount (mean + 1SD), matching increased participation, more than it did for low lifetime transaction amount (mean - 1SD).

DV: Participation	β	SE	z	p
(Intercept)	-9.15	1.50	-6.11	<.001
Condition = Standard vs. Control	3.94	1.73	2.28	.023
Log Lifetime Transaction Amount	0.89	0.18	4.84	<.001
Condition x Log Lifetime Transaction Amt.	-0.44	0.22	-1.97	.049

Online Table 4: For high lifetime transaction amount (mean + 1SD), matching decreased average contribution upon participation, whereas for low lifetime transaction amount (mean - 1SD) matching increased average contribution upon participation.

DV: Log of Donation Amount (upon Participation)	β	SE	t	p
(Intercept)	-0.21	1.18	-0.18	.859
Condition = Standard vs. Control	3.97	1.34	2.97	.005
Log Lifetime Transaction Amount	0.66	0.14	4.68	<.001
Condition x Log Lifetime Transaction Amt.	-0.49	0.17	-2.94	.006

Online Table 5: For high lifetime transaction amount (mean + 1SD), threshold mechanism increased average contribution upon participation, whereas for low lifetime transaction amount (mean - 1SD) threshold mechanism decreased average contribution upon participation.

DV: Log of Donation Amount (upon Participation)	β	SE	t	p
(Intercept)	3.46	0.60	5.76	<.001
Threshold vs. Standard (combined)	-2.36	1.07	-2.20	.032
Log Lifetime Transaction Amount	0.19	0.09	2.16	.034
Threshold mech. x Log Lifetime Transaction Amt	0.33	0.16	2.02	.048

*Moderation by Lifetime Transaction Count*

No significant interactions.

Moderation by Median Household Income

No significant interactions.

Therefore, the moderation analysis found largely weak results, with the exception of results in table 3 above, which suggest that matching in general is more effective for those who have donated less in the past.

Additional Analysis: Field Experiment (Study 3)

1. Distribution of actual non-zero donations in the two experimental conditions
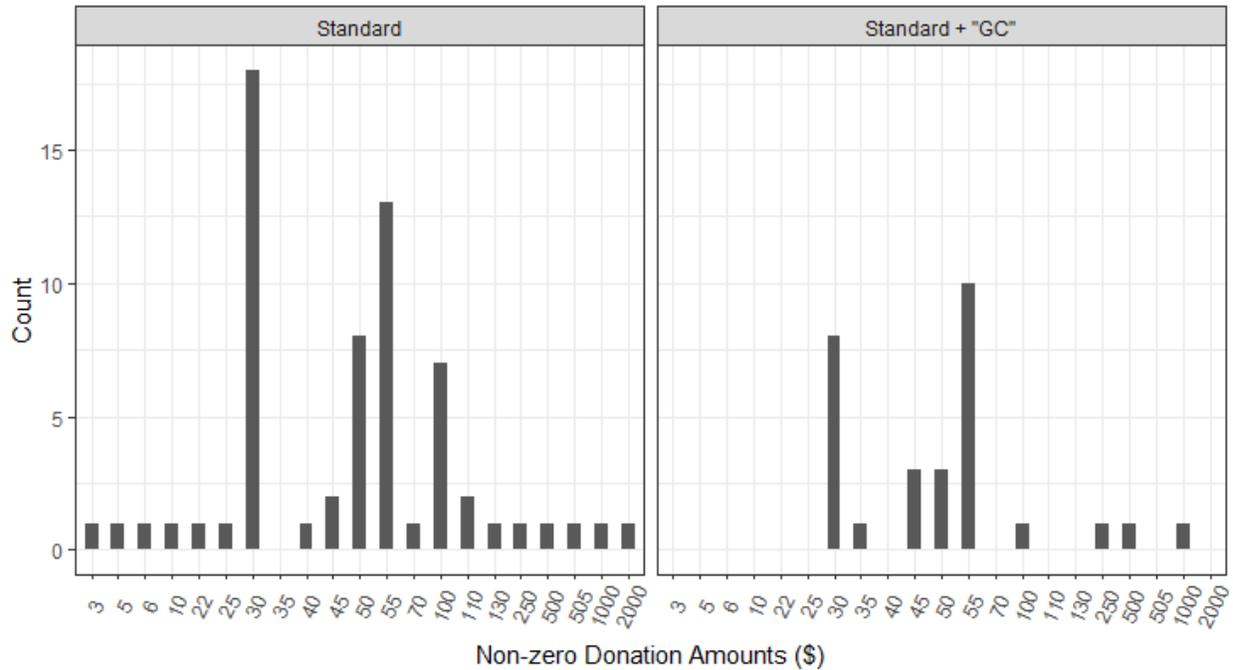
2. Non-parametric Analysis

Average (non-zero) Contribution: Using Wilcoxon rank sum test to account for skewed data we found no difference in the average contribution between a "giving-credit" framed match and a regularly framed match ($p=.754$)

Net Money Raised: Non-parametric analysis using Wilcoxon test also found that "giving-credit" framing significantly reduced total money raised compared to regularly framed 1:1 match ($p<.001$). The results held with both log-transformed as well as raw donation amounts.

In sum, the conclusions drawn in the paper hold if we use non-parametric analysis to control for skew when analyzing statistical significance.

3. Analysis of Raw Donation Amount after Handling Outliers

We attempted to flag outliers in the raw donation amounts using multiple techniques: Iterative Grubbs' test that assumes the univariate data set comes from a normal distribution, and Winsorizing that does

impose any distributional assumptions on the data set. Both 90% and 95% Winsorizing were used. The results of all these three approaches are described below.

3.1 Iterative Grubbs' test: The test detected nine outliers all on the higher end of the data set i.e., Donations of $130 or higher. These donations were replaced by the highest non-outlier donation amount, i.e., $110.

3.1.1 Average (non-zero) Contribution: Among donors, the average amount raised in the regular 1:1 matching condition was $54.78. The corresponding amount in the 1:1 matching condition with "giving-credit" framing was $53.10. The difference was non-significant ($t(91)=0.25$, $p=.799$).

3.1.2 Net Money Raised: The net revenue here should be interpreted as outlier-recoded average donation times the probability of donating. The net money raised per mailer sent to prior donors was $2.27 in the regular 1:1 matching condition. The corresponding amount in the 1:1 matching condition with "giving-credit" framing was $1.03, significantly lower than the regular condition ($t(3034)=3.20$, $p=.001$).

3.2 90% Winsorizing: The test detected nine outliers – five in the lower end of the data set ($3, $5, $6, $10, $22) and four on the upper end ($505, $1000, $1000, $2000). The outliers at the lower end were replaced by the lowest non-outlier donation amount, i.e., $25. The outliers at the upper end were replaced by the highest non-outlier donation amount, i.e., $500.

3.2.1 Average (non-zero) Contribution: Among donors, the average amount raised in the regular 1:1 matching condition was $82.89. The corresponding amount in the 1:1 matching condition with "giving-credit" framing was $84.23. However, this difference was non-significant ($t(91)=0.07$, $p=.941$).

3.2.2 Net Money Raised: The net revenue here should be interpreted as outlier-recoded average donation times the probability of donating. The net money raised per mailer sent to prior donors was $3.43 in the regular 1:1 matching condition. The corresponding amount in the 1:1 matching condition with "giving-credit" framing was $1.65, significantly lower than the regular condition ($t(3034)=1.98$, $p=.047$).

3.3 95% Winsorizing: The test detected six outliers – three in the lower end of the data set ($3, $5, $6) and three on the upper end ($1000, $1000, $2000). The outliers at the lower end were replaced by the lowest non-outlier donation amount, i.e., $10. The outliers at the upper end were replaced by the highest non-outlier donation amount, i.e., $505.

3.3.1 Average (non-zero) Contribution: Among donors, the average amount raised in the regular 1:1 matching condition was $82.14. The corresponding amount in the 1:1 matching condition with "giving-credit" framing was $85.00. However, this difference was non-significant ($t(91)=0.11$, $p=.914$).

3.3.2 Net Money Raised: The net revenue here should be interpreted as outlier-recoded average donation times the probability of donating. The net money raised per mailer sent to prior donors was $3.40 in the

regular 1:1 matching condition. The corresponding amount in the 1:1 matching condition with "giving-credit" framing was $1.65, marginally lower than the regular condition ($t(3034)=1.93$, $p=.053$).

In sum, the conclusions presented in the paper are robust to various outlier detection and handling strategies.

4. Lasso Regressions

As in Study 3, we used the Double-Lasso covariate selection method (Urminsky, Hansen, & Chernozhukov 2016) to test for covariates which should be included in regressions predicting participation, average non-zero contribution, and net money based on the experimental conditions. For net amount raised, the lasso did not identify any covariates with sufficient empirical support to include, and therefore no model has been included for that metric.

Below we include models for participation and average non-zero contribution controlling for the additional double-lasso-selected covariates. Overall, the original results reported in the main paper held controlling for covariates identified by the double-lasso procedure.

	Dependent variable:	
	Participation	Log of Non-zero Contribution
	Logistic	*OLS*
	(1)	(2)
Constant	-2.39*** (0.23)	1.73*** (0.46)
Condition= Standard + "GC"	-0.73** (0.24)	-0.09 (0.18)
Lifetime Transaction Count	0.05*** (0.01)	
Days from Last Donation	-0.002*** (0.0003)	
Log Last Donation		0.22** (0.08)
Log Largest Donation		0.13 (0.13)
Log Lifetime Donation		0.07 (0.09)
Observations	2,997	88
R^2		0.27
Adjusted R^2		0.23
Log Likelihood	-328.79	
F Statistic		7.55***

Note: *p<0.05; ><.05 **p<0.01; ><.01 ***p<0.001

5. Potential Moderators

We examined potential moderation by Last Donation Amount, Largest Donation Amount, Lifetime Transaction Amount, and Lifetime Transaction Count, Median Household Income, Population Density, Days from Last Donation, Days from Largest Donation for participation, contribution upon participation, net contribution.

No moderating effect of these variables was found for participation and contribution upon participation. For net contribution, we only report the significant interactions ($p<.05$), along with interpretations of the results.

Online Table 6: For high largest donation amount (mean + 1SD), "giving-credit" framing decreased average net contribution much more than when largest transaction amount is low (mean - 1SD).

DV: Log of Donation Amount (net)	β	SE	t	p
(Intercept)	-0.210	0.094	-2.23	.026
Condition = Std. + "GC" vs. Std.	0.179	0.132	1.36	.174
Log Largest Donation Amount	0.065	0.017	3.96	<.001
Condition x Log Largest Donation Amt.	-0.046	0.023	-1.99	.046

Online Table 7: For high total lifetime transaction amount (mean +1SD), "giving-credit" framing decreased average net contribution much more than when total lifetime transaction amount is low (mean - 1SD).

DV: Log of Donation Amount (net)	β	SE	t	p
(Intercept)	-0.353	0.078	-4.52	<.001
Condition = Std. + "GC" vs. Std.	0.207	0.111	1.87	.062
Log Lifetime Transaction Amount	0.082	0.012	6.69	<.001
Condition x Log Lifetime Transaction Amt.	-0.046	0.017	-2.66	.008

Online Table 8: For high total lifetime transaction count (mean + 1SD), "giving-credit" framing decreased average net contribution, whereas for low total lifetime transaction count (mean - 1SD) there was a small increase with credit framing.

DV: Log of Donation Amount (net)	β	SE	t	p
(Intercept)	0.018	0.021	0.87	.384
Condition = Std. + "GC" vs. Std.	-0.018	0.029	-0.60	.545
Lifetime Transaction Count	0.030	0.002	12.73	<.001
Condition x Lifetime Transaction Count	-0.013	0.003	-4.03	<.001

Online Table 9: When days from last donation is less (mean - 1SD), "giving-credit" framing decreased average net contribution much more than when days from last donation is more (mean + 1SD).

DV: Log of Donation Amount (net)	β	SE	t	p
(Intercept)	0.289	0.028	10.41	<.001
Condition = Std. + "GC" vs. Std.	-0.146	0.039	-3.72	<.001
Days from Last Donation	-0.0001	0.00001	-6.20	<.001
Condition x Days from Last Donation	0.00006	0.00002	2.49	.013

The above results suggest that the "giving-credit" framing was more harmful for donors who were more engaged with the charity (e.g., those who had given more in the past or who had given more often or more recently). These donors potentially did value acknowledgement for someone else's contribution. The results indicate the potential for field-testing a more targeted campaign with the "giving-credit" framing.

Study A1: Incentive-compatible Experiment as Guidance to the Fundraiser

We consider a feasible (i.e., low-cost) internal "marketing research" study or survey experiment as an additional source of guidance that a charity might rely on in making decisions about how to formulate their matching offer. Some charities conduct internal research, particularly using low-cost methods, to learn about donors and better anticipate their reactions to the charity's activities. Typical research methods range from simply monitoring donor feedback to structured qualitative interviews with small numbers of donors to simple surveys of potential donors. We test one such research method, conducting an incentive-compatible survey experiment to measure the effect of each type of matching offer on intentions to donate.

Design

Online survey respondents (N=524) were recruited from Amazon's Mturk employment marketplace to participate in a decision-making study. This approach was chosen to enable best practices (e.g, incentive compatibility) under the constraint of using low-cost methods feasible for typical charities. The sample chosen was motivated by the widespread reluctance among charities to contact their donors more than necessary, particularly when doing so would reveal tactical considerations in fundraising that might leave their donors feeling manipulated.

Respondents were informed that they at the end of the survey, five people would be selected at random and be given a real $20 lottery reward. The Mturk platform allows this claim to be made with reasonable credibility, as the funds would be paid as an Mturk bonus within two days of study completion, from a highly-rated requester account with a track record of paying bonus incentives.

A key challenge in this kind of survey experiment with a publicly-recruited sample is how to replicate the "warm donor" mindset of the prior donors to an organization who would be targeted in that organization's actual fundraising appeals. We asked respondents to select their favorite from a list of 20

well-known charities, to ensure that they had a baseline level of interest in the charity analogous to the motives of a charity's prior donors.

In this survey, you will be making some decisions about a charity. Please choose which of the following charities you would be most interested in donating to.

○ Direct Relief International
○ United Way
○ Feeding America
○ Catholic Charities USA
○ Goodwill
○ Food for the Poor
○ American Cancer Society
○ YMCA
○ World Vision
○ St. Jude Children's Research Hospital
○ Boy's and Girl's Clubs of America
○ American Red Cross
○ Habitat for Humanity
○ Feed the Children

Figure 1: Choice of favorite charity

We then randomly assigned respondents to one of five between-subject conditions, in which they were shown offers to pre-commit an amount (up to $20) to be deducted from their bonus and donated to their selected charity, in case they later won the lottery.

The control condition involved no matching amounts. The four other conditions proposed a match from the experimenter's funds (e.g., "we will donate an extra $1 for every $1 you give"), with differing contingencies and framing matching the interventions in Study 3 (Standard; Standard + "giving-credit" framing; Threshold; Threshold + "giving-credit" framing). In the threshold matching conditions, respondents were told that the match would apply to amounts over $3.00.

Respondents were then asked to choose how much of their $20 bonus they would donate to their favorite charity, between $0 and $20, should they win. As described to the respondents, five winners were selected at random, the amount they chose as their donation was deducted from their bonus

110

payment, the remainder was paid via Mturk bonus and we sent their donation amount to the selected

charity, along with any applicable matching amount.

If you are randomly selected to receive the $20 surprise reward as part of this survey, you could choose to donate to ${q://QID80/ChoiceGroup/SelectedChoices}, if you wish.

A matching grant is available. We will add an extra $1 to your donation for EVERY $1 you give. So, for every dollar you give, ${q://QID80/ChoiceGroup/SelectedChoices} will receive two dollars on your behalf in support of their programs.

If you do choose to donate, we will deduct the amount you specify from your $20 winnings if you win and donate it to ${q://QID80/ChoiceGroup/SelectedChoices}. You would then receive the remainder via Mturk as a bonus.

You need to make your decision about donating now. Please select below how much money, in dollars, if any, you would donate to ${q://QID80/ChoiceGroup/SelectedChoices}, in case you win.

Figure 2: Illustrative example of a question with piped choice (of favorite charity) soliciting donation in the standard matching with "giving-credit" framing condition

Results

The overall participation rate (i.e. survey respondents choosing to commit more than $0)

was 80% (see Fig. 1; left-panel), substantially higher than most actual fundraising campaings.

There were no significant difference in participation rates between any of the pairs of conditions

(all p's >.25).

The survey experiment also revealed similar levels of average contribution amount

among participating donors (i.e., among those who committed some non-zero amount) across

conditions.   Most of the comparisons between pairs of conditions were not significant (all p's >

.18) except: standard matching with "giving-credit" framing received significantly higher

conditional contributions compared to the no-match control (p=.037) and received marginally

higher conditional contributions compared to standard matching with regular framing (p=.062).
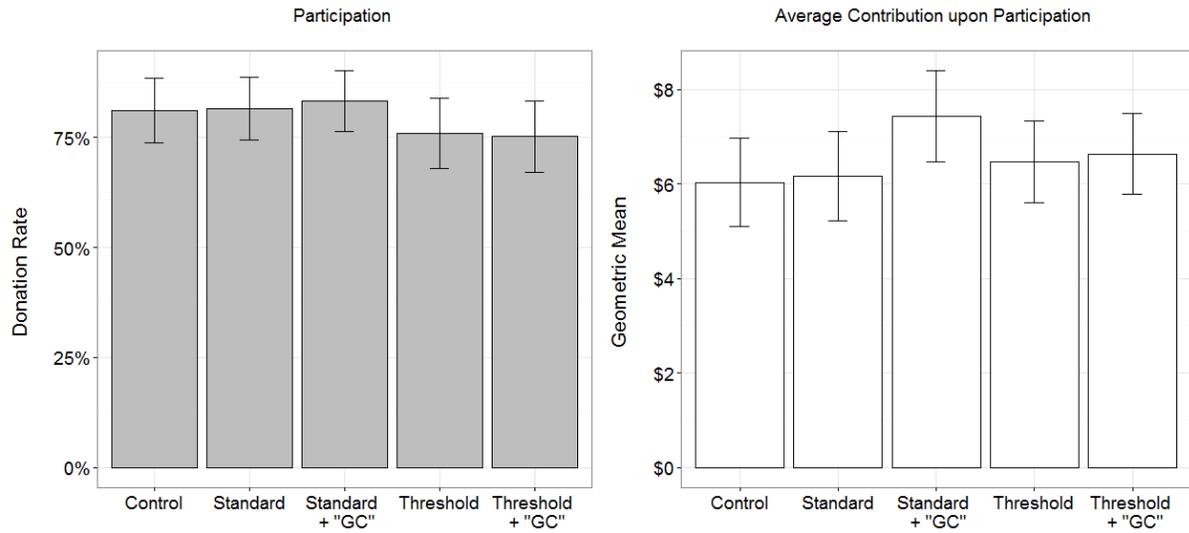
Figure 3: Results for survey experiment using Mturk participants as donors. The vertical bars are 95% CI.

Overall, the survey experiment was not very conclusive as to whether one version would perform significantly better. There was no significant difference in net contribution between any pairs of conditions. A fundraiser might either treat these non-significant results as irrelevant to their decision, or perhaps as evidence that the decision of which version to use would be of little consequence. Alternatively, a fundraiser who did not engage in significance testing might simply focus on directional differences (e.g., which version did the best in this test) and interpret these results as suggestive evidence that the "giving-credit" framing with a standard match has the highest likelihood of success, particularly in terms of average contribution, largely consistent with the model implications and expert opinions.