How Can Bill and Melinda Gates Increase Other People's Donations to Fund Public Goods?

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Abstract

We conducted two matching grant experiments with an international development charity. The first tested a matching grant from the Bill and Melinda Gates Foundation (BMGF), and the second tested whether naming BMGF helped further. We find both the match and naming BMGF raises more money. The effects persist after the matching period, and the naming-BMGF effect is heterogeneous—larger for donors who previously gave to other poverty-oriented charities. Combining this with out-of-sample survey results indicating a correlation between giving to poverty charities and familiarity with the BMGF, we conclude that the matching gift work partly through a quality signal mechanism.

Keywords: public goods; charitable fundraising; asymmetric information; matching grant

JEL: D12, D71, D82, H41, O12

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I. Introduction

The combination of shrinking public budgets and devolutionary trends in government has policymakers around the globe struggling to finance public goods. A key group of providers that has stepped up their efforts to substitute for the government in the provision of public goods is private charities Since 1970, charitable gifts in the United States have grown seventeen-fold, nearly doubling the rate of growth in the S&P 500 over the same period; overall US giving to charitable and religious causes now exceeds 2% of Gross Domestic Product in the United States (List, 2011).

Even if private dollars can be attracted to provide public goods, skeptics, particularly in the space of aid to developing countries, question whether aid can work to alleviate poverty (Easterly, 2006). One key deterrent is the high information costs, which may cause a market failure for charitable services. Individuals, keen to act on their altruism, may not do so because they lack information about aid effectiveness. As such, there is a role for large donors, who may be better equipped to assess the quality of private organizations, to attenuate this market failure by announcing their gifts publicly. While this public giving may be attributable to vanity (see, e.g., Karlan and McConnell, 2012), quality signaling and expectation of social mimicry are also oft named mechanisms.

The early seminal models of giving did not consider lead donors and sequential charitable gifts (Andreoni, 1989, 1990), but instead developed a theory of giving that focused on the private consumption utility of giving—the "warm glow"—alongside other motives such as altruism. However, an increasing amount of evidence from the field suggests an important role for leadership giving in encouraging others to give. For example, List and Lucking-Reiley (2002) find that announcing higher levels of seed money increases giving, but that the offer of a rebate contingent on achievement of a fundraising goal has no discernible impact on giving. Similarly, Karlan and List (2007) find that announcing a matching grant increases giving for a liberal, politically-oriented charity, but that this increase is unaffected by changes in the matching ratio. The underlying mechanism at work in such studies remains ill-understood, however.[1]

The theoretical literature has also yet to coalesce around the underlying motivation for why leadership gifts work. Hermalin (1998) explores the role of leadership within a firm, and shows that under symmetric information about the marginal product of effort, there is a stable equilibrium where everyone in the organization free rides to a certain extent. However, if there is asymmetric information, then the leader can convince the followers to exert full effort by exerting full effort himself—leading by example—which serves as a signal to workers that effort has a higher marginal product. Applied to public goods, Hermalin's findings suggest a role for leadership giving, independent of warm-glow utility, based on the asymmetry of information about the returns to different charitable organizations.

More closely linked to our work, Vesterlund (2003) develops a novel theory that seeks to explain sequential fundraising. Similar to Hermalin, Vesterlund assumes that donors possess imperfect

[1] Other work suggests that upfront money may not signal charity quality. For example, Meier (2007) finds that in a fundraising campaign for two social funds at a university, students respond positively to a matching grant in the short run, but reduce their post-matching period contribution. Thus, there was no net difference in funds raised in the long term.

information about charity quality, and shows that if some donors can acquire sufficient information to reveal quality, then announcements about prior donor giving levels can induce additional giving through information revelation. Andreoni (2006) adds richly to the model by including two important variations: the public good can take on more than two quality levels, and the leader can be treated as endogenous rather than exogenous. The first admits an extra dilemma, since only extraordinarily large gifts by the leader can signal that the charity is of high quality. The second creates an informational public good, where the equilibrium calls for only the richest single person to be the leader. Andreoni's extensions cogently explain how charities can serve as important middle-men in transforming donor preferences into immediate actions.

To examine how and why leadership giving affects prospective donors, we begin by presenting a simple theoretical framework that outlines the underlying mechanism by which leadership gifts may change the behavior of marginal givers. Importantly for our purposes, the model reveals that under the quality signaling theory of leadership gifts, the leader's information should have important heterogeneous effects across agents: for those leaders who are credible, the sign of the signaling effect is positive. Alternatively, if the leader lacks credibility, the leadership signal should be unimportant, and not change giving rates.

To test the theoretical predictions, we teamed with TechnoServe, a medium sized ($42.2m 2008 revenue) charity focused on international development and poverty reduction. We conducted two natural field experiments through their normal direct mail fundraising efforts.

In our first field experiment, we examine the impact of a matching grant provided by the Bill and Melinda Gates Foundation (BMGF) at a ratio of $2:$1 versus a control group that received no match offer. The sample frame for this experiment consisted entirely of prior donors, or 'warm list givers,' to TechnoServe.

In our second field experiment, we examine the impact of naming the matching donor, the BMGF, versus not providing the identity of the matching donor. In this case, the sample consists entirely of individuals who had *not* previously donated to TechnoServe. Importantly, in this second field experiment, we also obtained information about the type of charities the potential donor had supported in the past. This non-experimental variation in donor preferences allows us to test for heterogeneous treatment effects in the spirit of our theory. In both experiments we are able to track long-term giving after the experimental window for matched giving concludes, which is important for teasing apart the mechanism through which the matching grant affects donation levels.

We find in the first experiment that offering to prior donors a $2:$1 matching grant significantly increased average revenue per solicitation by 81%, or 12.3 cents in the match period. Importantly, on the extensive margin the match offer increased the probability of an individual donating by 79%. In the second experiment, we find that the quality signal of naming BMGF as the source of matching funds significantly increased average revenue per solicitation by 51%, or 11.8 cents, amongst non-prior donors, and increased the probability of an individual donating by 26%. The quality signal increased the probability of a non-prior donor giving, but did not significantly increase average gift size conditional on giving.

We also find heterogeneous effects of the quality signal: the impact on respondents who were past donors to poverty-oriented charities is roughly 3.75 times larger than on donors to other

types of charities. We posit that those who have given to worldwide poverty issues previously are more likely to identify the BMGF as a large foundation dedicated to poverty alleviation (as opposed to identifying BMGF as a Microsoft corporate foundation, or lacking familiarity with it entirely; we present evidence supporting this correlation from questions we added to a representative sample of Americans in the Cooperative Congressional Election Survey (CCES) in 2012). With this knowledge about BMGF's activities, individuals are more likely to perceive the matching donation as a signal about the quality of TechnoServe, as BMGF is capable of incurring significant costs to identify worthy causes. Thus, our interpretation is that the matching donation from the BMGF has a larger average impact on the response rate and amount given because the information signaled by the BMGF gift allows donors to overcome the market failure associated with asymmetric information, and to act on their altruism.

Importantly, in both experiments we also observe donations to TechnoServe after our experimental match period ended. This allows us to differentiate between various factors affecting giving. For example, our theory suggests that there could be two motivations to give because of the BMGF endorsement. One is the signal about the charity's quality; the second is the desire to emulate one of the richest people in the world. This vainglorious motivation would work through the same mechanisms that caused donors to give more when attractive women solicited a donation, for example (Landry et al., 2006). If the BMGF endorsement enters potential donors' utility functions through this superficial, non-quality signal mechanism, and such a mechanism is only short-lived, then we should only observe a short-term change in giving. What we observe, however, is that people informed about the BMGF quality signal continue to give at higher rates well after the matching period, lending critical support to the quality signaling interpretation.

Our results have important implications for the design of fundraising campaigns, and add to a growing body of empirical literature analyzing the psychology and economics of charitable giving. In addition, the results open up the possibility that governments can mitigate inefficiently low levels of charitable giving for international development by serving as the 'lead' giver—not only through direct transfers but advertising those transfers. This insight could also be applied to resolving other market failures, such as sub-optimal consumption of environmental goods or new technologies, by encouraging governments or other large donors to send quality signals through leadership giving.

The remainder of our note proceeds as follows. In Section II we describe our theoretical framework, Section III summarizes the experimental design and results, and Section IV concludes.

II. Theoretical Framework

To provide a theoretical framework for interpretation of our empirical results, we present a simple theory closely following Andreoni (1989, 1990) and Landry et al. (2006, 2010). An agent $i \in \Omega$ has utility that is additively separable into utility u_i from consuming a numeraire good, y_i, expected utility $h_i(\bullet)$ from a public good (G), and a composite utility term, $f_i(\bullet)$, which is conceived of as a warm glow component. In choosing a donation level, b_i, agent i derives utility according to:

(1) $$V_i = u_i\,(y_i(b_i)) + h_i(G) + f_i(b_i)$$

where numeraire consumption is determined by the budget of the agent, $y_i = w_i - b_i$. Total public good provision is given by $G = \sum b_i$. We assume that f_i is concave and that u_i and h_i are (strictly) increasing and concave.

This simple set-up elucidates several facts. First, basic predictions of price changes—e.g., lowering the price of charitable giving through tax changes or matching grants, the common intuition is that people should increase demand for contributions; therefore, the donation level b_i increases, as does G.

Three decades of empirical work have been devoted to estimating the price elasticity of charitable contributions, though most of them have examined price changes induced thorough rebate mechanisms and tax codes (see the work of Feldstein, 1975, Clotfelter, 1985, Randolph, 1995, Auten et al., 2002, Peloza and Steel, 2005). Important experimental work has also shown the power of framing, and that price changes via matching grants might impact giving more than those operating through rebate mechanisms (Eckel and Grossman, 2003).

Beyond these price effects, however, we also expect matched gifts to influence expected utility h_i from the public good provided by charities. As discussed in Vesterlund (2003) and Andreoni (2006), donors may be incompletely informed about the true value of the public good. A charity can thus gain credibility and increase the expected marginal utility to an agent by using mechanisms that provide credible signals of charitable quality. One such effect might come via the announcement of matching funds. Alternatively, it is possible that potential donors might perceive the matching grant as a 'marketing trick,' in which case, one would expect the match to have either no effect or a slightly negative effect on donations. Even if matching grants are perceived as credible, they might actually reduce donations by decreasing the marginal utility of the public good being bought. For this to happen, the reduction in marginal utility needs to outweigh the price effect resulting from the match, which depends on many factors, including the match ratio and beliefs about others' giving.

Importantly, however, one aspect of this framework that has not been explored empirically is the channel through which the match might operate. In many fund-raising campaigns, charities place importance on both participation rates and aggregate contribution levels. As such, it is important for the charity to influence the *marginal* utility of giving, i.e. the derivative of (1) with respect to b_i. The simple framework above provides two distinct channels through which the fundraiser can influence donation decisions.

First, the expected utility from the public good, h_i, can be influenced by announcing that a lead donor has come forward and is supporting the cause. Such an announcement can alter the perceived credibility of the charity, in both the short run and the long run, for prospective donors who view the announcement as credible and informative. Second, the composite utility term f_i may depend on factors such as warm glow, or the fact that the donor wants to emulate the lead donor. Consonant with this notion, Landry et al. (2010) report that solicitor characteristics, such as female physical attractiveness, influence giving in the short run but have no influence on long-run donations. In this way, influences on the composite utility term tend to be short-lived (see also Della Vigna et al., 2011). Viewed through the lens of the model, therefore, it is possible to explore the effect of lead donor gifts by examining their effects on prospective donors in both the

short and long runs, and among donors who are better and worse informed about the quality signal.

Insiders versus Outsiders

To operationalize the idea that lead donor gifts might have heterogeneous effects, we partition the set Ω of agents into two types: (i) individuals who have never given to a charity in sector i, and therefore have less information about such types (Ω^{NG}, never given) and (ii) previous givers to charity types in sector i (Ω^{G}, given):

(2) $$\Omega = \Omega^{NG} \text{ union } \Omega^{G}$$

Importantly, givers to charity sector *i* reveal either a high marginal valuation for the public good provided by such charity types, a higher realization of the composite utility term (i.e., a large warm glow or a distaste for not giving), or some combination thereof. *Ceteris paribus*, we would thus expect that such households are more likely to contribute and to provide larger donations than a non-previously-giving household when a charity from sector *i* approaches them. Furthermore, Ω^{G} household donations should be more influenced by a credible lead donor who has an established reputation in sector *i* compared to Ω^{NG} households. This is because such lead donors influence the expected utility h_i from the public good for Ω^{G} households more so than for Ω^{NG} households.

We thus identify two channels in which a gift from a lead donor can operate. First, the lead donor can alter the expected value of the public good via the signal of charitable quality. Second, and in contrast, the lead donor's gift can operate solely via the instantaneous realization of the composite utility term f_i: smaller donors might simply donate in the presence of a matching gift because they wish to be like the lead donor. Nike captured this sentiment well in a famous shoe commercial: "you, too, can Be Like Mike."

Short Run vs. Long Run

Theory also guides our thinking on short run vs. long run effects: if the lead donor's gift provides a durable signal of charitable quality, then giving levels should increase after the announcement of the leader's donation both in the short and the long run. Alternatively, if the lead donor affect is operating purely through the composite utility term, f_i, the effect of the lead donor will be short lived.

As a thought experiment, consider the marginal donor who contributes to a campaign with matched donations because of his composite utility term. If such an agent is approached in a follow-up campaign without the match offer, the realization of the composite utility term would be lower. *Ceteris paribus*, we would therefore expect a weakly lower contribution from such an agent. Alternatively, if this marginal donor was attracted via the match because of the quality signal, future contributions will remain high if the quality signal is durable. We collect data both within the period when donations are matched (the short run) as well as after the matching period expires (the long run) in order to test this theory.

III. Experimental Motivation, Setting, and Design

The 501(c)3 organization TechnoServe aims to raise the incomes of entrepreneurial men and women in impoverished countries by helping them to build up their businesses and farms. They serve Asia, Africa, Central America, and South America, and rely on individual contributions as well as large grants to finance their mission. BMGF is a major donor of TechnoServe, and provided the necessary matching funds for this set of field experiments.

Experiment #1: Matching Grant versus Non-Matching Grant, Sample Frame of Prior Donors

To establish the positive effect of a matching grant in this context, our first experiment estimates the elasticity for donations with a matching grant compared to those without a match. As discussed above, several theories suggest that a matching grant may not generate higher giving. To wit, individuals may believe the lead donor will donate the money regardless, perceive the charity as more satiated (i.e., the marginal product for the public good is reduced), or simply shift donations inter-temporally but not increase total giving. The empirical evidence is mixed. Karlan and List (2007) find that matching grants increase giving to a liberal politically-oriented charity, but only in states which voted more liberally in presidential elections. Meier (2007) finds matching grants increase giving in the short run but not the long run. Finally, Karlan, List, and Shafir (2011) find that matching grants work positively for recent supporters but negatively for prior-but-not-recent supporters. This mixed evidence makes imperative the need for refinement of our theoretical understanding of the conditions under which matching grants change the donation patterns of heterogeneous groups of donors.

Our sample frame for this first natural field experiment consists of 52,988 prior donors to TechnoServe. Solicitation letters were mailed in December 2009, and responses were tracked until March 2010, at which point no further donations were received from this round of solicitations. Donors were randomly assigned to receive letters with or without information about the BMGF's matching grant. The randomization process and distribution of the letters were carried out by a direct marketing firm hired by TechnoServe.

Experiment #2: Named Matching Grant vs. Unnamed Matching Grant, Sample Frame of Prospective Donors

Lesser-known charities often experience difficulty in raising funds. This is commonly attributed to a lack of public awareness about the nature and quality of the work that they perform. If potential donors have preferences over organizational quality, one means for lesser-known organizations to increase donations is to use quality signals to demonstrate their own credibility.

Our framework shows that quality signals can operate through information: when potential donors have information about leadership gifts to an organization, it may act as a signal of the charity's quality. However, the information content of the message critically relies on the leadership donor. In this second natural field experiment, we use a campaign in which half of our sample of potential donors were offered a 2:1 matching grant from a named and prestigious donor (the BMGF), and the other half were offered a 2:1 matching grant from an unnamed donor. As with the first experiment, the randomization process and distribution of the letters were carried out by a direct marketing firm hired by TechnoServe.

Our sample frame for this natural field experiment consists of a distinct pool of 61,483 prospective donors who had previously given to charities other than TechnoServe, but had not given to TechnoServe itself. Since TechnoServe purchased the list of potential donors from other charities, we can identify the charity of origin for all donors in our sample.[2] We use this information to examine heterogeneity among the potential donors, assessing whether the quality signal provided by BMGF is more effective with those who have more information about poverty-oriented charities than with those who have less.

We also note that our classification as "poverty-oriented" coincides perfectly with whether the charity had received prior support from the BMGF. It is important to note that while we could not induce exogenous variation in the subjects' pre-treatment donation set, our main identification assumption is that those who have given to poverty-oriented charities in the past will be marginally better informed about the quality of a poverty-oriented charity and the role of BMGF in this space. Preferences may also vary between these two groups of donors, but baseline comparisons allow us to infer their importance.

IV. Experimental Results

Table 1 presents the results for experiment 1, including summaries of giving both during and after the match period. Table 2 presents the same for experiment 2, and includes tests for heterogeneity based on the source of the prospective donor's name.

Because we are analyzing data from a randomized experiment, our empirical strategy is straightforward. For both experiments, we use OLS to estimate the following specification:

$$Y = a_0 + a_1 T_1 + e,$$

where Y is the dependent variable and T_1 is a dichotomous variable indicating whether the respondent was exposed to the treatment. Using donation amount as the dependent variable estimates treatment effects on average revenue per solicitation. Using a binary indicator of whether the solicitee gave in any amount as the dependent variable estimates how the treatment affected the average probability of an individual giving. In order to estimate the impact of the treatment on average gift size, we restrict the sample to those who gave and use gift amount as the dependent variable; this last approach deviates from the experimental design since selection into giving may be heterogeneous with respect to wealth, or many other unobserved factors.

Our first result from experiment 1, presented in Table 1 Panel A, is that the announcement of a matching grant from BMGF was effective at increasing donations from prior donors during the matching period. We find that average revenue per solicitation was \$0.13 higher among respondents who received the treatment mailer (\$0.28) than among those who received the control (\$0.15), an increase of 81%. Our empirical results indicate that the match increased the likelihood of an individual giving by 0.4 percentage points, an increase of 80% from 0.5% to

[2] We identify charities as "poverty-oriented" if they have received prior support from BMGF. The charities are Accion (poverty-oriented, prior support from BMGF), American Indian College Fund (non-poverty, no prior support from BMGF), Drug Policy Alliance (non-poverty, no prior support from BMGF), Freedom from Hunger (poverty-oriented, prior support from BMGF), TAG: Tony and Alicia Gwynn Foundation (non-poverty, no prior support from BMGF), USA for UNHCR (non-poverty, no prior support from BMGF) and Women for Women (non-poverty, no prior support from BMGF). Information on support from BMGF determined by accessing the publically available 990 tax records of each of the non-profit organizations.

0.9%. Interestingly, the match did not increase gift size among those who gave ($30.75 in treatment compared to $30.48 in control) - its effect was simply to increase the probability of giving.

Similar results were also seen after the officially announced end-date of the matching treatment. Panel B shows that those who received the treatment were more likely to give again, as the likelihood of a repeat gift increases from 0.24% among the control group to 0.46% among the treated (p-value of difference = 0.000), and average future gift unconditional on giving increases from $0.112 to $0.343 (p-value of difference = 0.057). This reinforces the idea that the matched grant does not affect individual giving through the price mechanism, nor by inspiring a desire to emulate the Bill and Melinda Gates Foundation, but rather through a quality signal that retains its value after the initial direct marketing solicitation and generates a more loyal donor.

Results from experiment 2, shown in Table 2, reveal that solicitations which named BMGF as the matching donor were much more effective than solicitations that did not name the matching donor. In this case, the named leadership gift increased average revenue per solicitation by $0.12, from $0.29 to $0.41, or 40% (p-value of difference = 0.003). The naming treatment also increased the probability of an individual giving: the naming gift increased giving rates by 0.23 percentage points (from 0.9% to 1.1%, p-value of difference = 0.004).

As was observed in experiment 1, the treatment effect did not dissipate after the matching deadline. This result provides further credence to the hypothesis that leadership gifts increase individual giving due to the durable quality signal they provide: the repeat giving rate increases from 0.4% to 0.6% (p-value of difference = 0.001), and average gift unconditional on giving increases from $0.118 to $0.188 (p-value of difference = 0.058).

Given the unique nature of our data, we can dig deeper into this result by focusing more closely on the types of donors who responded to the announcement that BMGF provided the matched funding. Columns 4 and 5 in Table 2 report the differential treatment effect based on the source of the prospective donor. We use OLS to estimate the following specification, examining heterogeneity by donor type:

$$Y = a_0 + a_1T_1 + a_2P*T_1 + a_3P + e,$$

where T_1 is a dichotomous variable indicating whether or not an individual was exposed to the quality signal and P is a binary variable indicating whether the individual previously gave to one of the “poverty-oriented” charities.

Empirical results in Table 2 consistently show that the differential treatment effect is large and statistically significant, and this differential effect exists during the matching grant period as well as afterwards. For example, for the binary outcome of whether the solicitee donates any amount, previous donors to poverty-related organizations are 0.41 percentage points (p-value = 0.024) more responsive to the naming of the BMGF than non-poverty donors. This result is consistent with the hypothesis that the BMGF name acts as a quality signal for those donors who understand the size and importance of the BMGF in the field of international development. Importantly, we find no BMGF-naming effect for donors whose names we received from non-poverty related charities. Although one should be cautious when interpreting these data because previous donation patterns are not randomized across solicitees, the results are *consistent* with

the notion that there is a large signaling effect for donors who understand that BMGF is a major player in this area.

To examine whether in fact "having given to a poverty charity" is likely an indication of familiarity with the BMGF, we added questions to the 2012 Cooperative Congressional Election Study (CCES)[3], a nationally representative survey of U.S. adults. In our 10-question CCES module (see Appendix 1), 1,000 respondents were asked about their donations to charity in the past year and their familiarity with and impression of the BMGF. Specifically, we examine two key questions:

1. "Next, we want to know how familiar you are with the activities of the Bill and Melinda Gates Foundation. On a scale of 1 to 3, how familiar are you with what they support? (a) I am not familiar with what they do. (b) I can name the causes they support, but not any organizations. (c) I can name both causes and organizations they support."
2. "Next, we want to know what your impression is of the Bill and Melinda Gates Foundation. (a) Very unfavorable (b) Unfavorable (c) Average (d) Favorable (e) Very favorable (f) Unknown / I have no impression."

For the first question, due to low response (n=25) for the answer (c), we combined (b) and (c) for the empirical analysis, and as such use a binary variable equal to one for Familiar with Type of Causes BMGF Supports. For the second question, we have low response with unfavorable impressions (6.62%), and are more interested with this as a second measure of familiarity rather than their judgment; as such, we use the binary outcome equal to one if the respondent has any impression of BMGF.

Table 3 presents these survey results broken down by donor type. Overall, these CCES survey results support our conjecture that those who give to poverty charities are also more familiar with the BMGF. Column 6 shows that donors to a poverty-oriented charity were 15.2 percentage points more likely than non-donors to be familiar with the causes (p-value of difference=0.000) the BMGF supports, and 11.9 percentage points more likely to have an opinion of the BMGF's activities (p=0.000).

Column 10 then compares the difference-in-difference between poverty charities and religious charities: is the familiarity differential for those who support poverty charities versus do not support poverty charities more than the same differential for religious charities? We find that for familiarity with causes, the difference-in-difference is statistically significant (p=0.003) but for having an impression of the BMGF, we cannot reject the null (p=0.229). We believe in net this supports the argument that those who give to poverty charities are indeed more familiar with BMGF, and thus through the lens of our model more likely to see their actions as a signal of quality.

[3] The CCES, administered by YouGov Polimetrix, uses a matched random sample technique. The survey is stratified on voter registration status, state size, and competitiveness of congressional districts. Registered voters are oversampled.

V. Conclusion

We report results from two natural field experiments which explore techniques to enhance flows of resources to private charities supporting poverty reduction in developing countries. Much controversy remains about aid effectiveness, and such debates may cause doubt, and thus inaction, for potential donors. Quality signals may alleviate some of these concerns, thus raising more money for developing countries causes. Our results are thus important for donor policies regarding the funding of poverty reduction programs in developing countries.

We find that lead donors can considerably help lesser-known charities achieve their fundraising goals simply by announcing their gifts and by matching other people's gifts with their own money. Indeed, through this signaling of charity quality, large donors such as the BMGF can multiply their own gifts several times over—both during the matching period and well beyond—and attract new donors to their cause. For practitioners, this result is important in that securing a donor pyramid is one of the most important problems facing any charity. The fact that quality signaling can work to enhance both the size of gifts and the number of donors should be of great interest to this community.

More broadly, this study begins to uncover why leadership gifts are effective in motivating other people to donate money to causes supported by leaders. Economists have only recently begun to explore insights pertaining to why people give, why they remain committed to causes, and what induces them to donate additional amounts. This study advances our understanding of these topics by going beyond the short-run substitution effects observed in most previous fund-raising field experiments to generate evidence on the temporal profile of gifts across different charities over time. In doing so, the theory can be more cleanly tested, and alternative hypotheses more neatly organized.

Further work is needed, however, to understand how different factors, such as the activity of the charity, the identity of the leader (in terms of its quality and connection to solicitees), and the presentation of the leader should be incorporated, or not, into models of giving in order to make them more robust. Furthermore, although the literature has clearly learned a great deal from static exercises, the true potential of field experimentation will not be reaped until we provide a deeper understanding of the dynamic issues that many of our theoretical models are built to describe.

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Appendix 1: 10 Questions added to the 2012 Cooperative Congressional Election Survey

YAL371
Special instructions: None.

Have you donated money to charity in the past year?

1 Yes
2 No

YAL372
Special instructions: Only ask if YAL371==1 ("yes").

How much did you donate in the past 12 months to charity?

YAL373
Special instructions: Only ask if YAL371==1 ("yes").

Have you donated to any religious-based charity, for example a church or place of worship?

1 Yes
2 No

YAL374
Special instructions: Only ask if YAL373==1 ("yes").

How much did you donate to religious-based charity in the past 12 months?

YAL375
Special instructions: Only ask if YAL371==1 ("yes").

Have you donated to any charity doing work internationally on poverty?

1 Yes
2 No

YAL376
Special instructions: Only ask if YAL375==1 ("yes").

How much did you donate to charities doing work internationally on poverty in the past 12 months?

YAL377
Special instructions: None.

Next, we want to know how familiar you are with the activities of the Bill and Melinda Gates Foundation. On a scale of 1 to 3, how familiar are you with what they support?

1 I am not familiar with what they do.
2 I can name the causes they support, but not any organizations.
3 I can name both causes and organizations they support.

YAL378
Special instructions: Only ask if YAL377==2 OR 3. *(Do not ask if* YAL377==1 ["I have no idea."]*.).*

Please name up to 3 of the main causes that you believe they support.

YAL379
Special instructions: Only ask if YAL377== 3*. (Do not ask if* YAL377==1 OR 2.*).*

Please name up to 3 of the organizations that you believe they support.

YAL377a
Special instructions: None.

Next, we want to know what your impression is of the Bill and Melinda Gates Foundation.

1 Very unfavorable
2 Unfavorable
3 Average
4 Favorable
5 Very favorable
6 Unknown / I have no impression.

Table 1: Experiment #1: Matching Grant versus No Matching Grant
Means (Standard deviations)
Sample Frame: Prior Donors to Organization

	Treatment $3:$1 Match from BMGF Offered (1)	Control No Match Offered (2)	P-value from T-test Col 1<>Col 2 (3)
Panel A: Before Matching Grant Deadline			
Response Rate	0.009	0.005	0.000***
	(0.094)	(0.070)	
$ Given, Unconditional on Giving	0.276	0.152	0.000***
	(3.779)	(3.322)	
$ Given, Conditional on Giving	30.751	30.484	0.935
	(25.680)	(35.942)	
Number of solicitations	25993	25995	
Number of donations	233	130	
Panel B: Post-Matching Grant Deadline			
Gave in Post-Match Period	0.005	0.002	0.000***
	(0.068)	(0.048)	
$ Given, Unconditional on Giving	0.222	0.072	0.208
	(19.054)	(2.310)	
$ Given, Conditional on Giving	113.020	48.180	0.338
	(418.548)	(35.592)	
Number of solicitations	25993	25995	
Number of donations	51	39	
Panel C: Combined, Pre and Post Matching Grant Deadline			
Total # of Gifts	0.017	0.010	0.000***
	(0.230)	(0.168)	
$ Given, Unconditional on Giving	0.640	0.288	0.0092***
	(20.796)	(6.332)	
$ Given, Conditional on Giving	71.354	57.648	0.467
	(208.290)	(68.892)	
Number of solicitations	25993	25995	

***, **, and * indicate statistical signifance at 99%, 95%, and 90%, respectively.

Table 2: Experiment #2, Matching Grant From Bill and Melinda Gates Foundation versus from Anonymous Donor
Mean (Standard Deviation) and OLS
Sample Frame: Non-Prior Donors to Organization

	Mean Comparisons of Treatment and Control Mean (Standard Deviation)			OLS Results Testing for Heterogeneous Treatment Effects Coefficient (standard error)	
	Treatment: BMGF Named	Control: Anonymous	P-value from T-test Col 1<>Col 2	BMGF Main Treatment	Interaction term: BMGF Main Treatment * Prospect's name acquired from poverty-related charity
	(1)	(2)	(3)	(4)	(5)
Panel A: Before Matching Grant Deadline					
Response Rate	0.011	0.009	0.003***	0.001	0.004**
	(0.104)	(0.093)		(0.000)	(0.002)
$ Given, Unconditional on Giving	0.413	0.291	0.002 ***	0.070	0.198**
	(5.569)	(4.365)		(0.048)	(0.089)
$ Given, Conditional on Giving	37.589	33.688	0.183	2.670	5.103
	(37.783)	(32.886)		(3.640)	(5.495)
Number of households	30740	30743		61483	
Number of donations	338	266		604	
Panel B: Post-Matching Grant Deadline					
Number of gifts	0.006	0.004	0.000***	0.001*	0.0031**
	(0.077)	(0.063)		(0.000)	(0.001)
Amount Given, Unconditional on Giving	0.188	0.118	0.100*	0.018	0.1995*
	(5.532)	(4.982)		(0.045)	(0.110)
Amount Given, Conditional on Giving	65.557	59.492	0.675	-8.960	52.1004*
	(80.271)	(95.388)		(17.358)	(30.113)
Number of households	30740	30743		61483	
Number of donations	88	61		149	
Panel C: Combined, Pre and Post Matching Grant Deadline					
Number of gifts	0.021	0.017	0.053*	0.000	0.0123***
	(0.234)	(0.241)		(0.002)	(0.004)
Amount Given, Unconditional on Giving	0.808	0.572	0.011**	0.070	0.6331***
	(11.967)	(11.074)		(0.106)	(0.217)
Amount Given, Conditional on Giving	73.465	66.095	0.335	-1.594	31.8017**
	(87.803)	(99.388)		(9.351)	(14.977)
Number of households	30740	30743		61483	

We identify charities as "poverty-oriented" if they have received prior support from BMGF. These charities include Accion and Freedom from Hunger. Non-poverty charities are American Indian College Fund, Drug Policy Alliance, TAG: Tony and Alicia Gwynn Foundation, USA for UNHCR, and Women for Women. Information on support from BMGF was determined by accessing the publically available 990 tax records of each of the non-profit organizations. Orthogonality test for source of name, from regression of assignment to treatment on indicator variable for source of donor: F-test = 0.11, p-value = 0.9998. ***, **, and * indicate statistical signifance at 99%, 95%, and 90%, respectively.

Table 3: CCES Survey Results on Familiarity with Bill and Melinda Gates Foundation, by Donor Type
Means and Standard Errors

	Donor Type (Response to "Have You Donated to X" Question on Survey)									
	Any charity			Poverty charity			Religious charity			F-test (p-value) of equality of Poverty Charity and Religious Charity Differences
	Donor	Non Donor	Difference	Donor	Non Donor	Difference	Donor	Non Donor	Difference	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Proportion Familiar with type of causes BMGF supports	0.361	0.191	0.170***	0.431	0.279	0.152***	0.327	0.297	0.029	8.670
	(0.018)	(0.023)	(0.031)	(0.034)	(0.016)	(0.036)	(0.024)	(0.019)	(0.030)	(0.003)
Number of Observations	692	304	996	209	779	988	395	599	994	985
Proportion with Any Impression of BMGF	0.643	0.401	0.241***	0.663	0.544	0.119***	0.605	0.543	0.062*	1.45
	(0.018)	(0.028)	(0.033)	(0.033)	(0.018)	(0.038)	(0.025)	(0.020)	(0.032)	(0.229)
Number of Observations	691	304	995	208	779	987	395	598	993	984

These data come from questions added to the Cooperative Congressional Election Study (CCES) for 1,000 observations. Column 10 reports the results from two linear probability model regressions, predicting "Familiar with type of causes that BMGF supports" and "Any Impression of BMGF", with two binary dependent variables (has given to poverty charity, and has given to religious charity). The column then reports the F-test and p-value for the equality of the coefficients on the two dependent variables. "Poverty charity" refers to a charity doing work internationally on poverty. "Religious charity" refers to, e.g., a church or house of worship. When asked to report their familiarity with what the BMGF, respondents were given three options: (a) unfamiliar, (b) could name the causes supported by BMGF but not any organizations (n=283), and (c) could name both the causes and organizations supported by BMGF (n=25). Due to the small size of the third cell, we combined (b) and (c) here, to create a binary variable for familiarity. For the second question, respondent's impression of the BMGF, respondents who recorded an opinion (very unfavorable, unfavorable, average, favorable, or very favorable) as opposed to answering "Unknown/I have no impression" are counted as having "Any Impression of BMGF". There were between 2 and 11 missing values for different questions. Two observations were dropped because they reported 100,000,000 in donations to charity, using a digit sequence that appeared fake (i.e., 123456789). These two respondents also provided seemingly fabricated numbers for amount donated to faith-based and/or poverty-oriented charities. Standard errors in parentheses. ***, **, and * indicate statistical signifance at 99%, 95%, and 90%, respectively.