# Testing for Altruism and Social Pressure in Charitable Giving*

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**Abstract**

Every year, 90 percent of Americans give money to charities. Is such generosity necessarily welfare enhancing for the giver? We present a theoretical framework that distinguishes two types of motivation: individuals like to give, e.g., due to altruism or warm glow, and individuals would rather not give but dislike saying no, e.g., due to social pressure. We design a door-to-door fund-raiser in which some households are informed about the exact time of solicitation with a flyer on their door-knobs. Thus, they can seek or avoid the fund-raiser. We find that the flyer reduces the share of households opening the door by 10 to 25 percent and, if the flyer allows checking a 'Do Not Disturb' box, reduces giving by 30 percent. The latter decrease is concentrated among donations smaller than $10. These findings suggest that social pressure is an important determinant of door-to-door giving. Combining data from this and a complementary field experiment, we structurally estimate the model. The estimated social pressure cost of saying no to a solicitor is $3.55 for an in-state charity and $1.36 for an out-of-state charity. Our welfare calculations suggest that our door-to-door fund-raising campaigns on average lower utility of the potential donors.

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# 1 Introduction

In the U.S., approximately 90% of individuals donate money each year. There is at least one capital campaign to raise $25 million or more under way in virtually every major population center in North America. Smaller capital campaigns are even more numerous, with phoneathons, door-to-door drives, and mail solicitations increasing in popularity. Despite the ubiquity of fund-raising, we still have an imperfect understanding of the motivations for different forms of giving and the welfare implications for the giver (see, e.g., Andreoni, 2006).

In this paper, we consider two broad classes of motivations. First, individuals may give because they enjoy giving. For example, they care about a specific worthy cause or like the warm glow of giving. Second, individuals may give, despite not liking to give to the charity, because the solicitor effectively placed them under social pressure to give. Such givers would rather avoid the personal interaction with the solicitor. The two views have very different welfare implications. The altruism (or warm glow) model (Becker, 1974; Andreoni, 1989 and 1990) posits that giving is mostly supply-driven, and that it is utility-maximizing for the giver to give. Under this model, the above transaction increases the giver's utility and represents an overall enhancement of societal welfare. The social pressure model (Akerlof and Kranton, 2000) posits that giving is mostly demand-driven, and that giving may be utility-reducing for the giver.

We test for these two types of motivations in the context of personal, unsolicited donation requests. Building on a theoretical model, we design a field experiment that allows us to test whether giving is welfare-enhancing or welfare-reducing for the giver. Using the reduced-form experimental evidence, we estimate the parameters of the model structurally. We decompose the share of giving that is due to altruism versus social pressure and quantitatively evaluate the welfare effects for the giver. In this way, the empirics and theory are intertwined in a manner that is rare in this literature. While the door-to-door set-up is specific, it showcases a general methodology and provides a first step towards better understanding the underpinnings for giving more generally.

Our field experiment revolves around a door-to-door fund-raising drive for two charities, a local children's hospital, which has a reputation as a premier hospital for children, and an out-of-state charity, that most solicitees are unaware of. We approached 7,668 households in the towns surrounding Chicago in the period between April and October 2008. The crucial aspect of the experimental design is to allow individuals to sort, i.e., to either seek or avoid the solicitor. In our first treatment, a flyer on the doorknob notifies households one day in advance about the one-hour time interval in which a solicitor will arrive at their homes the next day. In the second treatment, 'Opt-out,' the flyer also includes a box to be checked if the household does 'not want to be disturbed.' We compare these two conditions to a baseline treatment, wherein solicitors approach households in the usual manner without a flyer. We estimate the

treatments effects on both the share of households that open the door and the share that give.

This design allows for a simple test of (pure or impure) altruism versus social pressure in door-to-door giving. If altruism is the main driver of giving, the flyer should increase both the presence at home and giving. Since giving is utility-enhancing, households should sort into staying at home, provided alternative ways of giving to these charities require more effort. In addition, households who intend to give in response to the flyer but who find it too costly to be at home should give to the charity via other means. Conversely, if social pressure is the main driver of giving, the flyer should lower both the frequency of opening the door and the frequency of giving. Since being asked to give is welfare-diminishing, households should sort out of opening the door. In addition, the households that are not at home during the visit of the solicitor will not give via other means, such as mailing a check, since these forms of donation are not subject to social pressure.

We report four main reduced-form results. First, the flyer treatments lower the frequency of opening the door. Relative to a rate of 41 percentage points in the baseline treatment, the share of households opening the door is 10 percent lower after receiving the flyer and 25 percent lower after receiving the flyer with opt-out box.[1] The effect is similar for both charities.

Second, the mere presence of a flyer on the door-knob has no effect on actual giving: 6.3 percent of all households give in both the baseline and the flyer treatment. However, if the flyer includes an opt-out checkbox, giving decreases by 30 percent relative to the baseline group. The treatment effect is again similar for both charities, though the level of giving is higher for the local charity in all conditions.

Third, the decrease in giving in the opt-out treatment is driven by small donations up to \$10. Donations above \$10, instead, increase slightly (not significantly) in the treatments with sorting relative to the baseline.

Fourth, there is no effect on donations via mail or Internet. In contrast to the substantial donation rates in person, only one household out of 7,668 gave through these other means.

Overall, the reduced form estimates indicate that both altruism and social pressure are important determinants of giving in this setting, with stronger evidence for the role of social pressure. The lower frequency of households opening the door after receiving a flyer indicates that households are on average trying to avoid the solicitors, consistent with social pressure. The lack of an effect of the baseline flyer on giving is consistent with opposing effects of altruism and social pressure approximately cancelling each other out. The decrease in giving after a flyer with opt-out box supports the role of social pressure: When the cost of avoiding the solicitor is lowered (a simple check on a box suffices), giving due to social pressure decreases. This interpretation is consistent with the reduction occurring almost exclusively among small donations, which are more likely due to social pressure than large donations. The social

[1] We include households that opt out among the households not opening the door. In this case, we do not knock at the door.

pressure interpretation is also consistent with the lack of donations via mail or Internet.

To assess the welfare effects of giving, we structurally estimate the parameters in the model. We combine data from the above treatments with complementary field experiments on the value of time, run in the same areas in 2008 and 2009. In these experiments, we ask 11,900 households to complete a survey. We vary the payment ($0, $5, or $10), the duration (5 or 10 minutes), and whether the surveys are announced (with a flyer, with or without opt-out option). We find that higher payments and shorter duration increase the presence at home by 5 to 15 percent and increase the share willing to undertake the survey by 20 to 80 percent. The sensitivity to monetary incentives estimated in these treatments helps to identify the underlying parameters structurally.

We use a minimum-distance estimator on the combined data from the charity and the survey experiments. The estimator minimizes the distance between the moments predicted by the model and the observed moments. The moments are the probabilities of opening the door, of giving different amounts, of completing a survey, and of opting out. Key parameters are the curvature of the altruism function, the mean and variance of altruism, and the social pressure cost of saying 'no' in person to a solicitor. We estimate that the utility from giving due to altruism is steeply concave in the amount given, with almost no predicted donation above $50, consistent with warm-glow rather than pure altruism. The mean solicitee is estimated to dislike the charities, but there is substantial heterogeneity: 11.8 percent of households contacted are altruistic enough towards the in-state charity to give a positive amount even absent social pressure, with a smaller share of altruists for the out-of-state charity, 8.5 percent. The estimated social pressure cost is $3.55 (and significantly different from $0) for the in-state charity and $1.36 (and insignificant) for the out-of-state charity. As a result of social pressure, a majority of donors gives more than they would have liked to. We estimate that half of donors derive negative utility from the fund-raising interaction, and would have preferred to sort out.

Given the large social pressure costs on non-givers, our door-to-door campaigns lower utility of the solicited households on average. For the in-state charity, a visit is estimated to lower welfare by $1.08 and to raise a net donation of only $0.25, for each household contacted. If we take our fund-raising campaigns to be representative of door-to-door solicitations, unsolicited campaigns lead to utility losses for the givers in the order of hundreds of millions of dollars. The campaigns may, of course, still be welfare improving overall, though only if the charities spend the money very effectively.

An important qualification is that our design identifies reasons for marginal, as opposed to infra-marginal, giving. Households that do not give to our fund-raiser, or give only due to social pressure, likely contributed to other charities. The motives for giving identified in this paper may not generalize to infra-marginal giving, which is more likely motivated by altruism and desire for status. By the same token, however, it would be a mistake to ignore the high-pressure giving requests studied in this paper, or to assume that the motives for infra-marginal

giving studied in the literature apply. Small capital campaigns, like the one studied in this paper, are common and reveal a different facet of the motivations for giving.

The results in the paper have implications for the optimal taxation of charitable giving. The tax advantaged status has its roots in the assumption that giving increases societal welfare including, presumably, the welfare of the giver. This assumption was untested, up to now. We provide evidence that welfare-decreasing motives to give are at least as important in door-to-door solicitations as welfare-increasing motives. This raises the question whether charities that mostly use high social-pressure solicitations should have tax-advantaged status.

Our findings can also be used as an argument to introduce a do-not-solicit or do-not-call list for charities. However, they also suggest a simple alternative: providing households with the opportunity to sort or, even better, to opt out. Introducing sorting opportunities in fund-raising limits, or eliminates altogether, the welfare losses for the solicitees. Interestingly, introducing sorting can also increase charitable fund-raising, and be a win-win solution: even a limited amount of 'sorting in' of altruistic givers, who give larger amounts, is likely to counterbalance the sorting out of givers motivated by social pressure, who give smaller amounts.

A methodological contribution of this paper is the close tie between a behavioral model and a field experiment, allowing for structural estimation of the underlying parameters. Among the behavioral field experiments (surveyed in Harrison and List, 2004, and DellaVigna, 2009), we are only aware of Bellemare and Shearer (2009) which estimates a model of reciprocity using data from a gift exchange field experiment. In other fields, a literature from Burtless and Hausman (1978) and Johnson and Pencavel (1984) and more recently including Card and Hyslop (2005) and Duflo, Hanna, and Ryan (2009) combines field experiments and structural estimation. A small number of other papers in *Structural Behavioral Economics* estimate behavioral models on observational data, including Laibson, Repetto, and Tobacman (2007) and Conlin, O'Donoghue, and Vogelsang (2007).

Beyond its methodological contribution, our paper adds to several literatures. First, it provides field evidence of behaviors that have been found to be important in laboratory experiments (Fehr and Gächter, 2000; Charness and Rabin 2002). Most closely related to this paper, a recent laboratory literature examines the impact of allowing subjects to sort out of the giving situation and finds that this leads to a substantial decrease in transfers (Dana, Caylain, and Dawes, 2006; Lazear, Malmendier, and Weber, 2009). We also find a decrease in giving in response to sorting, but only when costs are lowered sufficiently through an opt-out option.

Second, it complements the literature that explores optimal fund-raising approaches using field experiments (e.g., List and Lucking-Reiley, 2002; Landry et al., 2006; Ariely, Bracha, and Meier, 2009; Croson and Shang, 2009; Fong and Luttmer, 2009; Huck and Rasul, 2009), as well as to a theoretical literature on the reasons for giving (see, e.g., Andreoni, 2004). The tighter link between the model and the experimental design in our paper hopefully helps bridge the gap between the theoretical and the empirical literature.

Third, it builds on a literature in psychology (Asch, 1951, and Milgram, 1963), in economics (Garicano, Palacios-Huerta, and Prendergast, 2005; Falk and Ichino, 2006; Mas and Moretti, 2009), and in political science (Gerber, Green, and Larimer, 2008) on the effect of social pressure. Our model of social pressure is a reduced-form representation of utility-diminishing models of giving, whether driven by social pressure, social norms (Bernheim, 1994), or self- and other-signaling (Bodner and Prelec, 2002; Benabou and Tirole, 2006; Grossman, 2009). In this respect, the opt-out treatment suggests that self- and other-signaling is unlikely to explain door-to-door giving, since checking a do-not-disturb box is presumably a strong signal of unwillingness to give.

The rest of the paper proceeds as follows. In Section 2 we present a simple model of giving with altruism and social pressure. We introduce the experimental design in Section 3 and discuss the reduced-form results of the treatments in Section 4. In Section 5, we structurally estimate the underlying parameters of the model. In Section 6 we discuss alternative interpretations, and in Section 7 we conclude.

## 2 Model

We model an individual's response to a solicitor who visits a home and asks for a donation. We distinguish between the standard case of an unanticipated visit and an anticipated visit (household received a flyer). In the latter case, the giver can alter the probability of being at home and opening the door. If the flyer has a do-not-disturb option, the adjustment is costless; otherwise, it is costly.

**Setup.** We consider a two-stage game between a potential giver and a solicitor. For convenience, we denote the potential giver, or solicitee, simply as 'giver.'

In the first stage, the giver may receive a flyer of the upcoming visit of the solicitor and, if so, notices the flyer with probability $r \in (0, 1]$.

In the second stage, the solicitor visits the home. The giver opens the door with probability $h$. If she did not notice the flyer (or did not receive one), $h$ is equal to a baseline probability $h_0 \in (0, 1)$. If she noticed the flyer, she can adjust the probability to $h \in [0, 1]$ at a cost $c(h)$, with $c(h_0) = 0$, $c'(h_0) = 0$, and $c''(\cdot) > 0$. That is, the marginal cost of small adjustments is small, but larger adjustments have an increasingly large cost. We do not require symmetry around $h_0$ and we allow for corner solutions at $h = 0$ or $h = 1$.

If the giver is present, she donates an amount $g \geq 0$. If she is absent, there is no in-person donation ($g = 0$). The giver can donate an amount through other channels, such as via mail or online, after learning about the charity from the solicitor or the flyer.

The giver has utility

$$U(g, g_m) = u(W - g - g_m) + av(g + \theta g_m, G_{-i}) - s(g). \tag{1}$$

Private consumption is the pre-giving wealth $W$ minus the donations given to the solicitor ($g$) and through other channels, such as via mail ($g_m$). Notice that the utility of private consumption can include the utility from infra-marginal giving to other charities. Giving through other channels $g_m$ involves additional costs, such as finding an envelope and stamp, equal to $(1-\theta)g_m$, with $0 \leq \theta < 1$. The charity therefore receives $\theta g_m$.[2] The private utility satisfies standard properties: $u'(\cdot) > 0$ and $u''(\cdot) \leq 0$. We allow for giving to exceed current wealth, that is, the case $g + g_m > W$. In practice, this case is unlikely to matter.

The utility of giving in person to the charity, $v$, allows for pure altruism (Becker, 1974) and impure altruism (warm glow, Andreoni, 1989 and 1990). Since the experiment is not designed to separate pure from impure altruism but rather altruism from social pressure, we use a specification that is general enough to encompass both motivations. We also allow for negative social preferences, or spite (Levine 1998), towards the charity.

In the case of pure altruism, the agent cares about the total contributions to the charity, $G_{-i}+g+\theta g_m$, where $G_{-i}$ is the giving of others. In this case, we can think of $v\left(G_{-i}+g+\theta g_m\right)$ as the production function of the charity, which is increasing in the donation $g$ but has decreasing returns: $v'_g(\cdot,\cdot) > 0$, $v''_{g,g}(\cdot,\cdot) < 0$, and $\lim_{g\to\infty} v'\left(g,\cdot\right) = 0$. The parameter $a \geq 0$ denotes the level of altruism[3], and the overall utility from giving is $av\left(G_{-i}+g+\theta g_m\right)$.

In the case of impure altruism, the agent cares about the warm glow from giving $g$, implying that the utility $v\left(\cdot\right)$ does not necessarily depend on the giving of others, $G_{-i}$. In this case, $a \geq 0$ captures the intensity of the warm glow. We make the same assumptions $v'_g(\cdot,\cdot) > 0$, $v''_{g,g}(\cdot,\cdot) < 0$, and $\lim_{g\to\infty} v'\left(g,\cdot\right) = 0$.[4]

Finally, in the case of spite towards the charity, the agent dislikes giving to the charity. The utility is $av\left(G_{-i}+g+\theta g_m\right)$, with $a < 0$ capturing the intensity of spite. It is natural to assume that the disutility of giving increases with the donation in a convex manner: $v'_g(\cdot,\cdot) > 0$ and $v''_{g,g}(\cdot,\cdot) > 0$. Here we are abusing notation since the function $v\left(\right)$ differs for $a \geq 0$ (altruism) and $a < 0$ (spite); $v\left(\right)$ is concave in the first case and convex in the second. When the distinction is important, we use $v^{+}\left(\right)$ to denote the function for $a \geq 0$, $v^{-}\left(\right)$ to denote the function for $a < 0$, and $v\left(\right)$ to denote the function that equals $v^{+}\left(\right)$ for $a \geq 0$ and $v^{-}\left(\right)$ for $a < 0$. Notice that it is important to consider the case of spite because, unlike in a standard model of giving, even spiteful individuals may give to the charity for high enough social pressure costs (see below). In practice, however, the social pressure costs are unlikely to be so high.

The third element in the utility function is social pressure. The giver pays a utility cost $s(g) = S \cdot (g^s - g) \cdot 1_{g<g^s} \geq 0$ if she gives $g$ while the solicitor is present. The cost is highest for

[2]The key results generalize to a fixed cost of giving by mail, but the algebra is more complex.

[3]The parameter $a$ can also capture the belief of the donor about the quality of the charity.

[4]Under the warm-glow model, an alternative interpretation of $\theta$ is that the charity receives the full amount $g_m$ (i.e., there are no costs of giving via mail), but giving through an impersonal mean yields a lower warm-glow utility by a factor $\theta$.

the case of no donation ($s(0) = Sg^s$), then decreases linearly in $g$, and is zero for donations of $g^s$ or higher. This captures the idea that the agent pays a social-pressure cost for giving zero or small amounts. If the giver is away from home during the fund-raising visit, she does not incur a social pressure cost. This assumption captures that individuals dislike to be seen as not giving, whether because of identity (Akerlof and Kranton, 2000), social norms, or self-signalling (Bodner and Prelec, 2002; Grossman, 2009). The standard model is simply the special case of $S = 0$ (no social pressure) and $a = 0$ (no altruism or warm glow). We further assume that the giver is aware of her own preferences and rationally anticipates her response to social pressure.

**Giving In Person.** We solve the model working backward. In the second stage, conditional on being at home and answering the door, the giver chooses $g$ to maximize (1). Notice that, conditional on answering the door, the giver always prefers an in-person donation $g$ to a mail donation $g_m$ since mail donations involve an additional cost $(1-\theta)\,g$ and do not eliminate the social pressure cost.

We characterize the solution $g^*$ as a function of the parameters $a$ and $S$. It is useful to define the three thresholds

$$\underline{\underline{a}}\,(S) \equiv \begin{cases} \frac{u'(W)-S}{v^{+\prime}(0,G_{-i})} & \text{if} \quad u'(W) \geq S \\ \frac{u'(W)-S}{v^{-\prime}(0,G_{-i})} & \text{if} \quad u'(W) < S \end{cases}, \; \underline{a}\,(S) \equiv \begin{cases} \frac{u'(W-g^s)-S}{v^{+\prime}(g^s,G_{-i})} & \text{if} \quad u'(W-g^s) \geq S \\ \frac{u'(W-g^s)-S}{v^{-\prime}(g^s,G_{-i})} & \text{if} \quad u'(W-g^s) < S \end{cases},$$

and $\bar{a} \equiv u'(W-g^s)/v'(g^s,G_{-i})$, with $\underline{\underline{a}}\,(S) \leq \underline{a}\,(S) \leq \bar{a}$ for a given $S$ and $\underline{a}\,(0) = \bar{a}$. The thresholds $\underline{\underline{a}}\,(S)$ and $\underline{a}\,(S)$ can be negative for high $S$, while $\bar{a}$ is always positive. Figure 1 illustrates the thresholds for the case of linear private utility $u\,()$ and the case $v^{+\prime}\,(0) = v^{-\prime}\,(0)$, which are the assumptions used for the structural estimation. The proofs, unless stated otherwise, are in Appendix A.

**Lemma 1a (Giving In Person).** *For any type $a$, there is a unique optimal donation $g^*\,(a,S)$, conditional on being at home, which is weakly increasing in $a$ and takes the form: (i) $g^*\,(a,S) = 0$ for $a \leq \underline{\underline{a}}\,(S)$; (ii) $0 < g^*\,(a,S) < g^s$ for $\underline{\underline{a}}\,(S) < a < \underline{a}\,(S)$; (iii) $g^*\,(a,S) = g^s$ for $\underline{a}\,(S) \leq a \leq \bar{a}$; (iv) $g^*\,(a,S) > g^s$ for $a > \bar{a}$.*

Giving is an increasing function of the altruism parameter $a$. When altruism is sufficiently low (case (i)), the individual does not give to the charity. For a higher level of altruism (case (ii)), the individual gives a positive amount, but less than $g^s$. For even higher altruism (case (iii)), there is bunching of giving at $g^* = g^s$, which is the lowest level of giving associated with zero social pressure cost. Finally, for large enough $a$ (case (iv)), the donor gives more than $g^s$. Any giving above $g^s$ is due to altruism (hence the threshold $\bar{a} > 0$ does not depend on the social pressure cost $S$), while donations smaller than $g^s$ may be due to altruism or social pressure. Giving can occur also with spiteful agents ($a < 0$) if the social pressure cost $S$ is large enough ($S > u'\,(W)$ and hence $\underline{\underline{a}} < 0$).

**Giving Via Mail.** Conditional on not being at home, a giver who was informed about the fund-raising via a flyer decides whether to give via mail $g_m$. Note that the only reason to

give via mail is altruism. Define $a_m \equiv u'(W)/\theta v^{+\prime}(0; G_{-i})$, with $a_m \geq \underline{\underline{a}}(S)$ for all $S$.

**Lemma 1b (Giving Via Mail).** *For any type $a$ and provided $0 < \theta < 1$, there is a unique optimal donation via mail $g_m^*(a)$ (conditional on not being at home), which is weakly increasing in $a$ and takes the form: (i) $g_m^*(a) = 0$ for $a \leq a_m$; (ii) $g_m^*(a) > 0$ for $a > a_m$; (iii) for $a \leq \underline{\underline{a}}(S)$, $g^*(a; S) = g_m^*(a) = 0$ and for $a > \underline{\underline{a}}(S)$, $g^*(a; S) > \theta g_m^*(a)$. In the case $\theta = 0$, $g_m^*(a) = 0$ for all $a$.*

Giving via mail is increasing in altruism, provided $\theta > 0$. The level of giving via mail received by the charity ($\theta g_m^*(a)$) is always smaller than the level of giving in person conditional on being at home ($g^*(a, S)$) for a given altruism $a$.

**Presence at Home.** In the first stage, we distinguish two cases. If the visit is unanticipated,which occurs in the No-Flyer treatment and with probability $1-r$ in the Flyer treatment, the giver opens the door with probability $h_0$. If the visit is anticipated, the agent optimally chooses $h$ given her utility from being at home, $u(W - g^*) + av(g^*, G_{-i}) - s(g^*)$, and her utility from not being at home, $u(W - g_m^*) + av(\theta g_m^*, G_{-i})$:

$$\max_{h \in [0,1]} h\left[u(W - g^*) + av(g^*, G_{-i}) - s(g^*)\right] + (1-h)\left[u(W - g_m^*) + av(\theta g_m^*, G_{-i})\right] - c(h).$$

Lemma 2 characterizes the solution for $h^*$ as a function of the parameters $a$ and $S$.

**Lemma 2 (Presence at Home).** *For any $a$, there is a unique optimal probability of being at home $h^*(a, S)$ that is weakly increasing in $a$. For $S = 0$ (no social pressure), $h^*(a, 0) = h_0$ for $a \leq \underline{\underline{a}}(0)$ and $h^*(a, 0) > h_0$ for $a > \underline{\underline{a}}(0)$. For $S > 0$ (social pressure), there is a unique $a_0(S) \in (\underline{\underline{a}}(S), \bar{a})$ such that $h^*(a, S) < h_0$ for $a < a_0(S)$, $h^*(a_0(S), S) = h_0$, and $h^*(a, S) > h_0$ for $a > a_0(S)$.*

The optimal probability of being at home $h^*(a, S)$ is (weakly) increasing in altruism: the more the giver cares about the charity (or about the warm glow), the more likely she is to be at home. The exact pattern, however, depends on the degree of social pressure (Figure 1). In the case of no social pressure ($S = 0$), sufficiently altruistic agents, $a > \underline{\underline{a}}(0)$, plan to give if at home and actively seek to be at home ($h^* > h_0$) given that the utility of giving in person is higher than the utility of giving via mail. (Recall the assumption $\theta < 1$.) The probability of being at home is increasing in the altruism parameter $a$ up to the corner solution $h = 1$. Less altruistic agents, $a \leq \underline{\underline{a}}(0)$, instead, do not plan to give either at home or via other channels. They are indifferent as to being at home or not, and hence do not alter the baseline probability $h_0$.

In the case of social pressure ($S > 0$), agents with sufficiently low altruism, $a \leq \underline{\underline{a}}(S)$, do not plan to give and avoid the fund-raiser in order not to pay the social pressure cost. More altruistic agents with $\underline{\underline{a}}(S) < a \leq a_0(S)$ give a small amount but still prefer to avoid the fund-raiser. Their giving is either entirely due to social pressure, or suboptimally high compared to their giving in the absence of social pressure. Agents with sufficiently high altruism, $a > a_0(S)$,

care enough about the charity that they seek the interaction with the fund-raiser, despite the fact that social pressure may distort their giving upward.

**Opt-Out.** So far we have assumed that it is costly for the agent to reduce the probability of being at home. We now allow for an 'opt-out' option (such as a Do-Not-Disturb check box) that costlessly reduces the probability of being at home to zero. Formally, $c(0) = 0$ and $c(h)$ as above for $h > 0$.[5]

Opting out does not affect the giving decisions $g^*(a)$ (conditional on being at home) and $g_m^*(a)$ (conditional on not being at home) characterized in Lemmas 1a and 1b. It affects, however, the probability of being at home $h^*(a)$ of Lemma 2. The next Lemma refers to $a_0(S)$ defined in Lemma 2. (We break ties by assuming that if the agent is indifferent between $h = h_0$ and $h = 0$, the agent will choose not to opt out, that is, $h = h_0$.)

**Lemma 3 (Opt-Out Decision).** *For $S = 0$ (no social pressure), the agent never opts out. For $S > 0$ (social pressure), the agent opts out for sufficiently low altruism, $a < a_0(S)$.*

In the absence of social pressure, the agent has no reason to opt out, and the solution for $h^*(a)$ is the same as without the opt-out option. In the presence of social pressure, however, the agent opts out to avoid all cases in which the interaction with the fund-raiser lowers utility, that is, for $a$ lower than $a_0(S)$. For higher altruism levels, the agent derives positive utility from giving and hence she does not opt out; the solution then is as in Lemma 2.

Note that opting out also allows us to distinguish social pressure from models of self- or other signaling (Benabou and Tirole, 2001; Grossman, 2009). In our model, checking the opt-out box has no cost to the agent. Under self- and other-signalling, instead, checking a do-not-disturb box can be associated with a significant cost, since this option signals avoidance of giving. If the agent has a very high opt-out cost, she will never utilize the opt-out option, and the Opt-Out treatment reduces to the simple Flyer treatment.

**Testable Predictions.** To complete the solution of the model, we assume that the population of agents is heterogeneous in $a$, which is distributed with c.d.f. $F$. While we allow for any altruism distribution $F$ and any social pressure cost $S \geq 0$, to focus ideas it helps to consider two special cases: (i) *Altruism and No Social Pressure* ($F(\underline{\underline{a}}(0)) < 1$ and $S = 0$); (ii) *Social Pressure and Limited Altruism* ($S > 0$, $F(a_0(S)) = 1$, and $F(a_0(S)) - F(\underline{\underline{a}}(S)) > 0$). The first case corresponds to the standard assumption of no social pressure, but a positive share of altruistic individuals (that is, individuals with $a > \underline{\underline{a}}(S)$). The second case allows for social pressure, but assumes a zero-probability mass of sufficiently altruistic individuals, that is, individuals with $a > a_0(S)$. The assumption $F(a_0(S)) - F(\underline{\underline{a}}(S)) > 0$ eliminates a trivial case. We compare the predictions for the three treatments of No Flyer ($NF$—no notice is provided, and hence $r = 0$), Flyer ($F$—notice provided), and Opt-Out ($OO$—notice with

[5]While this formalization only allows a costless reduction of $h$ to 0 but not to other levels, this is not a restriction because any agent who prefers to lower $h$ below $h_0$ (at a positive cost) will strictly prefer to lower $h$ to 0 at no cost.

costless opting-out).

We consider first the probability of being at home in the No-Flyer (NF), Flyer (F), and Opt-Out (OO). Lemma 2 implies that these probabilities are

$$\begin{aligned}
P(H)_{NF} &= h_0, \\
P(H)_F &= (1-r)h_0 + r\int_{-\infty}^{\infty} h^*(a,S)dF, \\
P(H)_{OO} &= (1-r)h_0 + r\int_{a_{OO}}^{\infty} h^*(a,S)dF,
\end{aligned}$$

where $a_{OO} = -\infty$ for $S = 0$ and $a_{OO} = a_0(S)$ for $S > 0$.

**Proposition 1.** *With Altruism and No Social Pressure, the probability $P(H)$ is higher with flyer than without: $P(H)_F = P(H)_{OO} > P(H)_{NF}$. With Social Pressure and Limited Altruism, $P(H)$ is lower with flyer and lowest with opt-out: $P(H)_{NF} > P(H)_F \geq P(H)_{OO}$.*

**Proof.** We start from comparing $P(H)_F$ and $P(H)_{OO}$. For $S = 0$, $a_{OO} = -\infty$ and hence $P(H)_F = P(H)_{OO}$. For $S > 0$, $P(H)_F \geq P(H)_{OO}$ follows from $h^*(a,S) \geq 0$. We turn to comparing $P(H)_{NF}$ and $P(H)_F$, which depends on $h_0 \gtrless \int_{-\infty}^{\infty} h^*(a,S)dF$. In the case of Altruism and No Social Pressure, $h^*(a;S) = h_0$ for $a \leq a_0(0) = \underline{\underline{a}}(0)$ and $h^*(a,S) > h_0$ for $a > a_0(0) = \underline{\underline{a}}(0)$ (Lemma 2 for $S = 0$). Given $1 - F(\underline{\underline{a}}(0)) > 0$, this implies $P(H)_F > P(H)_{NF}$. In the case of Social Pressure and Limited Altruism, $h^*(a,S) < h_0$ for $a < a_0(S)$ (Lemma 2 for $S > 0$). Given $F(a_0(S)) = 1$, this implies $P(H)_{NF} > P(H)_F$.

In the case of Altruism and No Social Pressure, the flyer increases the presence at home relative to the control group since the agent seeks to meet the solicitor. The opt-out option has no differential effect since no one avoids the solicitor. Under Social Pressure and Limited Altruism, the opposite is true: the flyer lowers the presence at home, as agents seek to avoid the fund-raiser. In this case, the opt-out possibility lowers the presence at home further, as it makes the avoidance costless.[6] In the case in which both altruism and social pressure are present, the probability of being at home is higher for the flyer group if the altruism force dominates the social pressure force, but the opt-out option always lowers the presence at home.

The next Proposition illustrates the impact of the different treatments on the unconditional probability of in-person giving, $P(G)$, in the No-Flyer (NF), Flyer (F), and Opt-Out (OO) treatments. Lemma 1a implies that these probabilities are

$$\begin{aligned}
P(G)_{NF} &= [1 - F(\underline{\underline{a}}(S))]h_0 \\
P(G)_F &= (1-r)[1 - F(\underline{\underline{a}}(S))]h_0 + r\int_{\underline{\underline{a}}(S)}^{\infty} h^*(a,S)dF \\
P(G)_{OO} &= (1-r)[1 - F(\underline{\underline{a}}(S))]h_0 + r\int_{a_0(S)}^{\infty} h^*(a,S)dF
\end{aligned}$$

[6] A sufficient (not necessary) condition for the inequality $P(H)_F \geq P(H)_{OO}$ to be strict is a positive mass of households with $a$ in the left neighbourhood of $a_0$.

**Proposition 2.** *With Altruism and No Social Pressure, the probability $P(G)$ is higher with flyer than without: $P(G)_F = P(G)_{OO} > P(G)_{NF}$. With Social Pressure and Limited Altruism, $P(G)$ is lower with flyer and lowest with opt-out: $P(G)_{NF} > P(G)_F \geq P(G)_{OO}$.*

**Proof.** We start from comparing $P(G)_F$ and $P(G)_{OO}$. Because $h^*(a,S) \geq 0$ for all $a$ and $a_0(S) \geq \underline{\underline{a}}(S)$, $P(G)_F \geq P(G)_{OO}$ follows, with $P(G)_F = P(G)_{OO}$ for $S = 0$ (given $a_0(0) = \underline{\underline{a}}(0)$). We turn to comparing $P(G)_{NF}$ and $P(G)_F$, which depends on $h_0[1-F(\underline{\underline{a}}(S))] \gtrless \int_{\underline{\underline{a}}(S)}^{\infty} h^*(a,S)dF$. In the case of Altruism and No Social Pressure, $h^*(a,0) > h_0$ for $a > a_0(0) = \underline{\underline{a}}(0)$ (Lemma 2 for $S = 0$). Given $1 - F\left(\underline{\underline{a}}(0)\right) > 0$, this implies $P(G)_F > P(G)_{NF}$. In the case of Social Pressure and Limited Altruism, given $F(a_0(S)) = 1$, the inequality becomes $h_0[F(a_0(S)) - F(\underline{\underline{a}}(S))] \gtrless \int_{\underline{\underline{a}}(S)}^{a_0(S)} h^*(a,S)dF$ which, using $F(a_0(S)) - F(\underline{\underline{a}}(S)) > 0$ and $h^*(a,S) < h_0$ for $a < a_0(S)$ (Lemma 2 for $S > 0$), implies $P(H)_{NF} > P(H)_F$.

Under Altruism and No Social Pressure, the flyer and opt-out treatments lead to the same probability of giving, since there is no reason to use the opt-out option in the absence of social pressure. The probability of giving in these flyer treatments is higher than in the no-flyer treatment, since some agents seek opportunities to stay at home. Under Social Pressure and Limited Altruism, instead, the probability of giving is higher in the no-flyer treatment than in the flyer treatment, and even lower in the opt-out treatment. In general, if both altruism and social pressure are present, the net effect of a flyer depends on whether the giving is more due to real altruism (which works to increase giving) or to social pressure (which has the opposite effect).

The third result on charitable giving, summarized by Proposition 3, regards the probability of giving conditional on opening the door.

**Proposition 3.** *The probability of giving conditional on being at home, $P(G|H)$, is higher in the Flyer (F) and Opt-Out (OO) treatment than in the No-Flyer (NF) treatment:* $\min\left(P(G|H)_F, P(G|H)_{OO}\right) \geq P(G|H)_{NF}$.

Altruism and social pressure both lead to increases in the conditional probability of giving with flyer: altruistic people are more likely to be home, and non-givers sort away from home. Hence, conditionally on reaching an agent who is home, giving is higher with the flyer (simple or with opt-out option) than without.

The next proposition focuses on gift size. We distinguish between large donation, defined as $g > g^s$, and small donations, $g \leq g^s$.

**Proposition 4.** *(i) The unconditional probability of a large donation, $P(G^{HI})$, satisfies $P(G^{HI})_F = P(G^{HI})_{OO} \geq P(G^{HI})_{NF}$ (with strict inequality if $F(\bar{a}) < 1$). (ii) The unconditional probability of a small donation, $P(G^{LO})$, satisfies $P(G^{LO})_F = P(G^{LO})_{OO}$ if $S = 0$ and $P(G^{LO})_F > P(G^{LO})_{OO}$ if $S > 0$ and $F(a_0(S)) - F(\underline{\underline{a}}(S)) > 0$.*

A flyer (with or without opt-out option) increases large donations given that altruistic donors increase their probability of being at home. The impact of a flyer on small donations

is less obvious since small donations can reflect moderate altruism or social pressure. A flyer with opt-out unambiguously lowers the probability of small donations relative to a simple flyer, given that it simplifies the sorting out of donors motivated by social pressure.

Next, we consider the impact of the treatments on the probability of giving via mail.

**Proposition 5.** *The unconditional probability of a donation while not at home* $P(G_m)$ *satisfies* $0 = P(G_m)_{NF} \leq P(G_m)_F \leq P(G_m)_{OO}$.

The giver never gives by mail when she can give in person. As a consequence, in the No-Flyer condition, giving via mail is zero, since the giver is only informed about the fund-raiser if she is at home. In the Flyer and Opt-Out treatments, however, the giver receives a notice of the fund-raiser and hence may give even if not at home, so long as their altruism parameter $a$ is above $a_m$. Giving via mail is at least as high under the Opt-Out condition than in the Flyer condition because some of the individuals that opt out because they would have given too much in person give a smaller amount via mail.

**Survey.** In addition to donation requests, we also analyze the response to survey requests, varying again prior notice (flyer versus no flyer) as well as the pay and the duration. The purpose of these treatments is to structurally estimate the underlying social pressure and altruism parameters. In Section 5, we will use two parametric assumptions: (i) quadratic cost of avoidance $c(h) = (h - h_0)^2 / 2\eta$ and (ii) linear private utility of consumption $u(x) = x$. We denote by $S^S$ the social pressure cost of saying no to a request of survey completion.

We assume that consumers have a baseline utility $s$ of completing a 10-minute survey for no monetary payment. The parameter $s$ can be positive, if individuals are happy to contribute to surveys, or negative, if they dislike surveys. In addition, individuals receive utility from a payment $m$ for completing the survey, and receive disutility from the time cost $t$ of the survey. Given the assumption of (locally) linear utility, we can add these terms to obtain the overall utility from completing a survey: $s + m - t$. We assume that the willingness to complete a survey $s$ is distributed $s \sim F^S$, while $m$ and $t$ are deterministic.

The agent undertakes the survey if $s + m - t$ is larger than $-S^S$. The threshold $\bar{s}_S^{m,t} = -S^S - (m - t)$ is the lowest level of $s$ such that individuals will accept to complete the survey if asked. An increase in the social pressure $S^S$ or in the pay $m$, or a decrease in the cost of time $t$ will lower the threshold and hence increase the probability of survey completion. We can write the decision problem of staying at home conditional on receiving a notice as

$$\max_{h \in [0,1]} h \max\left(s + m - t, -S^S\right) - \frac{(h - h_0)^2}{2\eta}.$$

Taking into account corner solutions for $h^*$, this leads to a solution for the probability of being at home: $h^* = \max\left[\min\left[h_0 + \eta \max\left(s + (m - t), -S^S\right), 1\right], 0\right]$. In Section 5, we combine insights gained from the fund-raising and survey solicitations to obtain estimates of the underlying parameters of the model.

## 3 Experimental Design

**Charities.** The two charities in the fund-raising treatments are La Rabida Children's Hospital and the East Carolina Hazard Center (ECU). While both charities are well-respected regional charities, we chose them so that most households in our sample would prefer one (La Rabida) to the other (ECU). To document these preferences, we included two questions in our survey treatments. The first question asks survey respondents to rank five charities, with rank coded as a number from 1 (least liked) to 5 (most liked). The charity with the highest average rank is the La Rabida Children's Hospital (average rank 3.95) followed by Donate Life (rank 3.79), the Seattle Children's Hospital (rank 3.47). At the bottom of the rank, below the Chicago Historical Society (rank 2.96), is the East Carolina Hazard Center (rank 2.54). We obtain similar results when we ask the respondents to allocate \$1 that '*an anonymous sponsor has pledged to give*' to one of the five charities.[7] Out of 255 respondents, 147 pledge the donation to the La Rabida charity, and only 7 choose the ECU charity. La Rabida appears to be highly liked both because it is an in-state charity well-known to residents in the area around Chicago, and also because it provides health benefits to children. ECU appears to be least liked both because of its out-of-state status and because of its mission.

**Door-To-Door Fund-Raising.** Our experiment uses a door-to-door campaign because it offers the easiest implementation of the advance notice treatment. While door-to-door campaigns are common and previously studied in economics (Landry et al., 2006), it is hard to quantify how much money they raise. To provide some evidence, our survey asked respondents to recall how many times in the past 12 months people have '*come to your door to raise money for a charity.*' We asked similarly phrased questions about giving via phone, via mail, and '*through other channels, such as employer or friends.*' Of 177 respondents who answered these questions, 73 percent stated that they had received at least one such visit, and 46 percent of respondents reported at least three such visits. This frequency is smaller than, but comparable in magnitude to, other solicitation forms: phone (84 percent received at least one call), mail (95 percent with at least one mailing) and other forms (85 percent with at least one contact).

We also asked how much the respondents gave to these solicitors in total over the last 12 months. Of all the respondents, 40 percent reported giving a positive amount to a door-to-door campaign, compared to 27 percent giving in response to phone, 53 percent in response to mail, and 76 percent in response to other solicitations. The average reported total door-to-door donation in the past 12 months (including non-donors) is \$26, compared to \$89 by phone, \$897 by mail, and \$1,867 by other means. However, this estimate is very sensitive to a small number of individuals reporting large sums given (in two cases \$50,000 and \$60,000) which could be due to measurement error or self-aggrandizing claims. If we cap the donations at \$1,000, the numbers are \$26 by door-to-door, \$59 by phone, \$114 by mail, and \$283 by other

[7] We followed up on the preferences and delivered the donations.

means. Hence, door-to-door solicitations are quite common, at least in the area where the survey took place, and they raise a smaller, but not negligible, amount of money.

**Logistics.** We employed 92 solicitors and surveyors, mostly undergraduate students at the University of Chicago, who were paid $9.50 per hour. All solicitors elicited contributions within at least two treatments, and most over multiple weekends, and similarly for surveyors. Each solicitor and surveyor's participation in the study typically followed four steps: (1) an invitation to work as a paid volunteer for the research center, (2) an in-person interview, (3) a training session, and (4) participation as a solicitor and/or surveyor in the door-to-door campaign. Details about the recruitment process are in Appendix B.

The field experiment took place on Saturdays and Sundays between April 2008 and October 2008 (both charity and survey treatments) and then again between April 2009 and November 2009 (survey treatments). The locations are wealthy towns around Chicago,[8] with average household income from the 2000 Census of around $100,000.

We reached a total of 8,906 households in the charity treatments, 2,018 households in the 2008 survey treatments, and 10,594 households in the 2009 survey treatments. From this initial sample, we exclude 1,391 observations in which the households displayed a no-solicitor sign (in which case the solicitor did not contact the household) or the solicitor was not able to contact the household for other reasons (including for example a lack of access to the front door or a dog blocking the entrance). We also exclude 559 solicitor-day observations for 5 solicitors with substantial inconsistencies in the recorded data.[9] The final sample includes 7,668 households in the charity treatments, 1,865 households in the 2008 survey treatments, and 10,035 households in the 2009 survey treatments.

The randomization of the treatments takes place for each solicitor-hour and is at the street level within a town. Each solicitor is assigned a list of typically 25 households per hour, for a daily workload of either 4 hours (10am-12pm and 1-3pm) or 6 hours (10am-12pm and 1-5pm). Every hour, the solicitor moves to a different street in the neighborhood and typically enters a different treatment. Solicitors do not know whether a treatment involves a flyer, though they can presumably learn that information from observing flyers on doors. Solicitors are trained to either do charity treatments or survey treatments. A solicitor assigned to La Rabida on a given day will only do treatments for La Rabida, and similarly for ECU or survey.

**Treatments.** In the treatments without flyer, solicitors knock on the door or ring the bell and, if they reach a person, proceed through the script (see Appendix C). They inform the household about the charity (La Rabida or ECU), ask if they are willing to make a donation, and if they receive a gift leave a receipt. In the survey treatment, the solicitor inquires whether

[8] Burr Ridge, Countryside, Flossmoor, Kenilworth, Lemont, Libertyville, Oak Brook, Oak Forest, Oak Park, Orland Park, Park Ridge, Rolling Meadows, Roselle, Schaumburg, Skoke-Evanston, and Willowbrook.

[9] These five solicitors indicate the presence of flyers on the door or on the floor also for households in the no-flyer treatment.

the household member is willing to respond to survey questions about charitable giving. The solicitor informs the household member about the duration of the survey (5 or 10 minutes) and about the payment for the survey, if any ($10, $5, or none).

In the flyer treatments, the solicitor's script is identical, but in addition a different solicitor leaves a flyer on the door knob on the day before the solicitation. The professionally prepared flyer indicates the time of the upcoming fund-raising (or survey) visit within a one-hour time interval. Figure 2 provides examples of two flyers used for the fund-raising treatment and two flyers used for the 2008 survey treatments.[10] In the opt-out treatments, the flyer has a box 'Check this box if you do not want to be disturbed.' If the solicitors find the box checked, they do not knock on the door. The charity treatments are summarized in Figure 3a.

The survey treatments are aimed at estimating the elasticity of the presence at home and of the response rate to incentives. In Section 5, we use these elasticities to estimate the social pressure and altruism parameters. The survey questions are mostly about patterns of charitable giving in 2008 and about voter participation in 2009.[11] Figure 3a summarizes the survey treatments run in 2008 and Figure 3b the survey treatments run in 2009.

# 4 Reduced-Form Estimates

We report the differences across the treatments in the share of households answering the door, the empirical counterpart of $P(H)$, and the share of households giving to the charity in person, corresponding to $P(G)$. We also present results on giving conditional on being at home, corresponding to $P(G|H)$, on the frequency of small and large donations, $P(G^{LO})$ and $P(G^{HI})$, and on giving via mail and Internet, $P(G_m)$. We then turn to the survey treatments.

Table 1 presents the summary statistics on the key treatment outcomes. The rate at which the respondents open the door varies between 41 and 42 percent in the Baseline treatments for La Rabida, ECU, and in the 2008 survey treatment. Since households did not know the task at hand, these averages ought, indeed, to be close. The share answering the door is smaller for the Flyer treatment and smaller yet for the Opt-Out treatment. The share of givers is substantially smaller for the ECU charity than for the La Rabida charity, consistent with our survey evidence that the La Rabida charity is more liked than the ECU charity. For ECU, the share of givers is substantially lower in the Opt-Out treatment than in the other treatments. For La Rabida, instead, giving is somewhat higher in the Opt-Out treatment. In the survey treatments, the share opening the door and the share completing the survey are generally

[10] For a small number of observations, the flyer does not indicate the exact time of the visit, but only that there will be a visit in the next two weeks. Results for this sub-group are qualitatively similar to the results for the flyer with the one-hour interval of visit. We therefore present the results combining these treatments. Excluding the observations with the two-week window does not change any of the results.

[11] In the 2009 survey treatments, about half of the flyers specify that the survey will be 'about voter participation.' The results are similar for the two types of flyers and hence we pool them in the analysis.

larger for the treatments with higher pay and shorter duration both in 2008 and 2009.

While the summary statistics provide suggestive evidence on the impact of the treatments, the raw statistics are potentially confounded with randomization fixed effects. As discussed in Section 3, treatments were randomized within a date-solicitor time block, but not all treatments were run in all time periods. Hence, estimates that do not control for the randomization fixed effects may be confounded, for example, by time effects—we ran more La Rabida treatments earlier in the sample when donation rates also happened to be higher. It turns out that all directional effects indicated in the summary statistics, except for the higher giving to La Rabida under Opt-Out, are confirmed once we add the randomization fixed effects.

We now present the benchmark empirical specification which controls for solicitor $i$ and day-town $t$ fixed effects.[12] As such, the identification comes from within-solicitor, within-day variation in treatment. The vector of control variables $X_{i,t,h}$ includes (i) six dummies for the hourly time blocks $h$ starting at 10am, 11am, 1pm, 2pm, 3pm, and 4pm; (ii) dummies for a subjective rating by the solicitor of the quality of the houses visited in that hour block on a 0-10 scale. The latter control provides a rough measure of the wealth level of a street not captured by the town fixed effects. We run the OLS regression

$$y_{i,j,t,h} = \alpha + \Gamma T_{i,t,h} + \beta_{ECU} d_{ECU} + \eta_i + \lambda_t + BX_{i,j,t,h} + \varepsilon_{i,j,t,h} \tag{2}$$

where the dependent variable $y_{i,j,t,h}$ is, alternatively, an indicator for whether individual $j$ opened the door ($y^H$), gave a positive amount to the charity ($y^G$), gave a small amount ($y^{G_{LO}}$), or gave a large amount ($y^{G_{HI}}$). The vector $T_{i,t,h}$ contains indicators for the various fund-raising treatments, with the baseline No-Flyer treatment for La Rabida as the omitted group. As such, the point estimates for $\Gamma$ are to be interpreted as the effect of a treatment compared to the Baseline.[13] We cluster the standard errors at the solicitor×date level.

We also estimate the impact of the fund-raising treatment separately for the two types of charities (ECU and La Rabida), using the following OLS regression model:

$$y_{i,j,t,h} = \alpha + \Gamma_{LaR} T_{i,t,h} d_{LaR} + \beta_{ECU} d_{ECU} + \Gamma_{ECU} T_{i,t,h} d_{ECU} + \eta_i + \lambda_t + BX_{i,j,t,h} + \varepsilon_{i,j,t,h} \tag{3}$$

where $d_{ch}$ is an indicator variable for charity $ch \in \{LaR, ECU\}$. The omitted treatment is the No-Flyer Treatment for La Rabida. In Figures 4a-4b, we plot the estimated coefficients from this specification. The estimated impact for the Baseline No-Flyer treatment for La Rabida is

[12] On almost all days, we visited only one town, so that the day-town fixed effects are essentially equivalent to day fixed effects.

[13] The specification assumes that the impact of the fixed effects on the relevant outcomes is additive. We obtain essentially identical results using solicitor-time-date fixed effects. These fixed effects, however, do not allow us to identify the difference in outcomes between La Rabida and ECU, since on any given date each solicitor raised money for only one charity.

$\hat{\alpha}$, estimated from specification (3) with no fixed effects and controls. The estimated impact for the other treatments $k$ are $\hat{\alpha} + \hat{\gamma}^k_{LaR}$ for La Rabida and $\hat{\alpha} + \hat{\beta} + \hat{\gamma}^k_{ECU}$ for ECU.

**Answering the Door.** Figure 4a presents the results on the probability the household opens the door for the La Rabida and the ECU solicitor. For both charities, a flyer on the door knob announcing the visit reduces the share of households opening the door by about 4 percentage points relative to the Baseline treatment with no flyer. As Table 2 shows, the difference is statistically significant at conventional levels. The share of households opening the door is further lowered, by an additional 5 to 6 percentage points, by the presence of an opt-out condition ('*Check this box if you do not want to be disturbed*') on the flyer. Hence, the Flyer and the Opt-Out conditions lower the probability of opening the door by, respectively, 10 percent and 25 percent, an economically large effect that is similar for both charities. We interpret this evidence as suggestive of social pressure: when informed of a visit by a solicitor, households attempt to avoid the interaction, especially when doing so has little cost, as in the Opt-Out treatment. Notice that the reduction in the probability of opening the door in the presence of a flyer can be due to two factors: a lower probability of being at home, or a lower probability of opening the door conditional on being at home. The variable we measure captures the sum of these two effects.

**Opting Out.** Figure 4a also presents evidence on the share of subjects in the Opt-Out treatment that check the Opt-Out box: 12 percent of all households for the La Rabida charity and 9.9 percent for the ECU charity. Households that, in the Flyer treatment, are explicitly avoiding the solicitor by not answering the door, instead use the Opt-out option when available. This result is consistent with the assumption that checking the opt-out box is a cheaper way to avoid a solicitor.

**Unconditional Giving.** Figure 4b present the results on the unconditional giving probability, including households that do not answer the door. Not surprisingly, giving is higher for the preferred charity, La Rabida, than for ECU in each treatment. The pattern of effects across treatments is similar for the two charities. The Baseline and the Flyer treatments have essentially the same share of giving. The lack of a difference between these treatments is estimated quite precisely because we overweighted the Baseline and Flyer treatments. The Opt-Out treatment, instead, lowers giving by 2 percentage points for both charities. This difference is statistically and economically significant (see Table 2): the effect amounts to a reduction in giving of about a third relative to the other treatments.

The first result—that the flyer per se does not affect giving—is consistent with both social pressure and altruism affecting charitable giving. The advance notice increases the presence at home of the altruistic givers and lowers the presence of those who give due to social pressure. To the extent that these two forces have about the same size, we expect no overall impact. Note that this result does not contradict our previous finding that the flyer significantly reduces the share of households opening the door. In the presence of social pressure costs, non-givers also

avoid being at home when notified with a flyer. This avoidance does not impact the probability of giving, but it lowers home presence.

The second result—that the opt-out option significantly lowers giving—points to the importance of social pressure: in the Opt-Out treatment the cost of avoiding the fund-raiser is substantially lowered, and giving decreases proportionally. If giving was primarily due to altruism, the opt-out option should not affect giving rates or levels.

**Conditional Giving.** Figure 4c presents the results for giving, conditional on answering the door. The conditional giving for each treatment is the estimated unconditional giving, Figure 4b, divided by the estimated share of households answering the door, Figure 4a. For both charities, conditional giving is higher in the treatments with flyer than in the Baseline treatment. This increase is consistent with Proposition 3 since the flyer allows sorting in by donors who want to give and sorting out by those who do not want to give. In the Opt-Out treatment, however, conditional giving is lower. This effect is inconsistent with Proposition 3, though not statistically significant at conventional significance levels.

**Amount of Giving.** In our model, individuals who give due to social pressure give at most $g^S$, while individuals who give due to altruism may contribute higher amounts. Hence, relative to the control treatment, the Flyer treatment may both decrease smaller donations (sorting out of social-pressure givers) and increase larger donations (sorting in of altruists). The Opt-Out treatment, which further facilitates sorting out but not sorting in, should lower the share of small donations but not the share of larger donations (Proposition 4).

To test these predictions, we split donations based on the median amount given, \$10, and label donations smaller than (or equal to) \$10 as small and donations larger than \$10 as large. Figure 5a presents the results. In the Baseline treatment, 4 percent of households give small donations, and 2 percent give large donations. The percentage giving a small donation decreases slightly in the Flyer treatment and decreases by 2.1 percentage points in the Opt-Out treatment. Hence, the opt-out option more than halves the likelihood of a small donation, a significant difference as shown in Table 2. The pattern is very different for large donations. The flyer somewhat increases the incidence of larger donations, though not significantly, and the opt-out option has no effect. This pattern is consistent with Proposition 4.

Figure 5b presents additional information on the distribution of the amount given across treatments. The Opt-Out treatment, compared to the Baseline treatment, induces a decrease in the donations up to \$10, but a modest increase for larger donations. The histogram also provides evidence of bunching at \$5 and \$10. In the structural model, we use this information and consider \$10 as the amount that eliminates all social pressure from not giving, $g_s$.

Finally, in Column (7) of Table 2 we consider the effect of the different treatments on the amount given. There is no significant effect of the Flyer treatment, and a marginally significant reduction in giving with the Opt-Out treatment.

**Giving Via Mail or Internet.** We also obtained data on mail and Internet donations

from the households in our sample over the time period of the fund-raising campaign. The results are reported in Columns (7) and (8) of Table 1. There was not a single donation to ECU, and only one donation to La Rabida – a striking difference to the 3 to 7 percent of households donating in person for the same charities. The near absence of donations provides further evidence on the motivations of giving. If giving was due to pure altruism, individuals who see the flyer but cannot be at home during the fund-raiser would donate via mail or Internet. The cost of this form of giving (captured by $\theta$ in our model) attenuates giving, but not likely to zero. A model of warm glow can better fit the data if we assume that the warm glow arises only from in-person donations (i.e., $\theta$ is close to zero). The lack of mail or Internet donations is also consistent with social pressure: giving arises only under high social pressure.

**Financial Crisis.** While a majority of our solicitations took place from May to August 2008, 22 percent date from September and October 2008, the peak of the financial crisis. While variation between the two periods is obviously not experimental since other factors can differ, it is still interesting to consider the heterogeneity of treatment effects.

The financial crisis did not impact the share of households that open the door in the different treatment, but it lowered giving substantially (Columns (7) and (8) in Table 2), in the Baseline treatment from 7 percent to 3 percent. Giving in the Opt-Out treatment does not decrease as much. These results are consistent with the crisis reducing giving due to altruism, since it increases the marginal utility from private consumption, or due to social pressure, since it lowers the social pressure cost of turning away a solicitor ('sorry, times are tough').

**Survey.** For the survey treatments, we estimate a specification parallel to equation (2), separately for the 2008 and the 2009 field experiments. In the 2008 experiments (Figure 6a and Column (1) of Table 3), a flyer announcing a \$0-10-minute survey reduces the share opening the door by 15 percent (though not significantly), compared to the same survey without flyer. In addition, flyers for more attractive surveys with either shorter duration (5 minutes) or higher payment (\$10) lead to a 10 to 15 percent increase in the share of households opening the door, indicating that households sort into shorter and better-paid surveys, though the difference is again not significant.

The share completing the survey is comparable (about 10 percent) for the \$0-10-minute conditions with and without flyer (Figure 6a and Column (2) of Table 3). Interestingly, the willingness to complete an unpaid 10-minute survey is higher than the willingness to give money even to an in-state charity. Also, compared to the \$0-10-minute survey with flyer, surveys with shorter duration or payment have a higher completion rate of 17-18 percent, a 70-80 percent increase. The increase is very similar for the two groups, indicating a high value of time for survey completion, consonant with the sample population characteristics discussed above.

Figure 6b and Columns (3) and (4) of Table 4 report the results for the 2009 survey. Within the treatments with flyer, the share answering the door is increasing in the amount paid (from \$0 to \$5 to \$10). In addition, the share answering is significantly lower for the treatments

with opt-out, especially the treatment with no payment. These findings are consistent with the findings for 2008 and confirm a sizeable responsiveness of the presence at home to the attractiveness of the task.

The 2009 treatments also indicate a strong response of survey completion with respect to duration and payment. The survey completion rate in treatments with flyer increases monotonically from 14.8 percent for a \$0-10-minute survey to 25.5 percent for a \$10-5-minute survey. The latter completion rate is remarkably high: over 50 percent of the people opening the door took the survey. There is a similar increase of survey completion with respect to payment in the Opt-Out treatments, though not in the treatments without flyer.

# 5 Structural Estimates

The reduced-form estimates provide qualitative evidence on the importance of both altruism and social pressure, but they do not allow for a quantitative estimate of the underlying social preferences. We now estimate the model parameters structurally, combining the results of the fund-raising and the survey experiments.

**Set-up.** We use the model of Section 2, imposing six additional assumptions: First, the private utility of consumption is linear, $u(W-g) = W-g$. This assumption is not unduly restrictive since utility should be locally linear in a standard expected utility framework. Second, we set the altruism function

$$v(g_i, G_{-i}) = \begin{cases} \log(G+g_i) & \text{for} \quad a \geq 0 \\ e^{g_i}/G & \text{for} \quad a < 0, \end{cases}$$

a function that is increasing and concave in giving $g_i$ for positive altruism $a$ and decreasing and concave in $g_i$ for spite.[14] The parameter $G$ governs the concavity of the altruism function for $a > 0$: a large $G$ implies that the marginal utility of giving, given by $a/(G+g_i)$, declines only slowly in the individual giving $g_i$, consistent with pure altruism–the individual cares about the overall donation and her individual giving is only a small part. A small $G$ instead indicates that the marginal utility diminishes steeply with the individual giving, more consistent with warm glow. Third, the altruism parameter $a$ is normally distributed, with mean $\mu$ and variance $\sigma^2$. Fourth, the level of giving $g^S$ from which on there is no social pressure cost is \$10, the median donation. Fifth, the cost of leaving home $c(h)$ is symmetric around $h_0$ and quadratic: $c(h) = (h-h_0)^2/2\eta$. Sixth, to capture the observed lack of giving by mail, we set $\theta = 0$.

The vector of parameters $\xi$ that we estimate are: (i) $h_0^{2008}$ and $h_0^{2009}$–the probabilities of opening the door in the 2008 and 2009 no-flyer treatments; (ii) $r$–the probability of observing

[14] The exact specification of the altruism function for $a < 0$ is largely immaterial. As long as the social pressure cost $S$ is smaller than \$10, individuals with negative altruism $a$ will never give, and hence the shape of the utility for $g_i > 0$ does not matter. The current formulation has the property that the marginal utility of giving at 0 ($av'(0)$) equals $a/G$ for both $a > 0$ and $a < 0$.

(and remembering) the flyer; (iii) $\eta$–the responsiveness in adjusting the probability of opening the door to changes in the utility of being at home; (iv) $\mu^S$–the mean of the distribution $F^S$ of the utility of completing a 10-minute survey; (v) $\sigma^S$–the standard deviation of the distribution $F^S$; (vi) $v^S$–the value of one hour of time spent completing a survey; (vii) $S^S$—the social pressure associated with saying no to the survey request; (viii) $\mu_a^{ch}$ (where $ch = LaR, Ecu$)–the mean of the distribution $F$ from which the altruism parameter $a$ is drawn; (ix) $\sigma_a^{ch}$ (with $ch = LaR, Ecu$)–the standard deviation of the distribution $F$; (x) $G$–the curvature of the altruism function, which is assumed to be the same for the two charities; (xi) $S^{ch}$ ($ch = LaR, Ecu$)–the social pressure cost associated with a donation request. For convenience, the tables display the social pressure cost associated with giving zero, $Sg^S = 10S$.

To estimate the model, we use a minimum-distance estimator. Denote by $m(\xi)$ the vector of moments predicted by the theory as a function of the parameters $\xi$, and by $\hat{m}$ the vector of observed moments. The minimum-distance estimator chooses the parameters $\hat{\xi}$ that minimize the distance $(m(\xi) - \hat{m})' W (m(\xi) - \hat{m})$, where $W$ is a weighting matrix. As a weighting matrix, we use the diagonal of the inverse of the variance-covariance matrix. In this case, the estimator minimizes the sum of squared distances, weighted by the inverse variance of each moment.[15] As a robustness check, we also use the identity matrix as weight. While a part of the model is solved analytically, we compute numerically $a_0$, $a_{h^*=0}$ and $a_{h^*=1}$ using a hybrid bisection-quadratic interpolation method, pre-implemented in Matlab as the *fzero* routine.[16] To calculate the theoretical moments for the probability of opening the door and the probability of giving, we use a numerical integration algorithm based on adaptive Simpson quadrature, implemented in Matlab as the *quad* routine.

As moments $m(\xi)$ to identify the model we use the following probabilities (where $j = F, NF, OO$ and $ch = LaR, Ecu$): (i) the probability of opening the door in the various charity treatments ($P(H)_j^{ch}$); (ii) the probability of checking the opt-out box in the Opt-Out treatment ($P(OO)_{OO}^{ch}$); (iii) the unconditional probability of giving in the various charity treatments ($P(G)_j^{ch}$); (iv) the probability of giving an amount of money in different ranges ($P(0 < G < 10)_j^{ch}$, $P(G = g^s = 10)_j^{ch}$, $P(10 < G \leq 20)_j^{ch}$, $P(20 < G \leq 50)_j^{ch}$, and $P(G > 50)_j^{ch}$); (v) the probability of opening the door in the various survey treatments $k$ (with varying dollar amounts, minutes, and flyer conditional), $P(H)_k^S$, run in 2008 and in 2009; (vi) the unconditional probability of completing the survey in the various survey treatments, $P(SV)_k^S$, run in 2008 and in 2009; and (vii) the probability of checking the opt-out box in the survey Opt-Out treatments ($P(OO)_k^S$). The corresponding empirical moments $\hat{m}$ are estimated in a first stage model using the same controls as in the main regressions, and are listed in Appendix Table 1.

[15] Given the large number of moments, weighting the estimates by the inverse of the full variance-covariance matrix is problematic computationally.

[16] The parameters $a_{h^*=0}$ and $a_{h^*=1}$ are the threshold values of altruism at which a household optimally sets the probability of answering the door to 0 and 1, respectively.

To calculate the method of simulated moments estimate, we employ a common sequential quadratic programming algorithm (Powell, 1983) implemented in Matlab as the *fmincon* routine. We impose the following constraints: $S^{ch}, S^S \geq 0$ (social pressure non-negative), $a \in [-9999, 9999]$ (altruism finite), $\sigma \geq 0$ (non-negative standard deviation of altruism), $h_0^{2008}, h_0^{2009}, r \in [0,1]$ (probabilities between zero and one), and $\eta \in [0, 9999]$ (finite elasticity of home presence). We begin each run of the optimization routine by randomly choosing a starting point, drawn from a uniform distribution over the permitted parameter space. The algorithm determines successive search directions by solving a quadratic programming subproblem based on an approximation of the Lagrangian of the optimization problem. To avoid selecting a local minima, we choose the run with the minimum squared distance of 1000 runs.[17]

Under standard conditions, the minimum-distance estimator using weighting matrix $W$ achieves asymptotic normality, with estimated variance $(\hat{G}'W\hat{G})^{-1}(\hat{G}'W\hat{\Lambda}W\hat{G})(\hat{G}'W\hat{G})^{-1}/N$, where $\hat{G} \equiv N^{-1}\sum_{i=1}^{N}\nabla_{\xi}m_i(\hat{\xi})$ and $\hat{\Lambda} \equiv Var[m(\hat{\xi})]$ (Wooldridge, 2002). We calculate $\nabla_{\xi}m(\hat{\xi})$ numerically in Matlab using an adaptive finite difference algorithm.

**Identification.** Estimated parameters are presented in Table 4. While the parameters are estimated jointly, it is possible to gain some intuition about the identification of the individual parameters. The baseline probabilities of answering the door, $h_0^{2008}$ and $h_0^{2009}$, are identified by the observed probabilities of opening the door in treatments without flyer. The probability of observing and remembering the flyer, $r$, is identified by two moments in the Opt-out treatment: the fraction of households checking the opt-out box (10 to 12 percent), which equals $rh_0F(a_0)$, and similarly the fraction opening the door. The elasticity of opening the door $\eta$ with respect to incentives is identified from the variation in the fraction opening the door in the survey treatments for different payments and survey durations. In addition, $\eta$ is identified from the charity treatments by the amounts given in the different treatments.

The survey parameters are identified using the survey moments. The survey completion rates for varying amounts of compensation identify the heterogeneity in the willingness to complete the survey, and hence $\sigma^S$. For example, the 7 percentage point increase in the completion rate of the survey for a \$10 increase in pay (Figure 6a) indicates that $7/h_0 = 17$ percent of the population assigns negative value to doing a survey for no payment, but assigns positive value to completing a survey when receiving \$10. The survey completion rate also identifies the mean willingness to complete a 10-minute survey, $\mu^S$. The value of time $v^S$ is identified from the comparison between pay increases for the survey (from \$0 to \$5 to \$10) and duration decreases (from 10 to 5 minutes). Finally, the social pressure $S^S$ is identified by the share of people answering the door in the survey treatments with flyer. To see this, consider a respondent who dislikes answering a survey and hence will say no and incur the social pressure cost $S^S$. In the flyer treatment, she will choose to be at home with probability $h_0 - \eta r S^S$ (barring corner solutions for $h$). Hence, knowing $h_0$, $\eta$, and $r$, it is possible to identify $S^S$.

[17]For the results presented here, the best estimate is achieved in about 90 percent of all runs.

Turning to the charity parameters, the information on the amounts given identify the standard deviation of altruism $\sigma_a^{ch}$, mean altruism $\mu_a^{ch}$, and the curvature parameter $G$. To see this, consider that, without social pressure, an individual with altruism $a$ will give exactly $g$ dollars if the marginal utility of giving, $av'(g) = a/(G+g)$, equals the private marginal utility of consumption, 1, and hence $a = G + g$. Thus, in this example without social pressure, the mass of households with altruism higher than $G + g$, i.e., $1 - F(g + G)$, has to equal the observed share of households that give at least $g$. This pins down the empirical distribution of $a$ for a given $G$. Figure 7a illustrates the identification mechanism for the estimated value of $\hat{G} = 12.27$ and giving levels $g$ of \$0 and of \$10. This example also illustrates the difficulty of separately identifying $\mu_a$ and $G$, which we do using the overall model structure.

Finally, the social pressure $S$ is identified from two main sources of variation. First, the difference in opening the door between the Baseline and Flyer treatments equals, to a first approximation, $-\eta r S$ and hence provides evidence on $S$, conditional on $r$ and $\eta$. Second, the social pressure is also estimated from the distribution of small giving. The higher the social pressure, the more likely it is that we should observe small giving and in particular bunching at $g^S$ (i.e., \$10 in our parametrization).

**Estimates.** Column (1) of Table 4 reports the benchmark estimates of the parameters along with standard errors, and Column (2) shows that the estimates are not sensitive to the choice of weighting matrix. The probability of being at home $h_0$ is precisely estimated to be 41.4 percent in 2008 and 44.9 percent in 2009. The share $r$ of households that have seen (and remember) the flyer is estimated at 32.2 percent, with a standard error of 1.1 percent. While the point estimate may appear low, this includes cases in which the household is away for the weekend or cases in which one person in the household saw the flyer but another person opens the door. The elasticity of home presence $\eta$ with respect to incentives is estimated to be 0.047 (s.e. 0.014), implying that the cost of increasing the probability of being at home and answering the door by 10 percentage points is $0.1^2/2\eta = \$0.11$.

The average utility for survey completion is estimated to equal $-\$26.86$, implying that, on average, households dislike completing 10-minute surveys for no pay. There is, however, significant heterogeneity ($\hat{\sigma}^S = \$30.28$), implying that a significant share of respondents like doing surveys even for no pay. The value of time for one hour of survey is estimated to be \$74.58, which corresponds approximately to the value of time for the households in the wealthy neighborhoods we reached.[18] Finally, the social pressure cost of turning down a survey request, $S^S$, is estimated to be \$4.78, a sizeable magnitude.

Turning to the charity parameters, the information on the dollar amount given identifies very precisely the standard deviation $\sigma_a$ of the altruism parameter and, with less precision, the mean of the altruism parameter $\mu_a$ and the curvature parameter $G$. On average, households do not like giving to the charities ($\mu = -13.9$ for La Rabida and $\mu = -10.6$ for ECU); however,

[18] At an average income of about \$100,000 per year, the implied hourly wage is \$50.

there is a substantial tail given the large $\sigma_a$. Figure 7a plots the implied distribution of the altruism parameter $a$ for La Rabida and ECU: the share of households that derive positive utility from giving and, in particular, from giving larger amounts is higher for La Rabida than for ECU. Interestingly, $G$ is quite small, implying a highly concave altruism function, consistent with warm glow rather than with pure altruism.

The social pressure parameters are quite precisely estimated, and the data reject the null hypothesis of no social pressure cost. Turning down a door-to-door giving request is associated with a social pressure cost of \$3.55 (s.e. \$0.61) for La Rabida and \$1.36 (s.e. \$0.74) for ECU. That is, it is psychologically more costly to say no to a local non-profit than to an out-of-state charity. The sizeable social pressure cost suggests that the welfare implications of door-to-door campaigns can be large, as we explore below. While the model with social pressure does a nice job of fitting the observed moments (Appendix Table 1), the same cannot be said of a model with no social pressure. With $S = 0$, the model cannot explain opting out and the decrease in the share answering the door in the Flyer treatment.

In Table 5, after reproducing the benchmark results in Column (1), we explore the robustness of the estimates with a number of alternative model specifications, mostly by changing the set of moments. Using more detailed information on the quantity given (that is, the moments for giving $(0, 3]$, $(3, 7]$, $(0, 10]$, $(10, 20]$, $(20, 50]$, 50+, Column (2)) has a limited impact on the results. Using a rougher set of giving moments, that does not account for bunching at \$10, ($(0, 10]$, $(10, 20]$, $(20, 50]$, 50+, Column (3)) also produces similar point estimates, but larger standard errors, including on the social pressure parameters. Not surprisingly, the information contained in the exact amount given, and especially the bunching at \$10, helps provide identification.

In Columns (4) and (5) we use, respectively, only the charity moments and only the survey moments. The survey moments suffice to identify both the survey parameters and the common parameters. The charity moments identify the charity parameters, with estimates similar to the benchmark ones in Column (1). This indicates that the survey moments are useful, but not necessary to identify $\eta$.[19] Interestingly, the two sets of estimates–using the charity moments and using the survey moments–yield very similar values for the common parameters such as $\eta$ and $r$, an important validation for the model.

Finally, in Column (6) we provide a glimpse of allowing heterogeneity in social pressure. We assume that, while a proportion $p$ of the population is described by the model above, the remaining proportion $1 - p$ has no social preferences, i.e., does not exhibit altruism ($a = 0$) and does not respond to social pressure ($S = 0$). We assume that this share $1 - p$ neither gives to charity nor completes surveys.[20] The data supports this type of heterogeneity, estimating a

[19] With coarser giving moments (as in Column (3)), however, the charity moments cannot reliably identify $\eta$, indicating that the identification comes from the amount given for small magnitudes and the bunching at \$10.

[20] One needs to make an assumption about the completion of surveys with payment. To simplify, we assume

share $\hat{p}$ of 0.658 (s.e. 0.081). In turn, this raises the estimated share of households that observed the flyer $\hat{r}$ up to 0.54 and lowers the elasticity of the response $\hat{\eta}$. Despite these changes, the social pressure parameters for the charity hardly move, while the estimated social pressure for survey completion increases. The added degree of freedom improves the fit of the model, in particular regarding the giving moments in the Opt-Out treatments.

**Decomposition of Giving and Sorting.** We now decompose the observed giving into giving due to altruism and giving due to social pressure, an exercise that is not possible using only the reduced form results. For the No-Flyer treatment, which is representative of a standard door-to-door campaign, we compute the counterfactual giving with social pressure set to zero, holding the other parameters at their benchmark estimates (Panel A of Table 6). Interestingly, 73.1 percent of the La Rabida donors and 83.7 percent of the ECU donors would give even without social pressure. The relative proportions of average amounts given are similar.

One may be tempted to conclude that social pressure, while sizeable, accounts for at most a quarter of observed giving. These measures, however, neglect a second effect of social pressure: a respondent who would happily give, say, \$2 in the absence of social pressure may feel compelled by social pressure to instead give \$5. To avoid this, she may sort out. This distortion is sizeable: the share of *givers* who assign positive overall utility to the fund-raiser is 50.9 percent for La Rabida and 51.8 percent for ECU. This result—that about half of the observed donors are not 'happy givers'—is very robust (bottom rows in Table 5).

Next, we use the model to estimate the amount of sorting into, and out of, answering the door in the Flyer treatment (Panel B of Table 6). Notice that the reduced-form estimates only identify the sum of the two forces. Sorting in due to altruism is limited, contributing on average to an increase in the probability of answering the door of only 0.7 percent for La Rabida and 0.3 percent for ECU. Sorting out, instead, is substantial, equal to 4.8 percent for La Rabida and 1.9 percent for ECU. (Note that there is less sorting out for the less-liked charity because the estimated social pressure cost is lower).

**Welfare.** We evaluate the welfare associated with a standard no-flyer door-to-door drive. Figure 7b plots the utility for a household that opens the door (utility is zero for the other households) as a function of the altruism $a$. The utility is negative for households with sufficiently low altruism $a$: these households refuse the solicitation and pay the cost $10S$. Households with positive but small altruism give small amounts, but still experience negative utility because they give more than they prefer and because they still incur some social pressure cost. For higher altruism, the utility of giving becomes positive.[21]

On net, a fund-raising campaign can either increase or decrease welfare of the solicitees,

a deterministic value for doing the survey equal to the $\mu^S$ of the social-preference types. Given the estimated values, these types will not complete a 5-minute survey even for pay of \$10.

[21] For larger values of altruism, the utility level for La Rabida and ECU is the same, since the only difference between the two charities is the social pressure, and social pressure does not affect larger donations.

depending on which force dominates. Given the estimated distribution of altruism (Figure 7a), social pressure dominates: a fund-raiser lowers the utility for a large majority (the non-donors and the 'unhappy' donors) while raising the welfare of only a small minority (the 'happy' donors). Indeed, the welfare effect of a fund-raiser is substantially negative once we average over all households contacted: −$1.08 for La Rabida and smaller but still negative (−$0.44) for ECU (Panel C of Table 6).[22] The welfare effect is more negative for the more liked charity, because this charity induces higher social pressure to give. The finding of negative welfare effects is robust to all the different specifications (bottom row of Table 5), and is smaller when allowing for types without social preferences. Our fund-raising drives, therefore, are on average welfare-diminishing for the solicitees.

These welfare estimates do not account for the welfare of the recipient. For La Rabida, the estimated money raised per household contacted is $0.72, which amounts to $0.25 on net after taking into account a solicitor wage of $9.50 per hour (visiting 20 households per hour).[23] Hence, the money raised needs to be used very efficiently to generate positive societal welfare. For ECU, the net money raised is already negative, implying a negative societal welfare effect.

The introduction of flyers changes the welfare implications. Flyers give the opportunity to sort and hence temper the negative welfare implications for the solicitees. Counter-intuitively, flyers can also increase the amount of money raised. Even though sorting out is more frequent than sorting in, the households sorting in contribute substantially higher amounts. This generates, in our estimates, a small but positive effect on amount given. After taking into account the added cost of hanging the flyers (70 households per hour), the net amount raised is about the same as in the baseline treatment in our estimates. A flyer with opt-out is even more beneficial for the welfare of the households visited, since the opt-out option eliminates the cost of sorting out (conditional on seeing the flyer), and still makes it possible to sort in. In addition, the opt-out option can increase net fund-raising because it increases the number of households the solicitor can approach per hour. Hence, providing information about an upcoming fund-raiser and allowing solicitees to sort out can be a win-win solution for both the charity and the households visited.

# 6 Alternative Interpretations

We discuss three alternative interpretations of our empirical results.

**Signaling of Quality of the Charity**. Door-hangers are unusual in fund-raising campaigns. It is possible that they were taken as a signal of the quality of the charity, even though we made sure that they did not convey any different information than presented in person.

[22] The effect exclusively on the households at home is larger by a factor of 1/0.4136.

[23] Notice that these are the estimated amounts raised according to the model, and differ somewhat from the observed ones (Table 2, Column (7)).

To explain our results, the door-hangers with a Do-Not-Disturb box must have sent a more negative signal than the standard door-hangers. Perhaps, the opt-out box signalled that it was acceptable to avoid the fund-raiser. This explanation, however, does not explain why the opt-out box is associated with a reduction in small donations, but not of large donations. A change in perceived quality would presumably affect the whole distribution of giving.

**Self- and Other-Signaling.** Our model of social pressure assumes that individuals incur disutility when being ungenerous in person, but not when avoiding a solicitor. A related explanation is that individuals give to (costly) signal to themselves or to others (the solicitor) that they are generous types (Bodner and Prelec, 2002; Benabou and Tirole, 2006; Grossman, 2009). To the extent that avoiding a fund-raiser does not send the same negative signal as an outright no, this explanation is very similar to the one we propose. Counter-factually, however, this explanation predicts that individuals would not make use of the opt-out box, which is a clear signal to the solicitor, as well as possibly to the neighbors.

**Dislike of Interaction with the Solicitor**. A fund-raising visit may lower the welfare of the solicitees even in the absence of social pressure. Consider individuals who are altruistic towards a charity but dislike interacting with solicitors, perhaps because of the time involved. In a standard fund-raising campaign, these individuals, faced with a surprise home visit, give to the solicitor. In a campaign with a flyer, though, the individuals may avoid the solicitor, or check the opt-out box, if the disutility from the personal interaction is larger than the utility from giving. Hence, this interpretation can explain the observed patterns of door opening and giving. It even predicts that the opt-out effect is concentrated among small giving, since a distaste for interaction is more likely to outweigh the utility from giving a small amount. This explanation shares several features with social pressure, including the negative welfare implications of door-to-door campaigns. A key difference, however, separates the two explanations: An altruistic donor who dislikes solicitors, when alerted of a campaign by a flyer, should seek alternative ways to give that do not involve personal interaction, such as via mail or Internet. Instead, we observe no such substitution, as predicted by social pressure.

# 7 Conclusion

Are donations welfare-enhancing for the giver? We develop a theoretical framework and an empirical design to measure two reasons for giving: altruism and social pressure. As an illustration of our methodology, we present a field experiment that involves solicitors approaching thousands of households. We vary the extent to which the households are informed of the fund-raising drive ex ante and also conduct a complementary survey that varies cash payments. This design allows us to structurally estimate the parameters of interest.

We find evidence that both altruism and social pressure affect door-to-door charitable giving. We estimate that about half of donors would prefer not to be contacted by the fund-

raiser either because they would prefer not to donate, or because they would prefer to donate less. We estimate a social pressure cost of turning down a giving request of $1 to $4, depending on the type of charity. As a result, the estimated average welfare effect of the door-to-door campaigns in our sample is negative.

If we take our fund-raising campaigns to be representative of door-to-door solicitation, our results indicate that unsolicited campaigns may lead to utility losses equivalent to hundreds of millions of dollars for the givers.[24] These results have implications for the optimal taxation regime of charitable giving, as they suggest that high-social-pressure solicitations may be welfare-decreasing for the giver. While this could be used as an argument to introduce a do-not-solicit or do-not-call list for charities, our findings suggest a simple alternative: to provide an opportunity to the households to sort or, even better, to opt out.

In this paper we focus on only one form of giving—door-to-door fund-raising—to showcase our approach. We conjecture that our results are likely to extend to other high-pressure approaches to raise money, such as phone-athons, charity banquets, auctions, lotteries, etc., but likely have less explanatory power with lower-pressure approaches, such as mail solicitations.

In addition to presenting novel empirical findings, this paper also distinguishes itself because of its methodological contribution of linking tightly a behavioral model with a field experiment designed to test its predictions. We first developed the theoretical model, which then informed the nature of the experimental treatments, and the experiments in turn informed the parameters of the model. Most of the extant literature, instead, overlays the structural model on experimental data already gathered. Our approach enables parameter estimates and welfare evaluations that complement the reduced-form evidence. We hope that future research builds on this strategy to provide more evidence on behavioral phenomena.

[24] The campaigns may still improve welfare overall if the charities spend the money very effectively.

# A Appendix A - Mathematical Appendix

**Proof of Lemma 1a.** The function $U(g)$ defined by (1) is globally strictly concave in $g$. Hence, there will be a unique solution to the maximization problem (if the solution exists, which we prove below). If $a \leq \underline{\underline{a}}(S)$, then $U'(0) \leq 0$ and hence, since $U'(\cdot)$ is strictly decreasing on the interval $[0, \infty)$ because of concavity, $g^* = 0$ follows. If $\underline{\underline{a}}(S) < a < \underline{a}(S)$, then $U'(0) > 0$ and hence $g^* > 0$ using the first inequality; using the second inequality, $U'_-(g^s) < 0$ and hence $g^* < g^s$. If $\underline{a}(S) \leq a \leq \bar{a}$, then $U'_-(g^s) \geq 0$ and $U'_+(g^s) \leq 0$ which by strict concavity of $U$ implies $g^* = g^s$. Finally, if $a > \bar{a} > 0$, then $U'_+(g^s) > 0$ which implies $g^* > g^s$; in addition, $g^*$ is finite given the assumption $\lim_{g \to \infty} v'(g, G_{-i}) = 0$. Finally, to show that $g^*$ is weakly increasing in $a$, notice that in cases (ii) and (iv) where the solution is interior, the implicit function theorem implies $dg^*/da = -v'(g^*, G_{-i}) / (u''(W - g^*) + av''_g(g^*, G_{-i})) > 0$.

**Proof of Lemma 1b.** Parts (i) and (ii), as well as the monotonicity of $g^*_m$ in $a$, follow the proof of Lemma 1a, with the difference that the relevant threshold to determine giving is $a_m$. To show (iii), consider that, for any $g > 0$ and $a > a_m (> 0)$, the marginal utility of giving $\theta g$ in person (if at home) is larger than the marginal utility of giving $g$ via mail (if not at home) since $U'(\theta g, 0) = -u'(w - \theta g) + av'(\theta g) + S1_{\{\theta g \leq g^s\}} > -u'(w - g) + a\theta v'(\theta g) = U'(0, g)$. This holds in particular for $g = g^*_m$, and hence $U'(\theta g^*_m, 0) > U'(0, g^*_m) = 0$, and thus $g^* > \theta g^*_m > 0$ by strict concavity of $U$. For $\underline{\underline{a}}(S) < a \leq a_m$, $g^* > g^*_m = 0$. Finally, for $a \leq \underline{\underline{a}}(S)$, $g^* = g^*_m = 0$, which completes the proof of (iii). For the case $\theta = 0$, $U'(g_m) < 0$ for all $g_m$ and hence $g^*_m = 0$.

**Proof of Lemma 2.** The optimal probability of being at home (when interior) satisfies:

$$c'(h) = [u(W - g^*(a)) - u(W - g^*_m(a)) + av(g^*(a), G_{-i}) - av(\theta g^*_m(a), G_{-i})] - s(g^*(a)) \tag{4}$$

Because $c'(h)$ is strictly increasing, this expression can be inverted to yield a unique solution, which we denote by $H^*(a, S)$. Taking into account corner solutions, the solution is $h^*(a, S) = \max[\min[H^*(a, S), 1], 0]$.

The strategy of proof is to first solve for the extreme cases $a \leq \underline{\underline{a}}$ and $a > \bar{a}$, and then characterize the solution for the intermediate range using continuity and monotonicity. For the case $a \leq \underline{\underline{a}}(S)$, $g^*(a) = 0$ by Lemma 1a and $g^*_m(a) = 0$ by Lemma 1b; hence, the term in brackets is zero. If $S = 0$, then $h^*(a, 0) = H^*(a, 0) = h_0$ for $a \leq \underline{\underline{a}}(0)$. If $S > 0$, then the second term equals $-Sg^s < 0$ and thus $h^*(a, S) < h_0$ for $a \leq \underline{\underline{a}}(S)$.

For the case $a > \bar{a}$, the right-hand-side expression in (4) is the difference between the utility of giving $g^*$ in person, $u(W - g^*(a)) + av(g^*(a), G_{-i})$, and the utility of giving $g^*_m$ via mail, $u(W - g^*_m(a)) - av(\theta g^*_m(a), G_{-i})$. For the first term, the inequality $u(W - g^*(a)) + av(g^*(a), G_{-i}) > u(W - g) + av(g, G_{-i})$ holds for any $g \neq g^*$, because for $a > \bar{a}$, the agent would strictly prefer $g^*$ to any other $g$ even in absence of the $s(g)$ term. This inequality holds in particular for $g = \theta g^*_m$, and hence $u(W - g^*(a)) + av(g^*(a), G_{-i}) > u(W - \theta g^*_m(a)) + av(\theta g^*_m(a), G_{-i}) \geq u(W - g^*_m(a)) + av(\theta g^*_m(a), G_{-i})$, where the last inequality follows since $0 \leq \theta < 1$. This implies that $h^*(a, S) > h_0$ for $a > \bar{a}$.

Next, we show that the right-hand-side expression in (4), which is continuous in $a$, is also monotonically increasing in $a$ for $a > \underline{\underline{a}}(S)$ by an application of the envelope theorem. For given $S$, differentiating the right-hand-side expression in (4) with respect to $a$, we obtain

$$\begin{aligned} &\frac{dg^*}{da}\left[-u'(W - g^*) + av'(g^*) - \frac{ds(g^*)}{dg^*}\right] - \frac{dg^*_m}{da}\left[-u'(W - g^*_m) + a\theta v'(\theta g^*_m)\right] \\ &+ [v(g^*(a), G_{-i}) - v(\theta g^*_m(a), G_{-i})] \end{aligned} \tag{5}$$

The first term in (5) is zero because (a) at the interior solutions for $g^*$ (cases (ii) and (iv) of Lemma 1a), the term $-u'(W-g^*)+av'(g^*)-\frac{ds(g^*)}{dg^*}$ is zero by the f.o.c. w.r.t. $g^*$, (b) in the region for which $g^*=g_s$ (case (iii) in Lemma 1a), $dg^*/da=0$. The second term in (5) is also zero by virtue of $-u'(W-g_m^*)+a\theta v'(\theta g_m^*)=0$ being the f.o.c. for $g_m^*$. Hence, expression (5) equals the third term, which is positive because $g^*(a)>\theta g_m^*(a)$ by Lemma 1b for $a>\underline{\underline{a}}(S)$.

Given that the right-hand-side expression in (4) is increasing in $a$, it follows that $H^*(a,S)$ is also monotonically increasing in $a$, and hence $h^*(a,S)$ is non-decreasing in $a$. For the case $S=0$, given that $h^*(a,0)=h_0$ for $a\leq\underline{\underline{a}}(0)$, it follows that $h^*(a,0)>h_0$ for $a>\underline{\underline{a}}(0)$ (remember $h_0<1$). For the case $S>0$, given that $h^*(a,S)<h_0$ for $a\leq\underline{\underline{a}}(S)$ and $h^*(a,S)>h_0$ for $a>\bar{a}$, the Intermediate Value Theorem implies that there exists a point $a_0(S)\in(\underline{\underline{a}}(S),\bar{a})$ such that the right-hand-side expression in (4) is exactly zero. At such point, $h^*(a_0(S),S)=h_0$ and, by monotonicity of the expression in (4) with respect to $a$, $h^*(a,S)<h_0$ for $a<a_0(S)$ and $h^*(a,S)>h_0$ for $a>a_0(S)$ follow. Uniqueness of $a_0(S)$ follows from the monotonicity of $h^*$ in $a$.

**Proof of Lemma 3.** For $a>a_0(S)$, by definition of $a_0(S)$ (Lemma 2), the agent prefers to meet the solicitor rather than not, which is the reason why even at cost $c(h^*)$ she set $h^*>h_0$ (Lemma 2). Hence, the agent will never want to opt out. For $S>0$ and $a<a_0(S)$, conversely, the agent prefers not to meet the solicitor rather, which is the reason why even at cost $c(h^*)$ she set $h^*<h_0$ (Lemma 2). Hence, she prefers to opt out, which yields the utility from not meeting the solicitor, without incurring cost $c(h)$. Finally, for the case $a=a_0(S)$ or the case $S=0$ and $a<a_0(0)=\underline{\underline{a}}$, the agent is indifferent between meeting the solicitor and not. (Recall that for $S=0$ and $a<a_0(0)=\underline{\underline{a}}(0)$, $g^*=0$ and $g_m^*=0$). Hence, the agent is indifferent between opting out and not, and we break the indifference by assuming no opting out.

**Proof of Proposition 3.** The conditional probability of giving in the $NF$ treatment is $P(G|H)_{NF}=1-F(\underline{\underline{a}}(S))$. The conditional probability of giving in the $F$ treatment is

$$P(G|H)_F=\frac{(1-r)h_0\left(1-F(\underline{\underline{a}}(S))\right)+r\int_{\underline{\underline{a}}(S)}^{\infty}h^*(a,S)dF}{(1-r)h_0+r\int_{-\infty}^{\infty}h^*(a,S)dF}.$$

The inequality $P(G|H)_F\geq P(G|H)_{NF}$ reduces to $\int_{\underline{\underline{a}}(S)}^{\infty}h^*(a,S)dF/\int_{\underline{\underline{a}}(S)}^{\infty}dF\geq\int_{-\infty}^{\infty}h^*(a,S)dF$ after simple algebra. That is, if the probability of being at home conditional on seeing a flyer and having $a>\underline{\underline{a}}(S)$ is greater than the probability of being at home conditional on just seeing a flyer. The inequality $P(G|H)_F\geq P(G|H)_{NF}$ follows because $h^*(\cdot,S)$ is non-decreasing in $a$ (Lemma 2). To prove $P(G|H)_{OO}\geq P(G|H)_{NF}$, consider two cases: (i) for $S=0$, the agent never opts out and hence $P(G|H)_{OO}=P(G|H)_F\geq P(G|H)_{NF}$; (ii) for $S>0$, the inequality $P(G|H)_{OO}\geq P(G|H)_{NF}$ can be rewritten as $(1-r)h_0\left(1-F(\underline{\underline{a}}(S))\right)+r\int_{a_0(S)}^{\infty}h^*(a,S)dF\geq[(1-r)h_0+r\int_{a_0(S)}^{\infty}h^*(a,S)dF](1-F(\underline{\underline{a}}(S)))$, which simplifies to $rF(\underline{\underline{a}}(S))\int_{a_0(S)}^{\infty}h^*(a,S)dF\geq 0$, which always holds.

**Proof of Proposition 4.** (i) The probability of a large donation $P(G^{HI})$ satisfies $P(G^{HI})_{NF}=(1-F(\bar{a}))h_0$ and $P(G^{HI})_F=(1-r)(1-F(\bar{a}))h_0+r\int_{\bar{a}}^{\infty}h^*(a,S)dF=P(G^{HI})_{OO}$. Because $h^*(a,S)>h_0$ for $a>\bar{a}$ (Lemma 2), $P(G^{HI})_F$ and $P(G^{HI})_{OO}$ are strictly greater than $P(G^{HI})_{NF}$ when $F(\bar{a})<1$ and equal (to zero) otherwise. (ii) The probability of a small donation $P(G^{LO})$ satisfies $P(G^{LO})_{NF}=(F(\bar{a})-F(\underline{\underline{a}}(S)))h_0$, $P(G^{LO})_F=(1-r)(F(\bar{a})-F(\underline{\underline{a}}(S)))h_0+r\int_{\underline{\underline{a}}(S)}^{\bar{a}}h^*(a,S)dF$, and $P(G^{LO})_{OO}=(1-r)(F(\bar{a})-F(\underline{\underline{a}}(S)))h_0+r\int_{a_0(S)}^{\bar{a}}h^*(a,S)dF$. For $S=0$, $a_0(0)=\underline{\underline{a}}(0)$ and hence $P(G^{LO})_F=P(G^{LO})_{OO}$. For $S>0$,

$P(G^{LO})_F > P(G^{LO})_{OO}$ as long as $F(a_0(S)) - F(\underline{a}(S)) > 0$.

**Proof of Proposition 5.** The unconditional probability of giving via mail $P(G_m)$ satisfies $P(G_m)_{NF} = 0$, $P(G_m)_F = r\int_{a_m}^{\infty}(1-h^*(a,S))dF$, and $P(G_m)_{OO} = r\int_{a_0(S)}^{\infty}(1-h^*(a,S))dF + r\left[F(a_0(S)) - F(a_m)\right]\cdot 1_{a_0>a_m}$. All types that are notified by the flyer (probability $r$) and are not at home (probability $1-h$) will give if the altruism level $a$ is above $a_m$ (Lemma 1b). In the $NF$ condition, this never occurs since $r = 0$. In the $F$ condition, instead, givers are notified and the probability of being at home is determined by $h^*(a,S)$; hence, trivially, $P(G_m)_F \geq P(G_m)_{NF}$. In the $OO$ condition, the probability is the same except over the range $[a_m, a_0(S)]$, where the individual opts out (Lemma 2), and hence $1-h^* = 1$. (Notice that this range may not exist).

# B Appendix B - Recruitment of Solicitor and Surveyors

Solicitors and surveyors were recruited from the student body at the University of Chicago, UIC, and Chicago State University via flyers posted around campus, announcements on a university electronic bulletin board, and email advertisements to student list hosts. All potential solicitors were told that they would be paid $9.50 per hour during training and employment. Interested solicitors were instructed to contact the research assistants to schedule an interview.

Initial fifteen-minute interviews were conducted in private offices in the Chicago Booth School of Business. Upon arrival to the interview, students completed an application form and a short questionnaire. In addition to questions about undergraduate major, GPA, and previous work experience, the job application included categorical-response questions—scaled from (1) strongly disagree to (5) strongly agree—providing information about personality traits of the applicant: assertiveness, sociability, self-efficacy, performance motivation, and self-confidence. Before the interview began, the interviewer explained the purpose of the fund-raising campaign or survey and the nature of the work. The interview consisted of a brief review of the applicant's work experience, followed by questions relating to his or her confidence in soliciting donations. All applicants were offered some form of employment.

Once hired, all solicitors and surveyors attended a 45-minute training session. Each training session was conducted by the same researcher and covered either soliciting or surveying. The soliciting training sessions provided background of the charities and reviewed the organization's mission statement. Solicitors received a copy of the informational brochure for each charity in the study. Once solicitors were familiarized with the charities, the trainer reviewed the data collection procedures. Solicitors were provided with a copy of the data record sheet which included lines to record the race, gender, and approximate age of potential donors, along with their contribution level. The trainer stressed the importance of recording contribution and non-contribution data immediately upon conclusion of each household visit. Next, the trainer reviewed the solicitation script. At the conclusion of the training session, the solicitors practiced their script with a partner and finally in front of the trainer and the other solicitors.

Training sessions for surveyors followed a similar procedure. Surveyors were provided with copies of the data record sheets. The trainer reviewed the data collection procedure and stressed the importance of recording all responses immediately upon conclusion of each household visit. The trainer then reviewed both the script and the survey that the surveyors would be conducting. The surveyors then practiced the script and survey with the trainer.

# C Appendix C - Charity and Survey Scripts

**La Rabida Children's Hospital [ECU] Script**

(If a minor answers the door, please ask to speak to a parent. Never enter a house.)

"Hi, my name is _____. I am a student volunteering for the University of Chicago visiting Chicago area households today on behalf of La Rabida Children's Hospital [*the East*

*Carolina University Center for Natural Hazards Research.*].

(Hand brochure to the resident.)

La Rabida is one of Illinois' foremost children's hospitals, dedicated to caring for children with chronic illnesses, disabilities, or who have been abused or neglected. La Rabida's mission is to provide family-centered care that goes beyond a child's medical needs to help them experience as normal a childhood as possible - regardless of a family's ability to pay. La Rabida is a non-profit organization.

[*The ECU Center provides support and coordination for research on natural hazard risks, such as hurricanes, tornadoes, and flooding. The ECU Center's mission is to reduce the loss of life and property damages due to severe weather events through research, outreach, and public education work.*]

To help La Rabida [*the ECU Center*] fulfill its mission, we are collecting contributions for La Rabida Children's hospital [*the ECU Center for Natural Hazards Research*] today.

Would you like to make a contribution today?

(If you receive a contribution, please write a receipt that includes their name and contribution amount.)

[AFTER they decide whether or not to give]:

If I may ask you one quick question - did you see our flyer on your door yesterday?

[Record answer in log]

If you have questions regarding La Rabida [*the ECU Center*] or want additional information, there is a phone number and web site address provided in this brochure. Thank you."

**Survey Script (2008)**

(If a minor answers the door, ask to speak to an adult. Never enter a house.)

Hi, my name is _____, and I am a student working for the University of Chicago. I am working for a professor who is doing research on people's pro-social behavior.

We are conducting confidential ___ minute surveys in _____ today. [*You would be paid $___ for your participation.*] Do you think you might be interested?

If not interested: Thank you for your time. If I may ask you one quick question, though – did you see our flyer on your door? [Show door-hanger and record answer in your log]

If interested: Great! Before we get started, I'd like to tell you a little bit about the survey and what we are doing to keep your answers confidential. First, we will not put your name on the survey. Second, when we put your answers in our computer, we will not enter your address information. Third, the computerized data will not be shared with third parties outside of this research project without your consent. So there is a very low risk of a breach of the confidentiality of your answers. Also, I'd like to make sure that you know that you don't have to answer any questions you're uncomfortable with, and you can stop your participation in this survey at any time. Finally, if you have any questions about your rights in this research study you can contact the University's Institutional Review Board, and I can provide you their contact information later.

So, would you like to take the survey?

If yes: Great! Let's get started.

If no: Thank you for your time. If I may ask you one quick question, though – did you see our flyer on your door? [Show door-hanger and record answer in your log]

[If they ask for IRB contact information, give it to them: Social & Behavioral Sciences Institutional Review Board, The University of Chicago, 5835 South Kimbark- Judd Hall, Chicago, IL 60637, Phone: +1 773 834-7835]

[After they are done: - Pay $___, if applicable; - Have them sign the payment sheet; - Thank them; - Record the outcome in your log.]

## References


[1] Akerlof, George A. and Rachel E. Kranton. 2000. "Economics and Identity," *Quarterly Journal of Economics,* 115(3), 715-753.

[2] Andreoni, James. 1989. "Giving with Impure Altruism: Applications to Charity and Ricardian Equivalence." *Journal of Political Economy*, 97(6), 1447-1458.

[3] Andreoni, James. 1990. Impure Altruism and Donations to Public Goods: A Theory of Warm-Glow Giving. *The Economic Journal*, 100(401), 464-477.

[4] Andreoni, James. 2006. "Philantropy."In *Handbook of Giving, Altruism, and Reciprocity*, ed. Serge-Christophe Kolm and Jean Mercier Ythier, 1201–1265. Amsterdam: Elsevier/North-Holland.

[5] Ariely, Dan, Anat Bracha, and Meier, Stephan. 2009. "Doing Good or Doing Well? Image Motivation and Monetary Incentives in Behaving Prosocially." *American Economic Review,* 99(1), 544-555.

[6] Asch, Solomon E. 1951. "Effects of Group Pressure Upon the Modification and Distortion of Judgment." In H. Guetzkow (Ed.), *Groups, leadership, and men.* Pittsburgh: Carnegie Press.

[7] Becker, Gary S. "A Theory of Social Interactions" *Journal of Political Economy,* 82(6), 1063-1093.

[8] Bellemare, Charles, and Bruce Shearer. 2009. "On The Relevance and Composition of Gifts within the Firm: Evidence from Field Experiments" IZA Discussion Paper 4339.

[9] Benabou, Roland and Jean Tirole. 2006. "Incentives and Prosocial Behavior" *American Economic Review,* 96(5), 1652-1678.

[10] Bernheim, B. Douglas. 1994. "A Theory of Conformity" *Journal of Political Economy,* 102(5), 841-877.

[11] Bodner, R. and Drazen Prelec. "The Diagnostic Value of Actions in a Self-Signaling Model," in: I. Brocas and J.D. Carrillo, eds., *The Psychology of Economic Decisions, Vol.1* , Oxford University Press, 2002.

[12] Burtless and Hausman. 1978. "The Effect of Taxation on Labor Supply: Evaluating the Gary Negative Income Tax Experiment" *Journal of Political Economy*, 86(6).

[13] Card, David, and D. Hyslop. 2005. "Estimating the Effects of a Time-Limited Earnings Subsidy for Welfare-Leavers," *Econometrica*, 73(6), 1723-1770.

[14] Charness, Gary, and Rabin, Matthew. 2002. "Understanding Social Preferences with Simple Tests." *Quarterly Journal of Economics* 117(3), 817-869.

[15] Conlin, Michael, Ted O'Donoghue, and Timothy J. Vogelsang. 2007. "Projection Bias in Catalog Orders." *American Economic Review,* 97(4), 1217-1249.

[16] Croson, Rachel and Shang, Jen. 2009. "A Field Experiment in Charitable Contribution: The Impact of Social Information on the Voluntary Provision of Public Goods." *Economic Journal,* 119, 1422-1439.

[17] Dana, Jason D., Daylian M. Cain, and Robyn M. Dawes. 2006. "What you don't know won't hurt me: Costly (but quiet) exit in dictator games." *Organizational Behavior and Human Decision Processes*, 100(2): 193-201.

[18] DellaVigna, Stefano. 2009. "Psychology and Economics: Evidence from the Field" *Journal of Economic Literature,* 47(2), 315-372.

[19] Duflo, Esther, Rema Hanna, and Stephen Ryan. 2009. "Incentives Work: Getting Teachers to Come to School", Working Paper.

[20] Falk, Armin, and Andrea Ichino. 2006. "Clean Evidence of Peer Effects," *Journal of Labor Economics,* 24(1): 39-57.

[21] Fehr, Ernst and Simon Gächter, 2000. "Fairness and Retaliation - The Economics of Reciprocity", *Journal of Economic Perspectives*, 14, 159-181.

[22] Fong, Christina and Erzo Luttmer. 2009. "What Determines Giving to Hurricane Katrina Victims? Experimental Evidence on Racial Group Loyalty", *American Economic Journal: Applied Economics*, 1(2), pp. 64-87.

[23] Forsythe, Robert, Joel L. Horowitz, N.E. Savin, and Martin Sefton. 1994. "Fairness in Simple Bargaining Experiments" *Games and Economic Behavior,* 6(3): 347–369.

[24] Garicano, Luis, Ignacio Palacios-Huerta, and Canice Prendergast. 2005. "Favoritism Under Social Pressure," *The Review of Economics and Statistics*, 87(2): 208-216.

[25] Gerber, Alan S., Donald P. Green, and Christopher W. Larimer. 2008. "Social Pressure and Voter Turnout: The Results of a Large Scale Field Experiment". *American Political Science Review*, 102: 33-48.

[26] Grossman, Zack. 2009. "Self-Signaling versus Social Signaling in Giving", UCSB Working paper.

[27] Harrison, Glenn and John A. List. 2004. "Field Experiments," *Journal of Economic Literature*, 42: 1009-1055.

[28] Huck, Steffen and Imran Rasul. 2009. "Testing Consumer Theory in the Field: Private Consumption Versus Charitable Goods", Working paper.

[29] T. R. Johnson and John Pencavel. 1984. "Dynamic Hours of Work Functions for Hubands, Wives, and Single Females." *Econometrica,* 52, 363-389.

[30] Laibson, David, Andrea Repetto, and Jeremy Tobacman. 2007. "Estimating Discount Functions with Consumption Choices over the Lifecycle," Working paper.

[31] Landry, Craig, Andreas Lange, John A. List, Michael K. Price, and Nicholas Rupp. 2006. "Towards an understanding of the economics of charity: Evidence from a field experiment." *Quarterly Journal of Economics*, 121(2), 747-782.

[32] Lazear, Edward, Ulrike Malmendier, and Roberto Weber, "Sorting, Prices, and Social Preferences," Working paper, 2010.

[33] Levine, David K. 1998. "Modeling Altruism and Spitefulness in Experiment," *Review of Economic Dynamics*, vol. 1(3), 593-622.

[34] List, John A. and David Lucking-Reiley. 2002. "The Effects of Seed Money and Refunds on Charitable Giving: Experimental Evidence from a University Capital Campaign." *Journal of Political Economy*, 110(8), 215-233.

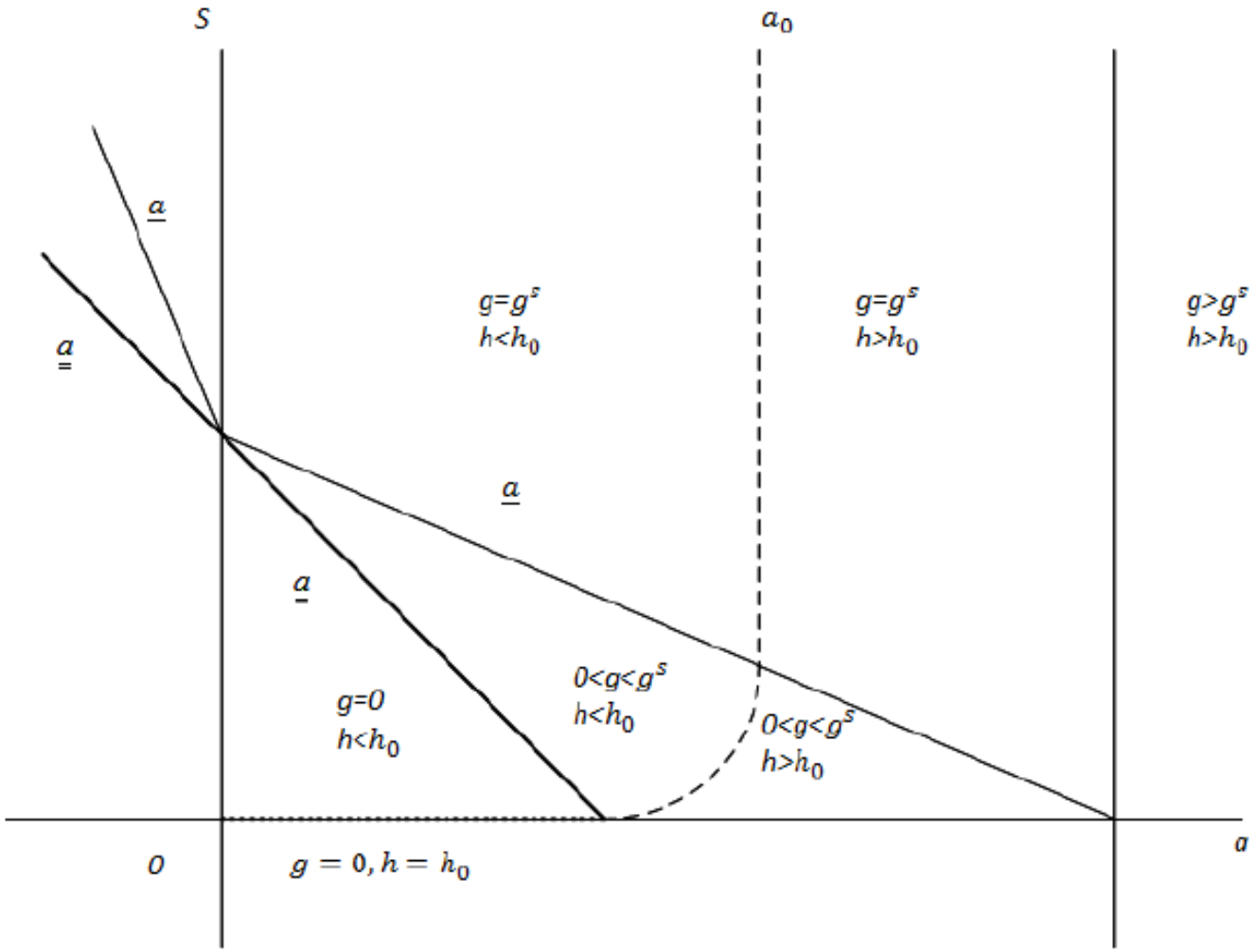
[35] Mas, Alexander and Moretti, Enrico. 2009. "Peers At Work", *American Economic Review*, 99(1), 112-145.

[36] Milgram, Stanley. 1963. "Behavioral study of obedience." *Journal of Abnormal and Social Psychology,* 67: 371-378.

[37] Powell, M.J.D., "Variable Metric Methods for Constrained Optimization," Mathematical Programming: The State of the Art, (A. Bachem, M. Grotschel and B. Korte, eds.) Springer Verlag, pp 288-311, 1983.

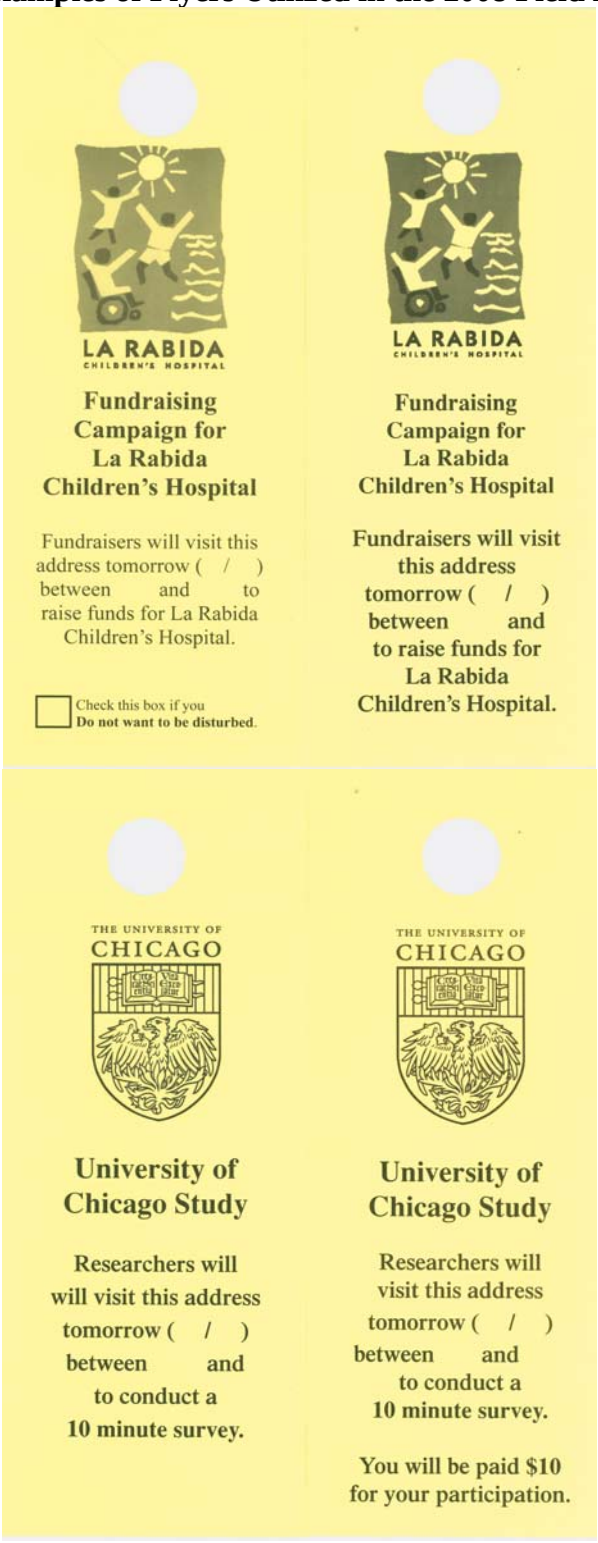
[38] Wooldridge, Jeffrey M., *Econometric Analysis of Cross Section and Panel Data*, Cambridge, MA: MIT Press, 2002

**Figure 1. Giving g and Probability of Home Presence h as Function of Parameters**




**Notes:** Figure 1 indicates the different regions for giving (no giving–g=0, small giving–$0<g<g^s$, giving equal to $g^s$, and large giving–$g> g^s$) and for probability of being at home (avoidance of solicitor--$h<h_0$, seeking solicitor–$h> h_0$). The regions are a function of the altruism parameter *a* and of the social pressure parameter *S*.

**Figure 2. Examples of Flyers Utilized in the 2008 Field Experiment**




**Note:** Figure 2 displays two examples of flyers for the fund-raising treatments (top row) and flyers for the 2008 survey treatments (bottom row). The top-left flyer is for the Opt-Out treatment, while the top-right flyer is for a Flyer treatment. The bottom-row flyers are both for a 10-minute survey with Flyer, the left one for no payment, the right one for a $10 payment.

**Figure 3a. Experimental Treatments Run in 2008**

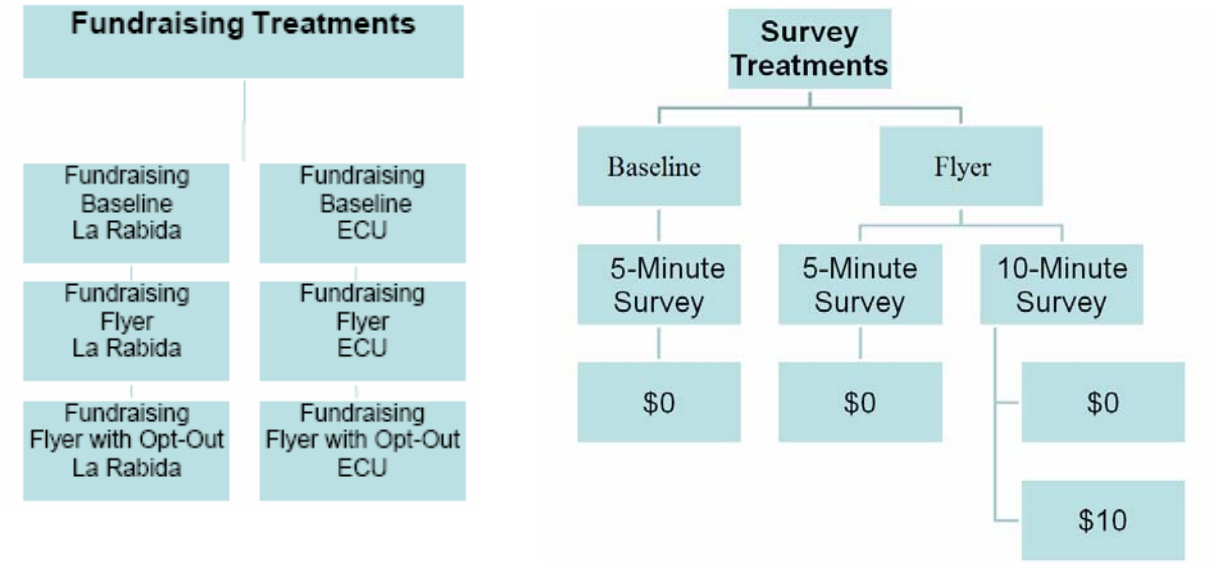
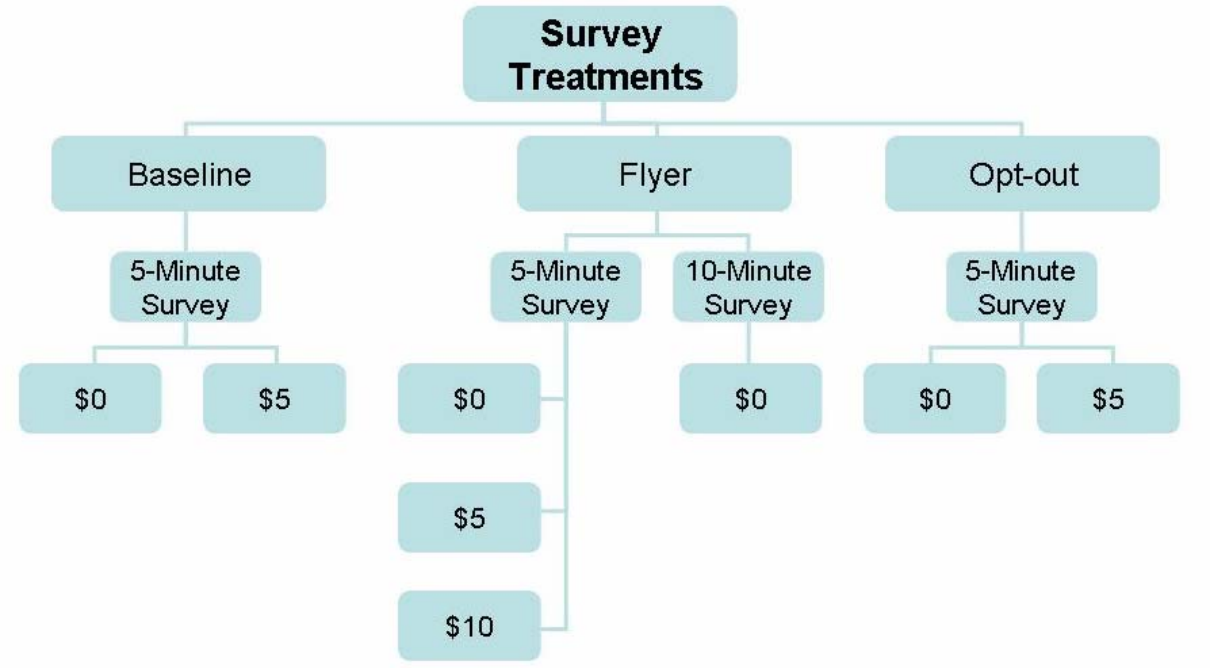
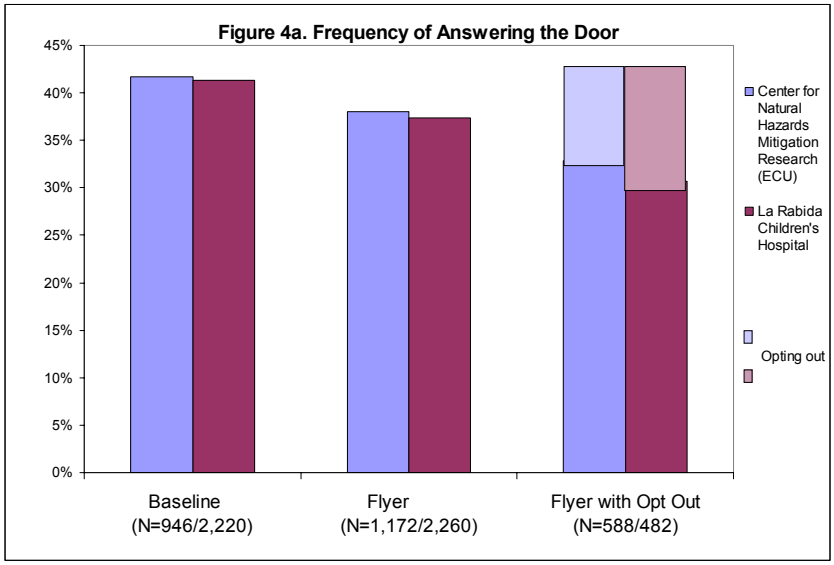
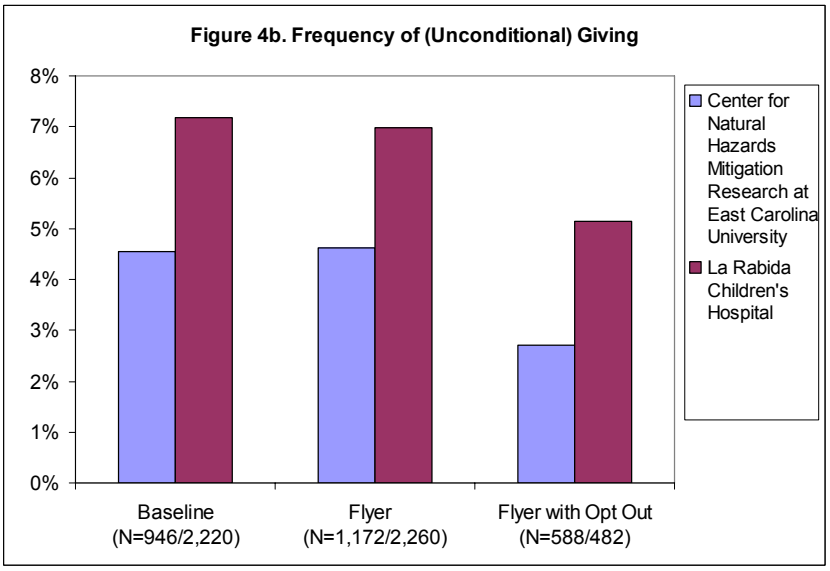


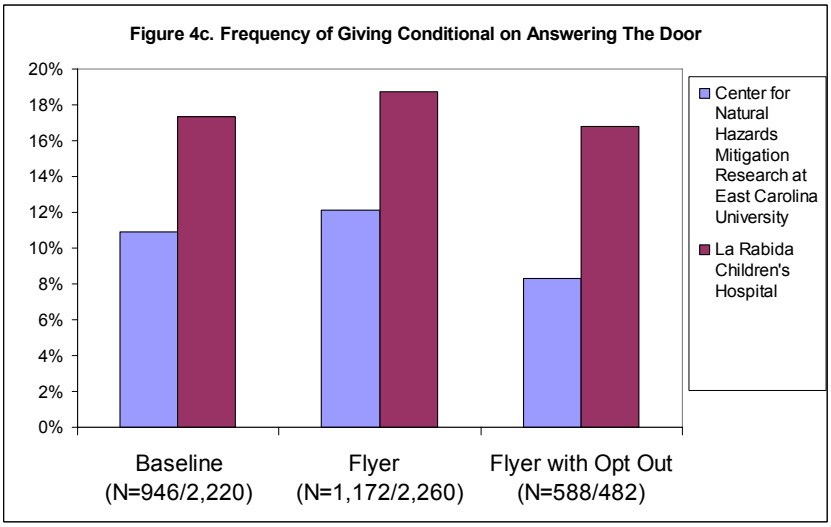

**Figure 3b. Experimental Treatments Run in 2009**



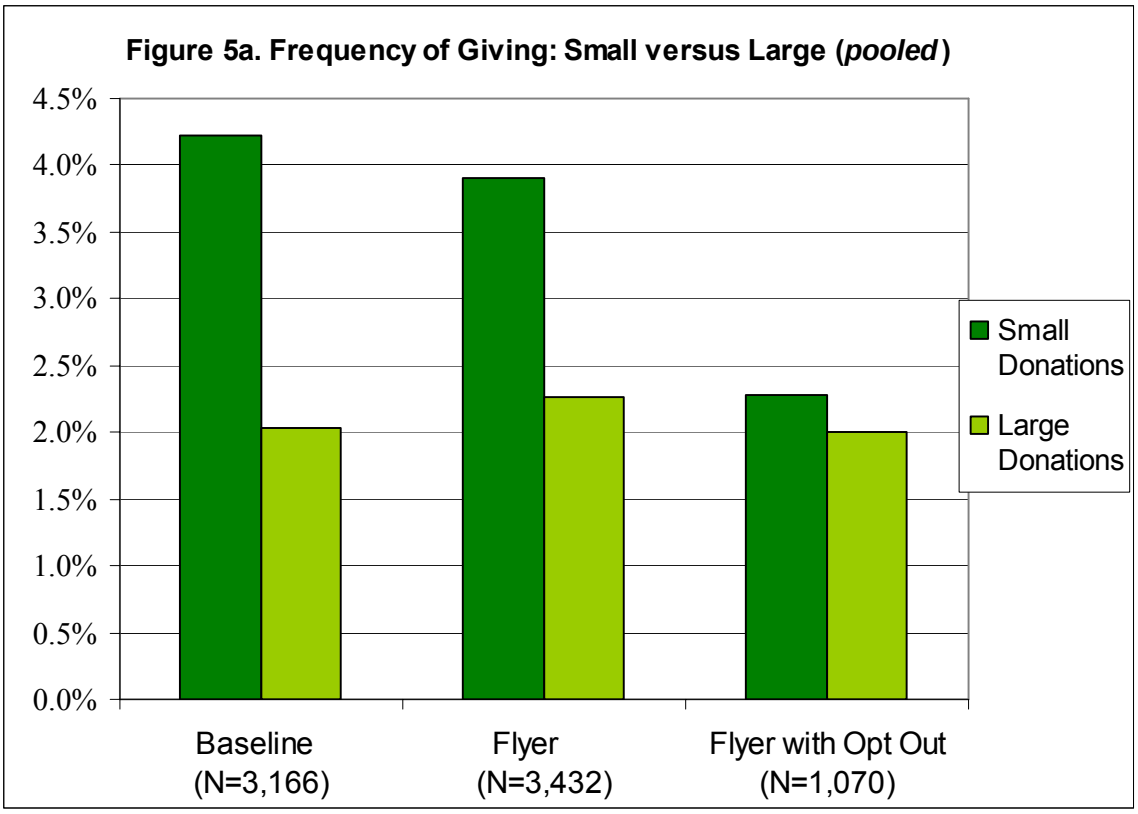

**Note:** Summary of the treatments run in the door-to-door field experiments in 2008 (charity and survey) in Figures 3a and run in 2009 (survey only) in Figures 3b. La Rabida and ECU are the names of the two charities for which the funds were raised.



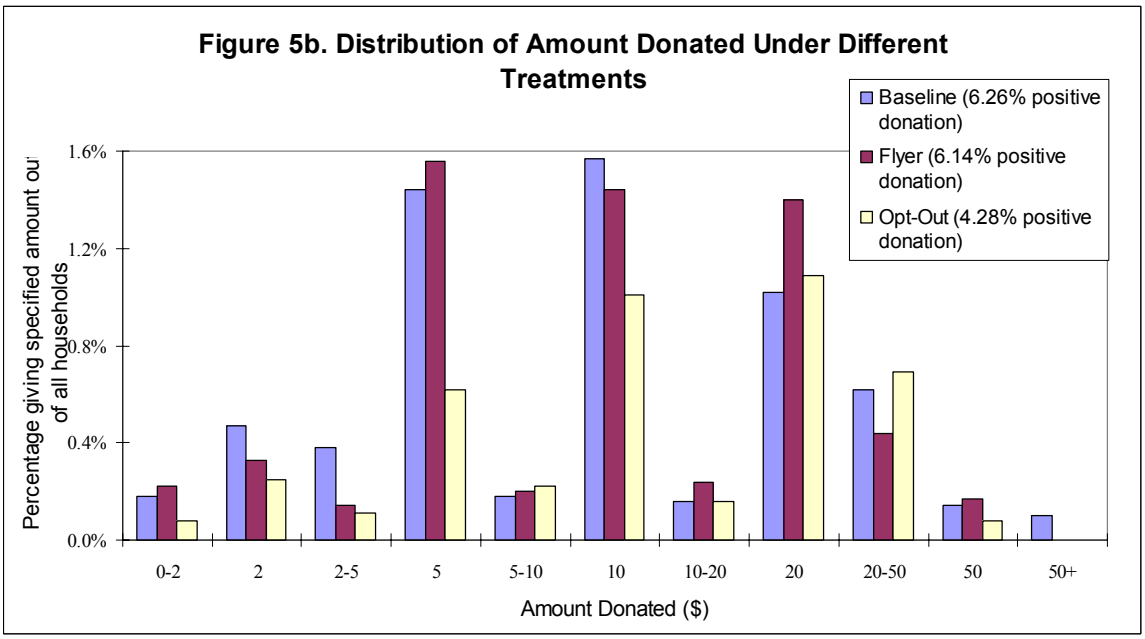



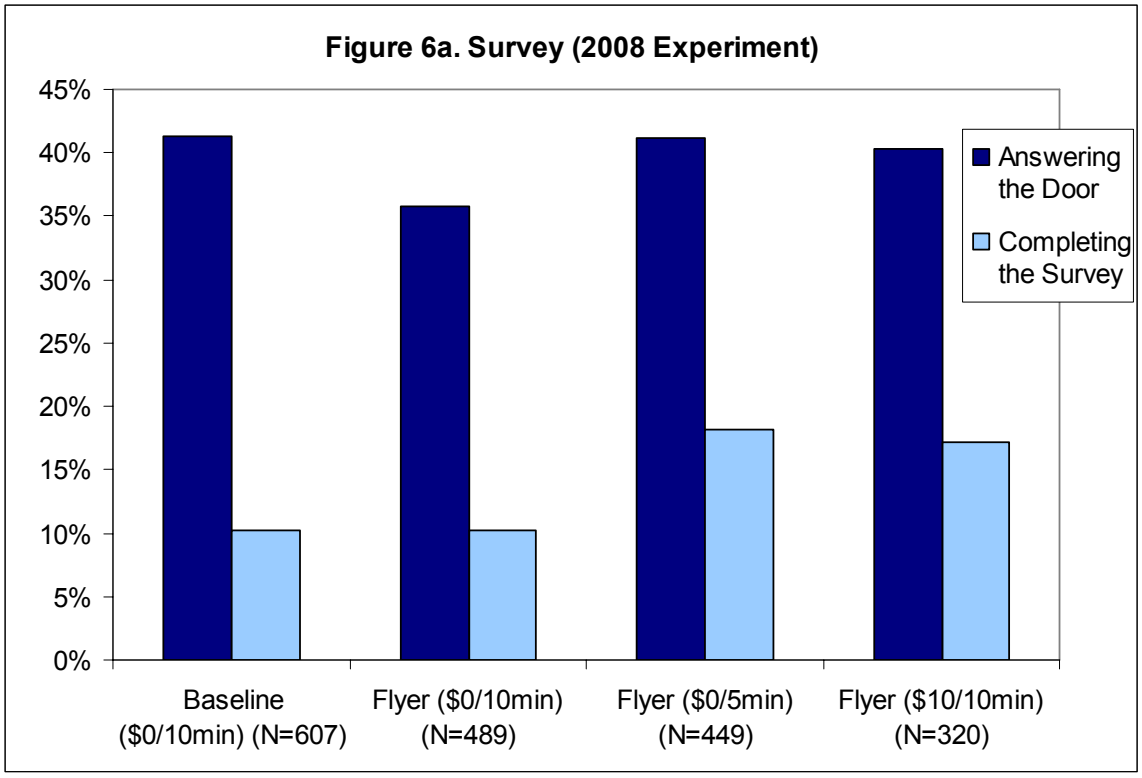

**Note:** Figure 4a presents the percent of households that answer the door under different treatment. In the Opt-Out treatment (third set of bars), the graph also shows the percent of households opting out. Figure 4b displays the percent that give to the charity out of all the households in the treatment group (including those not answering the door). Figure 4c shows giving conditioned on answering the door, which equals the ratio of the estimated unconditional giving (Figure 4b) and the estimated share of households answering the door (Figure 4a). All estimates are obtained from regressions that control for randomization fixed effects.

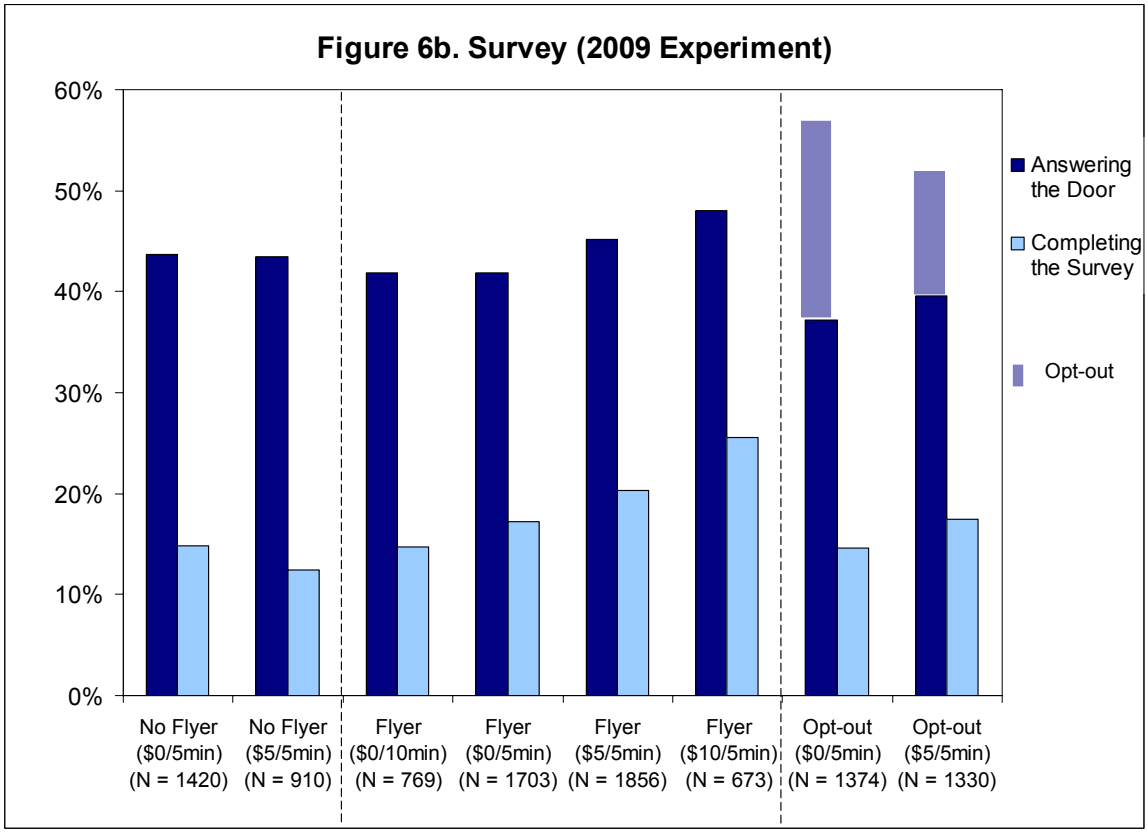



**Note:** Figure 5a presents the results on (unconditional) giving of small (≤ $10) and large (> $10) donations across the treatments. The estimates are obtained from regressions that control for randomization fixed effects.




**Note:** Figure 5b displays the distribution of money donated across different treatment groups. Each bar indicates the share of households giving the specified amount out of all households in the treatment. The Figure does not display the share of households donating $0. The estimates are obtained from regressions that control for randomization fixed effects.




**Note:** Figures 6a and 6b present the effect of survey treatments run in 2008 (Figure 6a) and 2009 (Figure 6b) on the percent of household answering the door and on the percent completing the survey (out of all households). The estimates are obtained from regressions that control for randomization fixed effects.

**Figure 7a. Distribution of Altruism and Cut-offs for Giving**

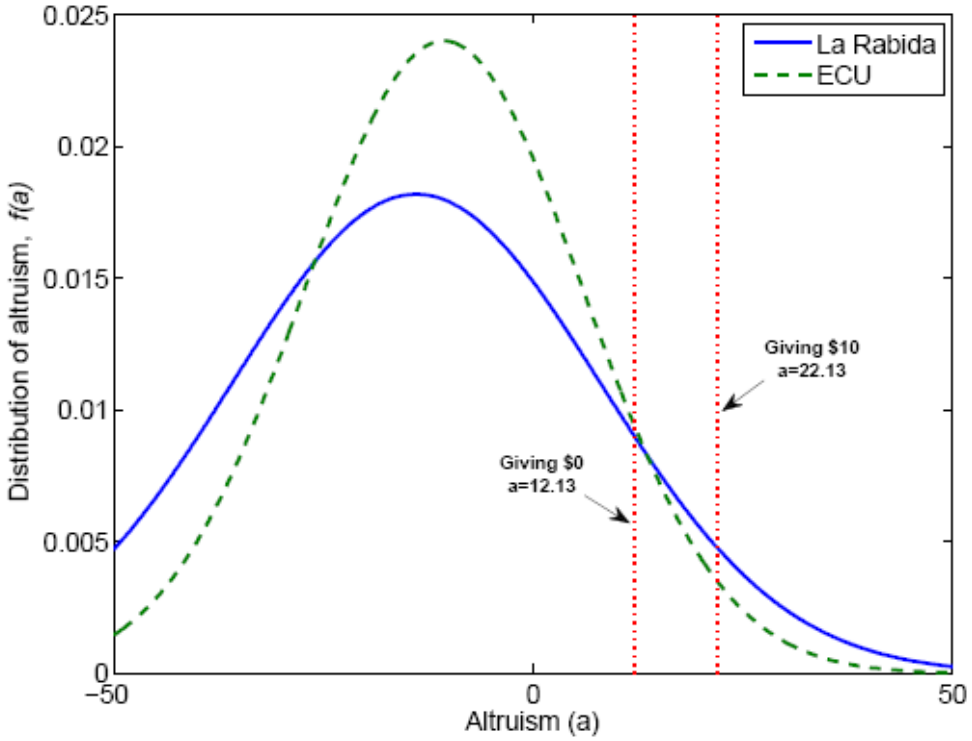
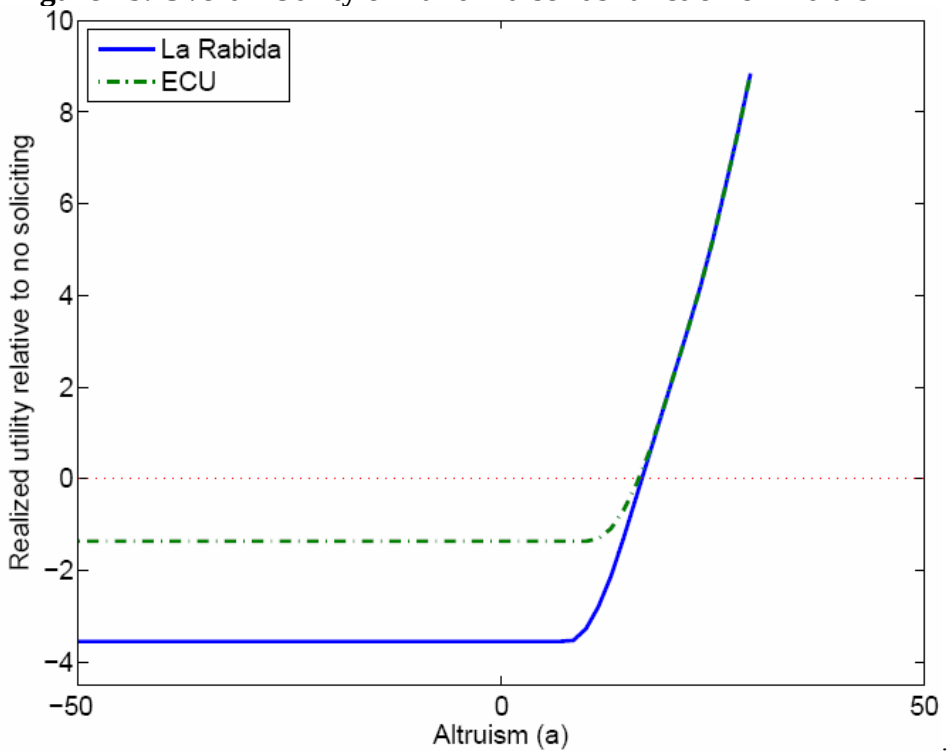



**Figure 7b. Overall Utility of Fund-Raiser as function of Altruism**




**Note:** Figures 7a plots the estimated distribution of the altruism parameter $a$. The Figure displays the threshold for giving \$0 and for giving \$10 in the absence of social pressure, given by $a \cdot v'(G+g) - 1 > 0$ or $a > G + g$. Figure 7b plots the implied utility in equilibrium of a standard door-to-door fund-raiser, as a function of the altruism parameter $a$. The parameter values are from the benchmark minimum distance estimates (Column (1) in Table 4).

## Table 1. Summary Statistics – Treatment Outcomes

**Panel A: Fund-Raising Treatments**

| Variable: | Share of Households Answering the Door | | | Share of Households Giving (In-Person) | | | Number of Households Giving (Mail/Internet) | |
|---|---|---|---|---|---|---|---|---|
| **Sample:** | Pooled | ECU | La Rabida | Pooled | ECU | La Rabida | ECU | La Rabida |
| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) |
| **Baseline (No-Flyer) Treatment** | 0.4090 (N = 3166) | 0.4228 (N = 946) | 0.4032 (N = 2220) | 0.0629 | 0.0507 | 0.0680 | Zero donations across all treatments | One ($25) donation across all treatments |
| **Flyer Treatment** | 0.3753 (N = 3432) | 0.3993 (N = 1172) | 0.3628 (N = 2260) | 0.0585 | 0.0460 | 0.0650 | | |
| **Flyer with Opt-out Treatment** | 0.3355 (N = 1070) | 0.3503 (N = 588) | 0.3174 (N = 482) | 0.0514 | 0.0289 | 0.0788 | | |
| **N** | N = 7668 | N = 2706 | N = 4962 | N = 7668 | N = 2706 | N = 4962 | N = 2706 | N = 4962 |

**Panel B: Survey Treatments**

| Variable: | Share of Households Answering the Door | Share of Households Completing the Survey | | Share of Hhs. Answering the Door | Share of Hhs. Completing the Survey |
|---|---|---|---|---|---|
| ***2008 Survey Treatments*** | (1) | (2) | ***2009 Survey Treatments*** | (3) | (4) |
| **Baseline ($0/10min) Treatment** | 0.4135 (N = 607) | 0.0972 | **Baseline ($0/5min)** | 0.4275 (N = 1420) | 0.1472 |
| **Flyer ($0/10min) Treatment** | 0.3681 (N = 489) | 0.1186 | **Baseline ($5/5min)** | 0.4428 (N = 910) | 0.1231 |
| **Flyer ($0/5min) Treatment** | 0.392 (N = 449) | 0.1714 | **Flyer ($0/10min)** | 0.4148 (N = 769) | 0.1430 |
| **Flyer ($10/10min) Treatment** | 0.4156 (N = 320) | 0.1719 | **Flyer ($0/5min)** | 0.4227 (N = 1703) | 0.1679 |
| **N** | N = 1865 | N = 1865 | **Flyer ($5/5min)** | 0.4498 (N = 1856) | 0.2085 |
| | | | **Flyer ($10/5min)** | 0.4814 (N = 673) | 0.2600 |
| | | | **Opt-Out ($0/5min)** | 0.3712 (N = 1374) | 0.1434 |
| | | | **Opt-Out ($0/10min)** | 0.3969 (N = 1330) | 0.1797 |
| | | | **N** | N = 10035 | N = 10035 |

**Notes:** Summary statistics for the variables of the experiment. "ECU" and "La Rabida" indicate the two charities in the experiment, "ECU" is an out-of-state research center on hurricanes, "La Rabida" is an in-state children's hospital.

## Table 2. Results for Fund-Raising Treatments

| Specification: | OLS Regressions | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Dep. Var.: | Indicator for Answering the Door | | Indicator for Giving | | Indicator for Giving Small Amount (≤ $10) | Indicator for Giving Large Amount (> $10) | Amount Given (including $0) | Indicator for Giving Prior to Crisis (9/1/2008) | Indicator for Giving Post Crisis (9/1/2008) |
| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) |
| **Flyer Treatment** | -0.0387 | | -0.0011 | | -0.0033 | 0.0022 | -0.1459 | -0.0047 | 0.0186 |
| | (0.0137)*** | | (0.0062) | | (0.0052) | (0.0035) | (0.1357) | (0.0071) | (0.0103)* |
| **Flyer with opt out Treatment** | -0.0967 | | -0.0195 | | -0.0193 | -0.0002 | -0.3041 | -0.0208 | -0.0095 |
| | (0.0194)*** | | (0.0084)** | | (0.0081)** | (0.0051) | (0.1653)* | (0.0117)* | (0.0136) |
| **Indicator ECU Charity** | 0.0088 | 0.0041 | -0.0249 | -0.0263 | -0.0127 | -0.0123 | -0.7611 | -0.0265 | -0.0176 |
| | (0.0143) | (0.0234) | (0.0049)*** | (0.0085)*** | (0.0053)** | (0.0032)*** | (0.1368)*** | (0.0066)*** | (0.0101) |
| **Flyer Treatment * ECU Charity** | | -0.0365 | | 0.0006 | | | | | |
| | | (0.0313) | | (0.0094) | | | | | |
| **Flyer with opt out * ECU Charity** | | -0.089 | | -0.0183 | | | | | |
| | | (0.0271)*** | | (0.0100)* | | | | | |
| **Flyer Treatment * La Rabida Charity** | | -0.0396 | | -0.0019 | | | | | |
| | | (0.0144)*** | | (0.0078) | | | | | |
| **Flyer with opt out * La Rabida Charity** | | -0.106 | | -0.0202 | | | | | |
| | | (0.0319)*** | | (0.0132) | | | | | |
| **Omitted Treatment** | No-Flyer, La Rabida | | No-Flyer, La Rabida | | No-Flyer, La Rabida | | No Flyer, La Rabida | No-Flyer, La Rabida | |
| **Mean of Dep. Var. for Omitted Treatment** | 0.413 | | 0.0717 | | 0.0414 | 0.0215 | 1.161 | 0.0677 | 0.0267 |
| **Fixed Effects for Solicitor, Date-Location, Hour, and Area Rating** | X | X | X | X | X | X | X | X | X |
| **N** | N = 7668 | N = 7668 | N = 7668 | N = 7668 | N = 7668 | N = 7668 | N = 7668 | N = 6114 | N = 1554 |

**Notes:** Estimates for a linear probability model, with standard errors, clustered by solicitor-date, in parentheses. The omitted treatment is the Baseline No-Flyer fund-raising treatment. The regressions include fixed effects for the solicitor, for the date-town combination, for the hour of day, and for a subjective rating of home values in the block.
* significant at 10%; ** significant at 5%; *** significant at 1%

## Table 3. Results for Survey Treatments

| Specification: | OLS Regressions | | | |
|---|---|---|---|---|
| Sample: | 2008 Survey | | 2009 Survey | |
| Dependent Variable: | Indicator for Answering the Door | Indicator for Completing Survey | Indicator for Answering the Door | Indicator for Completing Survey |
| | (1) | (2) | (3) | (4) |
| **Flyer ($0/10min) Treatment** | -0.0563 | 0.0000 | | |
| | (0.0377) | (0.0260) | | |
| **Flyer ($0/5min) Treatment** | -0.0021 | 0.0794 | | |
| | (0.0334) | (0.0233)*** | | |
| **Flyer ($10/10min) Treatment** | -0.0105 | 0.0695 | | |
| | (0.0448) | (0.0265)** | | |
| **Baseline ($5/5min) Treatment** | | | -0.002 | -0.0240 |
| | | | (0.0212) | (0.0176) |
| **Flyer ($0/10min) Treatment** | | | -0.0169 | -0.0008 |
| | | | (0.0240) | (0.0180) |
| **Flyer ($0/5min) Treatment** | | | -0.0176 | 0.0243 |
| | | | (0.0195) | (0.0132)* |
| **Flyer ($5/5min) Treatment** | | | 0.0158 | 0.0549 |
| | | | (0.0217) | (0.0164)*** |
| **Flyer ($10/5min) Treatment** | | | 0.0428 | 0.1072 |
| | | | (0.0241)* | (0.0187)*** |
| **Opt-Out ($0/5min) Treatment** | | | -0.0651 | -0.0026 |
| | | | (0.0225)*** | (0.0160) |
| **Opt-Out ($5/5min) Treatment** | | | -0.0408 | 0.0259 |
| | | | (0.0196)** | (0.0162) |
| **Omitted Treatment** | **Baseline ($0/10min)** | | **Baseline ($0/5min)** | |
| **Mean of Dep. Var. for Omitted Treatment** | 0.4138 | 0.1025 | 0.4373 | 0.1498 |
| **Fixed Effects for Solicitor, Date-Location, Hour, and Area Rating** | X | X | X | X |
| **N** | N = 1865 | N = 1865 | N = 10035 | N = 10035 |

**Notes:** Estimates for a linear probability model with standard errors, clustered by solicitor-date, in parentheses. The omitted treatment is the Baseline No-Flyer $0-10 minutes survey for Columns (1) and (2) and the Baseline No-Flyer $0-5 minutes survey for Columns (3) and (4). The regressions include fixed effects for the solicitor, for the date-town combination, for the hour of day, and for a subjective rating of home values in the block.
* significant at 10%; ** significant at 5%; *** significant at 1%

## Table 4. Minimum-Distance Estimates: Benchmark Results

| | Benchmark Estimates | | Estimates with Identity Weighting Matrix | |
|---|---|---|---|---|
| ***Common Parameters*** | (1) | | (2) | |
| Prob. of Home Presence (h) - Year 2008 | 0.414 | | 0.414 | |
| | (0.004) | | (0.006) | |
| Prob. of Home Presence (h) - Year 2009 | 0.449 | | 0.445 | |
| | (0.007) | | (0.008) | |
| Prob. of Observing Flyer (r) | 0.322 | | 0.302 | |
| | (0.011) | | (0.012) | |
| Elasticity of Home Presence (eta) | 0.047 | | 0.060 | |
| | (0.014) | | (0.031) | |
| Implied Cost of Altering Prob. Home by 10 pp. | 0.106 | | 0.083 | |
| ***Survey Parameters*** | | | | |
| Mean Utility (in $) of Doing 10-Minute Survey | -26.865 | | -26.936 | |
| | (4.233) | | (5.509) | |
| Std. Dev. of Utility of Doing Survey | 30.285 | | 30.332 | |
| | (5.208) | | (6.303) | |
| Value of Time of One-Hour Survey | 74.580 | | 76.761 | |
| | (22.901) | | (26.130) | |
| Social Pressure Cost if Saying No to Survey | 4.784 | | 3.869 | |
| | (1.285) | | (1.918) | |
| ***Charity Parameters*** | La Rabida | ECU | La Rabida | ECU |
| Mean Weight on Altruism Function (μ) | -13.910 | -10.637 | -13.586 | -15.109 |
| | (3.250) | (4.273) | (9.481) | (10.919) |
| Std. Dev. of Weight on Altruism Function | 21.935 | 16.620 | 19.832 | 19.832 |
| | (1.335) | (1.832) | (3.885) | (3.998) |
| Curvature of Altruism Function (G) | 12.133 | | 12.224 | |
| | (5.147) | | (15.518) | |
| Social Pressure Cost of Giving 0 in Person | 3.550 | 1.364 | 3.140 | 1.906 |
| | (0.615) | (0.744) | (1.674) | (1.475) |

**Notes:** Estimates from minimum-distance estimator with moments listed in Appendix Table 1 and weights given by inverse of diagonal of variance-covariance matrix in Column (1) and given by identity matrix in Column (2). Standard errors are in parentheses.

## Table 5. Minimum Distance Estimates: Robustness

| | Benchmark Estimates | | More Detailed Giving Moments | | Less Detailed Giving Moments | | No Survey Moments | | Only Survey Moments | | Allows for no social pref. | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ***Common Parameters*** | (1) | | (2) | | (3) | | (4) | | (5) | | (6) | |
| Prob. Observing Flyer (r) | 0.322 | | 0.324 | | 0.321 | | 0.265 | | 0.339 | | 0.543 | |
| | (0.011) | | (0.011) | | (0.012) | | (0.016) | | (0.016) | | (0.091) | |
| Elasticity of Home Presence (eta) | 0.047 | | 0.061 | | 0.043 | | 0.072 | | 0.039 | | 0.028 | |
| | (0.014) | | (0.023) | | (0.021) | | (0.036) | | (0.018) | | (0.007) | |
| Probability of Type with Social Preferences (p) | | | | | | | | | | | 0.6580 | |
| | | | | | | | | | | | (0.0804) | |
| ***Survey Parameters*** | | | | | | | | | | | | |
| Mean Utility (in $) of Doing 10-Minute Survey | -26.865 | | -26.155 | | -27.257 | | - | | -29.111 | | -17.141 | |
| | (4.233) | | (4.147) | | (4.670) | | - | | (5.217) | | (3.523) | |
| Std. Dev. of Utility of Doing 10-Minute Survey | 30.285 | | 29.987 | | 30.471 | | - | | 31.824 | | 23.686 | |
| | (5.208) | | (5.117) | | (5.377) | | - | | (5.840) | | (4.205) | |
| Social Pressure Cost of Saying No to Survey | 4.784 | | 3.827 | | 5.203 | | - | | 5.576 | | 9.353 | |
| | (1.285) | | (1.308) | | (2.280) | | - | | (2.452) | | (2.321) | |
| ***Charity Parameters*** | La Rabida | ECU | La Rabida | ECU | La Rabida | ECU | La Rabida | ECU | La Rabida | ECU | La Rabida | ECU |
| Mean Weight on Altruism Function | -13.910 | -10.637 | -12.895 | -8.482 | -15.905 | -14.629 | -10.869 | -7.087 | - | - | -3.422 | -1.661 |
| | (3.250) | (4.273) | (5.280) | (6.122) | (5.702) | (7.127) | (7.231) | (8.459) | - | - | (6.254) | (6.763) |
| Std. Dev. of Weight on Altruism Function | 21.935 | 16.620 | 21.877 | 15.876 | 21.622 | 17.331 | 22.283 | 16.572 | - | - | 19.444 | 14.932 |
| | (1.335) | (1.832) | (1.248) | (1.575) | (1.274) | (2.326) | (1.441) | (2.155) | - | - | (1.440) | (1.567) |
| Curvature of Altruism Function (G) | 12.133 | | 12.742 | | 9.6174 | | 15.655 | | - | - | 14.567 | |
| | (5.147) | | (6.882) | | (6.237) | | (8.956) | | - | - | (6.603) | |
| Social Pressure Cost of Giving 0 in Person | 3.550 | 1.364 | 2.616 | 0.641 | 4.199 | 2.022 | 2.948 | 1.111 | - | - | 3.352 | 1.087 |
| | (0.615) | (0.744) | (0.742) | (0.609) | (2.370) | (2.280) | (1.049) | (0.771) | - | - | (0.657) | (0.687) |
| ***Decomposition of Giving and Welfare*** | | | | | | | | | | | | |
| Share of Givers who Seek The Fund-raiser | 0.509 | 0.518 | 0.546 | 0.616 | 0.519 | 0.496 | 0.500 | 0.508 | - | - | 0.492 | 0.532 |
| | (0.040) | (0.095) | (0.041) | (0.144) | (0.041) | (0.101) | (0.043) | (0.103) | - | - | (0.039) | (0.098) |
| Average Welfare per Household of Fund-Raiser (in $) | -1.077 | -0.439 | -0.731 | -0.159 | -1.279 | -0.726 | -0.893 | -0.359 | - | - | -0.540 | -0.169 |
| | (0.160) | (0.286) | (0.193) | (0.234) | (0.766) | (0.769) | (0.297) | (0.288) | - | - | (0.164) | (0.169) |

**Notes:** Estimates from minimum-distance estimator with moments listed in Appendix Table 1 and weights given by inverse of diagonal of variance-covariance matrix. Benchmark estimates in Column (1) use giving moments (0,10), 10, (10,20], (20,50], 50+. Estimates in Column (2) use giving moments (0,3], (3,7], (7,10], (10,20], (20,50], 50+. Estimates in Column (3) use giving moments (0,10], (10,20], (20,50], 50+. Estimates in Column (4) do not use any of the survey moments, while estimates in Column (5) only use the survey moments. Estimates in Columns allow for a share (1-p) of the population that have no altruism, nor social pressure. These agents do not give to charity and do not complete the survey. Standard errors are in parentheses.

## Table 6. Decomposition of Giving and Welfare

| Specification: | Minimum-Distance Benchmark Estimates | |
|---|---|---|
| **Charity:** | **La Rabida Charity** | **ECU Charity** |
| | (1) | (2) |
| **Panel A. Decomposition of Giving in Standard (No-Flyer) Fund-raiser** | | |
| Share of Givers Who Would Give Without Social Pressure (*S=0*) | 0.731 (0.055) | 0.837 (0.083) |
| Share of Amount That Would Be Given Without Social Pressure (*S=0*) | 0.724 (0.030) | 0.810 (0.095) |
| Share of Givers who Seek the Fund-raiser ('Happy Givers') | 0.509 (0.040) | 0.518 (0.095) |
| **Panel B. Sorting in Fund-raiser with Flyer** | | |
| Increase in Answering the Door due to Altruism ('Sorting In') | 0.007 (0.001) | 0.003 (0.001) |
| Decrease in Answering the Door due to Social Pressure ('Sorting Out') | -0.048 (0.011) | -0.019 (0.011) |
| **Panel C. Welfare** | | |
| *Welfare in Standard (No-Flyer) Fund-Raiser* | | |
| Welfare per Household Contacted (in $) | -1.077 (0.160) | -0.439 (0.286) |
| Money Raised per Household Contacted | 0.722 (0.036) | 0.332 (0.046) |
| Money Raised per Household, Net of Salary | 0.247 (0.036) | -0.143 (0.046) |
| *Welfare in Fund-Raiser with Flier* | | |
| Welfare per Household Contacted (in $) | -0.924 (0.145) | -0.404 (0.273) |
| Money Raised per Household Contacted | 0.859 (0.044) | 0.333 (0.046) |
| Money Raised per Household, Net of Salary | 0.248 (0.044) | -0.278 (0.046) |
| *Welfare in Fund-Raiser with Opt-out* | | |
| Welfare per Household Contacted (in $) | -0.586 (0.085) | -0.248 (0.196) |
| Money Raised per Household Contacted | 0.810 (0.045) | 0.369 (0.055) |
| Money Raised per Household, Net of Salary | 0.294 (0.036) | -0.147 (0.046) |

**Notes:** Decomposition, sorting, and welfare are computed using estimates from minimum-distance estimator with weights given by inverse of diagonal of variance-covariance matrix (Column (1) in Table 4). To compute the salary cost of the solicitor we assume an hourly wage of $9.5 and 20 households reached in one hour of fund-raising (25 in the Opt-Out treatment). We also assume that a solicitor flyers 70 households in one hour. Standard errors are in parentheses.

## Appendix Table 1. Empirical Moments and Estimated Moments

| Specification: | Minimum-Distance Estimates | | | |
|---|---|---|---|---|
| Charity | La Rabida Charity | | ECU Charity | |
| | Empirical Moments | Estimated Moments | Empirical Moments | Estimated Moments |
| **Panel A: Fund-Raising Moments** | (1) | (2) | (3) | (4) |
| P(Home) No Flyer | 0.4130 | 0.4142 | 0.4171 | 0.4142 |
| P(Home) Flyer | 0.3733 | 0.3735 | 0.3806 | 0.3983 |
| P(Home) Opt-Out | 0.3070 | 0.2989 | 0.3281 | 0.2911 |
| P(Opt Out) Opt-Out | 0.1202 | 0.1142 | 0.0988 | 0.1179 |
| P(Giving) No Flyer | 0.0717 | 0.0666 | 0.0455 | 0.0422 |
| P(Giving) Flyer | 0.0699 | 0.0710 | 0.0461 | 0.0449 |
| P(Giving) Opt-Out | 0.0515 | 0.0633 | 0.0272 | 0.0390 |
| P(0<Giving<10), No Flyer | 0.0245 | 0.0254 | 0.0303 | 0.0270 |
| P(0<Giving<10), Flyer | 0.0163 | 0.0173 | 0.0118 | 0.0206 |
| P(0<Giving<10), Opt-out | 0.0233 | 0.0228 | 0.0268 | 0.0265 |
| P(Giving=10), No Flyer | 0.0216 | 0.0204 | 0.0051 | 0.0051 |
| P(Giving=10), Flyer | 0.0138 | 0.0188 | 0.0014 | 0.0056 |
| P(Giving=10), Opt-out | 0.0200 | 0.0209 | 0.0041 | 0.0056 |
| P(10<Giving<=20), No Flyer | 0.0137 | 0.0134 | 0.0084 | 0.0080 |
| P(10<Giving<=20), Flyer | 0.0083 | 0.0165 | 0.0136 | 0.0080 |
| P(10<Giving<=20), Opt-out | 0.0186 | 0.0165 | 0.0125 | 0.0098 |
| P(20<Giving<=50), No Flyer | 0.0103 | 0.0073 | 0.0020 | 0.0021 |
| P(20<Giving<=50), Flyer | 0.0138 | 0.0106 | 0.0008 | 0.0030 |
| P(20<Giving<=50), Opt-out | 0.0078 | 0.0106 | 0.0030 | 0.0030 |
| P(Giving>50), No Flyer | 0.0016 | 0.0001 | -0.0003 | 0.0000 |
| P(Giving>50), Flyer | -0.0006 | 0.0002 | -0.0005 | 0.0000 |
| P(Giving>50), Opt-out | 0.0002 | 0.0002 | -0.0002 | 0.0000 |
| N | N = 4962 | N = 4962 | N = 2706 | N = 2706 |

| | P(Home) | | P(Do Survey) | | P(Opt-out) | |
|---|---|---|---|---|---|---|
| | Empirical Moments | Estimated Moments | Empirical Moments | Estimated Moments | Empirical Moments | Estimated Moments |
| **Panel B: Survey Moments** | (1) | (2) | (3) | (4) | (5) | (6) |
| **Moments 2008** | | | | | | |
| No Flyer $0, 10min | 0.4138 | 0.4136 | 0.1025 | 0.0953 | - | - |
| Flyer $0, 10min | 0.3576 | 0.3883 | 0.1025 | 0.1192 | - | - |
| Flyer $0, 5min | 0.4118 | 0.4016 | 0.1819 | 0.1562 | - | - |
| Flyer $10, 10min | 0.4033 | 0.4108 | 0.1720 | 0.1813 | - | - |
| N | N = 1865 | N = 1865 | N = 1865 | N = 1865 | - | - |
| **Moments 2009** | | | | | | |
| No Flyer $0, 5min | 0.4364 | 0.4491 | 0.1485 | 0.1333 | - | - |
| No Flyer $5, 5min | 0.4342 | 0.4491 | 0.1244 | 0.1599 | - | - |
| Flyer $0, 10min | 0.4191 | 0.4170 | 0.1477 | 0.1281 | - | - |
| Flyer $0, 5min | 0.4185 | 0.4299 | 0.1725 | 0.1650 | - | - |
| Flyer $5, 5min | 0.4521 | 0.4425 | 0.2034 | 0.1999 | - | - |
| Flyer $10, 5min | 0.4798 | 0.4565 | 0.2554 | 0.2377 | - | - |
| Opt-out $0, 5min | 0.3714 | 0.3734 | 0.1459 | 0.1593 | 0.1336 | 0.1094 |
| Opt-out $5, 5min | 0.3955 | 0.3898 | 0.1744 | 0.1938 | 0.0846 | 0.1015 |
| N | N = 10035 | N = 10035 | N = 10035 | N = 10035 | N = 2704 | N = 2704 |

**Notes:** The Table presents the empirical moments and the estimated moments from a minimum-distance estimator. The empirical moments are obtained as regression estimates after controlling for the randomization fixed effects and as such can occasionally be negative. The minimum-distance estimates are in Table 4, Column (1).