

# Reluctant Donors and their Reactions to Social Information

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## Abstract

This paper examines how image concerns affect the way giving behavior responds to social information. Subjects in the laboratory decide first whether they wish to donate part of their earnings to a charity, and then, conditional on opting in, decide how much to donate. They receive information on the size of a previous donation either before or after opting in, which allows one to examine the effect of the information on the extensive and intensive margins of giving separately, and thus distinguish self-image concerns from potential alternative mechanisms. Information on a large previous donation caused subjects to opt out, but when shown only after opt-in, the same information caused subject to increase donation amounts and did not lead to \$0 donations. As further evidence of image concerns, the reaction to the information was found to be correlated with a preference for quietly exiting a dictator game, and with scoring high on neuroticism. The results have implications for the inferences we draw about donor motives and welfare based on changes in giving in response to social information.

**Keywords:** charitable giving, reluctant altruism, social information, moral wiggle room

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## **1 Introduction**

Social information can influence giving behavior through a variety of mechanisms. Theoretical and experimental work (reviewed in the next section) has highlighted the role of motivations such as altruism, conformity, and reciprocity in shaping how individuals might change their donations in response to learning how much others donate. However, a growing body of research has shown that seemingly kind behavior such as giving to charity is often done reluctantly, out of image concerns. People often contribute because they do not want to appear selfish, either to themselves or to (imagined) others, but they would prefer to keep their money and would have kept it had they found an opportunity to do so without compromising their moral image. How will an individual with such motivation respond to social information? Answering this question is important because it can help us to better understand when and why social information is effective at encouraging donations. Taking account of image concerns and the tendency of individuals to exploit "moral wiggle room" in order to avoid giving is important also because it can lead us to recognize that the timing of the information—and not just its content, as is generally the focus of the literature—can play an important role in shaping the response to social information.

In this paper, I investigate whether the response to social information stems from "reluctant" giving, and if so, how this motive affects the response to the information. To do so, I conduct an experiment that separates the effect of the information on the decision to give (the extensive margin) from its effect on the decision of how much to give (the intensive margin). Subjects in the experiment make the two decisions one after the other, and receive information on a small or a large previous donation either before or after the decision to give, which allows me to study the effect of the information on each margin of giving separately. If giving is motivated by altruism, conformity, or reciprocity, one would expect consistent reactions to the information

independently of when the information is provided. But if giving is motivated by image concerns, we may see conflicting reactions to the same information at different decision stages: if information on a large donation makes opting out more socially acceptable, but conditional on opting in it makes giving a small amount less socially acceptable, this information will discourage giving when provided during the extensive-margin decision, but will encourage giving when provided during the intensive-margin decision.

Results from the experiment match the image-concerns prediction. To provide additional evidence that the response to the information was motivated by image concerns, I also show that a preference for quietly exiting a subsequent dictator game—behavior that suggests sensitivity to social and self-image—is correlated with responding to the information in the direction of the image-concerns prediction, at least for the extensive-margin decision (examining the correlation with the intensive-margin decision was infeasible due to the small sample of positive donations). Similarly, scoring high on neuroticism, a personality trait associated with anxiety from social evaluation and thus potentially indicative of image concerns, was also predictive of the response to the social information at the extensive margin, while no other personality trait was. Thus, taken together, the results indicate that individuals can respond to social information from a combination of self-interest and an attempt to manage the self-image. As discussed in the concluding section, this has implications for fundraising design, and for the inferences we can draw about donor motives and welfare from observing changes in giving in response to social information.

In the remaining of the paper, Section 2 reviews the literature, Section 3 describes the experimental design, Section 4 outlines the hypotheses behind the empirical tests, Section 5 presents the results, and Section 6 discusses some implications of the results.

## 2 Related Literature

Several theories make direct predictions about how giving responds to others' donations. The classical model of pure altruism with continuous production (Bergstrom, Blume, and Varian, 1986; Varian, 1994) assumes that agents care only about their own consumption and the aggregate donations to the charity, and thus predicts a one-to-one negative relation between giving by others and subsequent giving. In contrast, some theories predict a positive relation, by proposing that donors derive prestige or status from giving more than others (Romano and Yildirim, 2001), or that donors are motivated to conform (Bernheim, 1994) or to reciprocate (Sugden, 1984; Rabin, 1993) others' donations, or that donors infer the quality of the charity from the contributions of others (Vesterlund, 2003).

A number of papers directly test these predictions by manipulating the provision of social information to potential future donors. Frey and Meier (2004) solicit donations to a university fund and vary information about the percentage of peers who donate. Martin and Randal (2008) vary the monetary contents of a transparent box that is used for collecting donations to an art gallery. Alpizar, Carlsson, and Johansson-Stenman (2008) and Shang and Croson (2009) solicit donations to a charity (a national park and a public radio station, respectively) and vary the size of a previous donation that is announced to the solicitee. In general, these studies find that giving is positively influenced by the contributions of others. More recently, Kessler (2017) shows that even nonbinding, non-verifiable announcements of support can increase subsequent donations. These studies highlight the important role that conformity, reciprocity, and learning play in shaping how social information affects giving.<sup>1</sup>

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<sup>1</sup> Related studies investigate the effect of social information on behavior in dictator, ultimatum, and public goods games, and in general also find a positive effect (Cason and Mui, 1998; Keser and van Winden, 2000; Fischbacher, Gächter, and Fehr, 2001; Bohnet and Zeckhauser, 2004). Other studies use observational data

A growing body of work shows that people often exploit contextual justifications to act selfishly while preserving a view of themselves as non-selfish actors. Studies find that individuals exploit lack of transparency, uncertainty, and ambiguity over how actions translate into payoffs in order to behave selfishly (Dana, Weber, and Kuang, 2007; Haisley and Weber, 2010; Exley, 2016), or that they make decision errors to obtain selfish outcomes ostensibly by mistake (Exley and Kessler, 2019).<sup>2</sup> There is therefore ample evidence that people exploit “moral wiggle room” to act selfishly while managing their self-image. This evidence motivates the question in this paper, of whether the response to social information, which has generally been attributed to altruism, reciprocity, or conformity, can be a reluctant response stemming from image concerns, and if so, how the response to social information is shaped by image concerns.<sup>3</sup>

### **3 Experimental Design**

I conducted a laboratory experiment in which subjects earn money from real-effort tasks, and subsequently have an opportunity to donate part of their earnings to a charity. During the

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to examine the relationship between others' and one's own donations (for instance, Andreoni and Scholz, 1998; Smith, Windmeijer, and Wright, 2015). For reviews of the motivations for charitable giving more generally, see Vesterlund (2006, 2016) and Andreoni and Payne (2013).

<sup>2</sup> On moral wiggle room, and willful ignorance, see also in Larson and Capra (2009), Matthey and Regner (2011), Feiler (2014), Grossman (2014), van der Weele et al. (2014), Regner (2018), and Serra-Garcia and Szech (2019). Relatedly, Exley and Petrie (2018) show that people find ways to decline a solicitation simply by being given time to decide. A related literature shows that donors avoid being asked to donate if they can anticipate the ask, but otherwise donate (DellaVigna, List, Malmendier, 2012; Kamdar et al. 2015; Trachtman et al. 2015; and Andreoni, Rao, and Trachtman, 2017). For a discussion on the tendency of individuals to exploit contextual justifications to act selfishly, see Gino, Norton, and Weber (2016) and the literature section in Exley and Kessler (2019).

<sup>3</sup> Thus, this paper enters the literature on the demand side of giving, that studies fundraising strategies and their effect on giving. See for instance List and Lucking-Reiley (2002) on seed money, Eckel and Grossman (2003) and Karlan and List (2007) on rebates and matches, Krupka and Croson (2016) on normative cues, and Argo et al. (2020) on goal completion. The paper also adds to the literature on social influence more generally on giving behavior (see for instance Meer, 2011; Linardi and McConnell, 2011; Samek and Sheremeta, 2014; Castillo, Petrie, and Wardell, 2014, 2017), and a large literature on the effect of social information on prosocial behavior, including on energy consumption (Allcott, 2011), tax compliance (Hallsworth et al., 2017), and prosocial job choice (Coffman, Featherstone, and Kessler, 2017).

solicitation for donations, subjects receive information on the size of a previous donation. A key feature of the design is that the solicitation occurs in two stages, and the social information is shown at the first or the second stage. That is, subjects first indicate whether they wish to donate, and, conditional on opting in, then indicate how much they wish to donate. They receive information on a small or large previous donation either before or after opting in. This allows me to separate the effect of the information on each margin of giving, to distinguish between potential motivations behind the reaction to the information. To examine further whether the response to the social information is motivated by image concerns, the design included a subsequent part to the experiment in which subjects play a dictator game and then have the opportunity to quietly replace their dictator transfer with a selfish outcome. The idea with this part is to test whether subjects who reveal a preference for quietly exiting the dictator game, which may indicate image concerns, are also the subjects who respond to the information in the solicitation as predicted by the image concerns hypothesis. Finally, a last part of the experiment collects measures on demographics and personality traits. Below I describe each part of the experiment in greater detail. The Online Appendix includes the experiment instructions and screenshots.

*Real-effort tasks.*—At the beginning of the experiment, subjects solved two computerized real-effort tasks. The first was a modified version of the slider task (Gill and Prowse, 2012), in which subjects had 90 seconds to slide seven scroll bars to their center position. Subjects received \$1.50 for completing the task successfully, and \$0 otherwise. The second task involved clicking on a button located at the center of the screen, precisely when a timer that kept track of the seconds elapsed since the start of the task marked the number 15. Thus, subjects had a one-second window, exactly 15 seconds after the start of the task, to click on the button. Subjects received \$1.50 for completing the task successfully, and \$0 otherwise. The two tasks appeared one after the other a

total of five times each. Thus, participants could earn at most \$15 in this part of the experiment. The tasks were designed to be easy to complete, but not extremely so, in order to endow subjects with fairly homogeneous amounts of earned (rather than windfall) money that they could then use to donate. Subjects did not know the instructions for the remaining parts of the experiment at this point, to prevent social preferences from affecting effort, and to mask the main research question and thus minimize experimenter demand effects (De Quidt, Vesterlund, and Wilson, 2019).

*Donations to charity.*—After the real-effort tasks, subjects were informed of their earnings, and were given the opportunity to donate part of these earnings to *Pittsburgh Cares*.<sup>4</sup> The solicitation occurred via the computer in two stages. In stage 1, or the opt-in stage, all subjects received a brief description of Pittsburgh Cares and the protocol that would be used to handle any donations.<sup>5</sup> Participants were also informed that their donations would be matched one-to-one by the sponsor of the study (the matching was done to encourage donations). At this stage, subjects indicated whether they wished to donate (a binary yes-no decision), knowing that if they accepted, they would be taken to a next screen to indicate the amount they wished to donate (which they were told could be anything from \$0, included, to the total earned from the effort tasks). If the subject decided not to donate, the solicitation ended and a wait page appeared. Only if the subject accepted to donate did she advance to stage 2 of the solicitation. In stage 2, or the amount stage, subjects who opted in indicated how much they wished to donate (they were reminded that they could donate anything from \$0, included, to the total earned).

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<sup>4</sup> Pittsburgh Cares is a Pittsburgh-local nonprofit that promotes volunteerism by connecting other nonprofits in need of volunteers with individuals who are looking for volunteering opportunities. Pittsburgh Cares does not target a particular population or issue, which helps to lessen concerns that donations in the experiment were driven by unobserved characteristics of the subjects (such as political views).

<sup>5</sup> All subjects received an envelope and a receipt form that they needed to complete if they wanted to get a receipt for their donation from the charity. To prevent subjects from identifying who donated and who did not based on their filling the envelope, all subjects were asked to put their receipt form (even if left blank) in their envelope, seal the envelope, and place the envelope on their desks.

The design varied the content and timing of the social information, in a between-subjects design. There were five treatments. Subjects in the *no-information* treatment received no social information in neither stage. Subjects in the *50¢-stage-1* treatment were informed in stage 1 that a subject in a previous session donated 50¢. Subjects in the *50¢-stage-2* treatment received no social information in stage 1 and were informed in stage 2 (if they opted in) that a subject in a previous session donated 50¢. Subjects in the *\$5-stage-1* treatment were informed in stage 1 that a subject in a previous session donated \$5. Subjects in the *\$5-stage-2* treatment received no social information in stage 1 and were informed in stage 2 (if they opted in) that a subject in a previous session donated \$5. The social information was given to the subject by including the following sentence on the computer screen, right next to the area where the participant had to enter her decision in the corresponding stage, so that the information was hard to miss: “For your information, a participant in a previous session donated [0.50 / 5] dollars.” I conducted all *no-information* sessions first, and observed non-zero donations ranging from 50¢ to \$5. I then referred to either of these two extreme values in the information treatments, to provide information on a relatively small or large previous donation without deception. Figure 1 gives an overview of the timeline of the solicitation for each treatment, with their sample size. All subjects in any given session received the same treatment.

*Dictator-exit game.* Following the solicitation, subjects in the session were paired anonymously (sessions were set up to have an even number of subjects). Each subject was asked to privately decide how to divide \$10 between herself and the partner, in multiples of \$1 (i.e., 10-0, 9-1, ..., 0-10). Before making this choice, subjects were informed that at the end of the session one member of each pair would be randomly selected, and only that member's allocation would be implemented for payment, with the payment added to the subjects' earnings net of any donations.

Once subjects decided how to divide the \$10, they were given a surprise second decision to make. They were informed that their \$10 allocation would either be kept as they entered it, or would be replaced by an allocation of \$9 for themselves and \$0 for the partner. The computer would randomly choose one of the two allocations, but the subject was asked to indicate the probability for the \$9-\$0 allocation to get chosen (with the complement probability automatically going to the original dictator allocation). Importantly, the probability was restricted to be between 10 and 90 percent (inclusive). Subjects were informed that if they turned out to be the member of the pair whose allocation would be implemented for payment, their partner would only be informed of the final allocation chosen by the computer, and never of their original dictator allocation (unless, of course, the computer selected the dictator allocation). Neither would subjects be informed of the probability indicated by the partner.

This dictator-exit game is an adaptation of the game in Dana, Cain, and Dawes (2006).<sup>6</sup>

The purpose of the game in the experiment is to elicit the subject's preferences for quiet exit, to

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<sup>6</sup> In Dana, Cain, and Dawes (2006), dictators and recipients are kept in separate rooms, and the exit decision is a binary choice between the initial dictator allocation and a \$9-\$0 allocation that also leaves the recipient unaware that the game was played. By eliciting probabilities between 10 and 90 percent rather than 0 to 100 percent or a binary choice, I am able to implement a quiet exit of the dictator game while keeping all subjects in the same room. This is because with the [10-90] interval, there is always at least a 10 percent probability for each allocation to get implemented, and thus subjects cannot infer what probability the partner indicated even in the event that \$9-\$0 gets implemented. The [10-90] dictator-exit game also generates a continuous measure of exit preferences, with one observation per subject, and maintains common knowledge of the instructions at all times of the game. This contrasts with past implementations of the dictator-exit game that keep dictators and recipients in separate rooms (Dana, Cain, and Dawes, 2006; Broberg, Ellingsen, and Johannesson, 2007; and Lazear, Malmendier, and Weber, 2012). Since keeping subjects in separate rooms may complicate experiment logistics and decrease the number of usable observations, a mechanism such as the one I use could be useful for eliciting exit preferences in general settings, as a way to obtain a more nuanced picture of an individual's altruistic preferences than what is obtained with the dictator game alone. This is relevant in light of concerns that giving in the dictator game does not necessarily reflect altruism (Bardsley, 2008; List, 2007), and recent interest in eliciting moral preferences (Benabou, Falk, and Tirole, 2018). Klinowski (2018) shows that exit in this game helps to explain gender differences in giving in the dictator game.

obtain a proxy for image concerns that can then be correlated with behavior in the solicitation. No payoff-based preference can account for selecting an exit probability larger than 10 percent, since the \$9-\$0 outcome is strictly less efficient than all allocations available in the dictator game, and is Pareto dominated by allocations more favorable to the recipient (\$9-\$1) and to the dictator (\$10-\$0). However, choosing a probability greater than 10 percent is consistent with image concerns, since exiting gives the dictator a relatively large payoff while obfuscating who is responsible for the outcome.

*Exit questionnaire.*—At the end of the experiment, subjects completed a 44-item Big Five personality questionnaire (John, Donahue, and Kentle, 1991), and a 3-item Principle of Care questionnaire (Ottoni-Wilhelm and Bekkers, 2010), and provided their demographics including age, gender, and race.

After completing the questionnaires, subjects received feedback on the dictator-exit outcome and their individual total earnings in the experiment, which were the sum of their earnings in the effort tasks net of any donation and the payment from the dictator-exit game (no show-up fee was added). The experiment was conducted at the Pittsburgh Experimental Economics Laboratory (PEEL) from April to September 2014. A total of 308 subjects participated in 14 sessions. Each session involved 16 to 30 subjects and lasted approximately one hour. The experiment was programmed in z-Tree (Fischbacher, 2007).

## **4 Hypotheses**

This section outlines three competing hypotheses of how social information might be expected to influence giving in the solicitation part of the experiment, based on different theories of why people give to charity. The hypotheses will guide the data analysis in the next section.

*Altruism.*—The classical model of pure altruism with continuous production (Bergstrom, Blume, and Varian, 1986; Varian, 1994) predicts giving to be negatively influenced by others' donations. This is because agents in this model care only about their own consumption and the aggregate donations to the charity, thus agents decrease their own donations dollar for dollar as they observe others giving more. From this model, higher social information in the experiment is expected to *discourage* giving independently of when the information arrives.

*Conformism.*—A variety of theories predict giving to be positively influenced by others' donations. If individuals infer the quality of the charity from how much others donate, they may give more as they observe others giving more (Vesterlund, 2003; Potters, Sefton, and Vesterlund, 2007). A similar positive relation is expected if individuals are motivated by conformity (Bernheim, 1994) or reciprocity (Sugden, 1984; Rabin, 1993). From these theories, higher social information in the experiment is expected to *encourage* giving independently of when the information arrives.

*Giving Reluctantly and Image Concerns.*—From both classes of theories above one would expect consistent responses to the information across the timing of the information. A third possibility is that individuals do not want to give to the charity, but also do not want to appear selfish to themselves or to (imagined) others. If higher social information makes opting out more socially acceptable, but conditional on opting in, it makes low giving less acceptable, we may see conflicting responses to the same information at different stages. Individuals may feel less moral qualms about opting out as they observe others giving large amounts, but they may give larger amounts (rather than \$0) if they first opt in *and then* observe that others give large amounts. Accordingly, one would expect higher social information in the experiment to:

(1) *discourage* opt-in when the information arrives in the opt-in stage, and

(2) *encourage (i.e., increase)* donation amounts when the information arrives in the amount stage.

## 5 Results

I show two main results, consistent with the image concerns explanation: high information in stage 1 caused subjects to be less likely to opt in, while the same information in stage 2 caused subjects to increase donation amounts, relative to showing no information. I then provide additional, correlational evidence from the dictator-exit game suggestive that image concerns influenced the response to the information.<sup>7</sup>

### 5.1 *Intent to Donate*

Figure 2 shows the fraction of participants who accepted to donate in stage 1 (i.e., the intent to donate), given the social information received in stage 1. With no information, 35 percent of participants accepted to donate. This fraction jumped to 58 percent with information about a 50¢ donation, and dropped to 22 percent with information about a \$5 donation. Note that the no-information-in-stage-1 condition pools together observations from the treatments *50¢-stage-2*, *\$5-stage-2*, and *no-information*, since subjects in these treatments did not receive social information in stage 1. As would be expected, intent to donate did not differ statistically across these three treatments: A probit regression of the intent to donate on these treatments alone (without controls and restricting the sample to these treatments) finds no significant effect of the treatments separately or jointly (Table A1 in the Online Appendix).

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<sup>7</sup> All regressions in this section control for the participant's age, gender, and pre-donation earnings, unless explicitly noted otherwise. Pre-donation earnings in the experiment were fairly homogeneous across subjects (82 percent of subjects earned \$15, and 98 percent of subjects earned either \$13.5 or \$15).

To estimate the effect of the information on the intent to donate with regression analysis, I run a probit regression of the probability of opting into stage 2, using as regressors the information received in stage 1. Results appear in Table 1, column 1. The first two rows show marginal effects of the information received in stage 1, relative to receiving no information in stage 1, and the third row shows the mean intent to donate with no information in stage 1. The results confirm that the social information had a significant impact on the intent to donate: Information about a 50¢ donation increased intent to donate by 23 percentage points ( $p < 0.001$ ), and information about a \$5 donation depressed intent to donate by 13 percentage points ( $p = 0.009$ ), equivalent, respectively, to a 65 percent increase and a 38 percent decrease.

A related variable to examine is the probability of actually making a donation. This probability might differ from the intent to donate, since, in the experiment, subjects could have accepted to donate in stage 1 and then not donate in stage 2. But this occurred very rarely—once in the *no-information* treatment, and twice in the *\$5-stage-1* treatment. In total, 97 percent of subjects who opted into stage 2 donated a positive amount. As a result, estimates of the effects on the probability of making a positive donation are very similar to those of the effects on the intent to donate, as seen when comparing Panel A of column 2 in Table 1 to column 1. Panel A of column 2 replicates the probit regression in column 1, but the outcome variable is now an indicator for a positive donation (as explained in the next section, Panel A of column 2 is the first part of a two-part hurdle model).

Therefore, the main finding in this subsection is that higher social information in stage 1 decreased opt-in, consistent with the altruism and image-concerns hypotheses.

## 5.2 *Donation Size*

To examine the effect of the social information on the donation size separately from its effect on the opt-in decision, I compare donation amounts conditional on opting into stage 2, focusing only on the treatments that did not provide information in stage 1 (*50¢-stage-2*, *\$5-stage-2*, and *no-information*). Since subjects in these treatments are comparable to each other up to their entry into stage 2—no one received information in stage 1—comparing their donations across treatments reveals the causal effect of the information in stage 2 on the donation size conditional on opting in.

Figure 3 shows the distribution of amounts donated conditional on opting into stage 2, for the treatments that did not provide information in stage 1, with observations grouped into bins of 50¢ (this grouping does not throw away information, since all donations in the experiment turned out to be multiples of 50¢).<sup>8</sup> In the *no-information* treatment, 25 percent of donations were larger than \$1; the mean donation was \$1.28 and the median was \$1. In the *50¢-stage-2* treatment, donation amounts shifted toward larger values: 44 percent of donations were larger than \$1; the mean was \$1.56 and the median was \$1. Finally, the *\$5-stage-2* treatment produced an even greater shift toward larger values: 50 percent of donations were larger than \$1; the mean was \$1.90 and the median was \$1.25. Examining the statistical significance of these shifts with pairwise Mann-Whitney-U tests, only the difference between *no-information* and *\$5-stage-2* is statistically significant ( $p=0.032$ ), while the differences between *no-information* and *50¢-stage-2*, and between *50¢-stage-2* and *\$5-stage-2*, are both non-significant ( $p=0.118$  and  $p=0.325$ , respectively).

To estimate the effect of the information on the conditional donations with regressions, I use two modeling approaches. The first is to estimate an OLS regression of the donation size

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<sup>8</sup> Figure A1 shows similar graphs for all treatments.

conditional on opting into stage 2, with indicators for the treatments as the regressors, and restricting the sample to the treatments that did not provide information in stage 1. Results appear in column 3 of Table 1. The first two rows show marginal effects of the information received in stage 2, relative to receiving *no-information*, and the third row shows the mean donation amount conditional on opting into stage 2 for *no-information*. Relative to *no-information*, *\$5-stage-2* increased donations by \$0.60 ( $p=0.014$ ), and *50¢-stage-2* increased donations by \$0.24 ( $p=0.237$ ). The difference between these two effects is not significant ( $p=0.226$ ). Thus, as in the non-parametric tests above, the results indicate that information about a \$5 donation after opt-in increased donation amounts relative to providing no information, but this effect was not statistically distinguishable from that of providing information about a 50¢ donation.

The second approach to modeling the conditional donations uses observations from all treatments to estimate a lognormal hurdle model (Cragg, 1971). This model consists of two equations: a probit regression of the probability of making a positive donation on the full sample (participation equation), and a truncated regression of the donation size on the sub-sample of positive donations, under the assumption that donations are lognormally distributed (amount equation).<sup>9,10</sup> The model allows for different covariates in the two equations. The regressors in the participation equation are indicators for the information received in stage 1, and, as discussed in the previous subsection, the results for this equation appear in Panel A of column 2 in Table 1. The regressors in the amount equation are indicators for the treatments, including all treatments. The

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<sup>9</sup> As noted previously, in the treatments that did not provide information in stage 1, all but one subjects who opted into stage 2 donated a positive amount. Therefore, the donation amount conditional on opting in is practically identical to the donation amount conditional on a positive donation.

<sup>10</sup> Results are similar using a *linear* hurdle model, also proposed by Cragg (1971), which differs from the lognormal hurdle model only in that the amount equation assumes that donations are normally distributed truncated at zero, rather than lognormally distributed. A Vuong test comparing the fit of the two hurdle models fails to reject the null hypothesis of equal fit ( $p=0.600$ ).

results for the amount equation appear in Panel B of column 2 in Table 1, showing only the results for the treatments that did not provide information in stage 1 (Table A2 shows the results for all treatments). In the *no-information* treatment, the donation amount conditional on a positive donation was \$1.36. Relative to this value, *\$5-stage-2* increased donations by \$0.65 ( $p < 0.001$ ), and *50¢-stage-2* increased donations by \$0.22 ( $p = 0.142$ ). The difference between these two effects is now significant ( $p = 0.016$ ).

Thus, consistently across the analyses in this subsection, a key finding is that information in stage 2 about a \$5 donation caused subjects to increase the amount donated, even though, as we saw in the previous subsection, the same information in stage 1 caused subjects to opt out of giving. Whether the increase in *\$5-stage-2* is statistically distinguishable from that in *50¢-stage-2* varies by model choice. Combined with the previous subsection, the results provide evidence that subjects reacted reluctantly to the information, likely due to image concerns.<sup>11</sup>

### 5.3 *Additional Evidence of Image Concerns*

This subsection provides additional evidence in support for the idea that image concerns influenced the response to the social information. I show that a preference for quietly exiting a dictator game—behavior that suggests sensitivity to social and self-image—is correlated with responding to the social information in the direction predicted by the image concerns explanation. In Table

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<sup>11</sup> The increase in opt-in in *50¢-stage-1*, and the directional increase in donation amounts in *50¢-stage-2* relative to *no-information* are, also, potentially suggestive of image concerns. If 50¢ is considered too small a donation to reflect well on one's generosity, information about a 50¢ donation might have brought this consideration into the subject's attention, causing her to increase giving in order to avoid appearing ungenerous. This is consistent with Cialdini and Schroeder (1976), who write: "When the most minimal of monetary donations is said to be acceptable, excuses for failing to help that might ordinarily be offered (e.g. 'I can't afford to give to all the various charities'; 'We're too low on money this week', etc.) become inapplicable." At the same time, solicitees are unlikely to respond in this case with a small donation, because doing so would "jeopardize personal image." (Cialdini and Schroeder, 1976).

A5 in the Appendix, I also show that scoring high on neuroticism, a personality trait associated with increased anxiety (Muris et al., 2005) and negative effects on decision making in situations involving peer pressure and social evaluation (Byrne, Silasi-Mansat, and Worthy, 2015), and thus potentially indicative of image concerns, is also predictive of a similar response to the social information, while no other personality trait is. As detailed below, I only examine whether exit behavior and personality traits predict the information effects on the intent to donate, and not on the donation amount conditional on donating, because the latter analysis would reduce the sample size so much that its results would not be meaningful.

Recall that following the solicitation for donations, participants played a \$10 dictator game with an anonymous recipient in the room, and then indicated a probability of quietly replacing their dictator transfer with a \$9-\$0 outcome. Figure 4 shows the distribution of amounts transferred in the dictator game. The shades indicate the exit probability selected by the participant, grouped into three levels: 10 percent (dark shade), 11 to 89 percent (medium shade), and 90 percent (light shade). Of all participants, 47 percent transferred more than \$0, and 21 percent transferred \$5. The mean transfer over all participants was \$1.80. This bimodal distribution with the largest mass at \$0 is a typical result in the dictator game (Camerer, 2003). The amount transferred did not vary significantly across treatments: when regressing the amount transferred on the treatment alone (no controls), no treatment is significant and an F-test fails to reject joint non-significance of the treatments ( $p=0.357$ ). A chi-squared test fails to reject the null that transfers across treatments follow the same distribution ( $p=0.338$ ).

With respect to the exit probability, 41 percent of participants selected a probability larger than 10 percent. Of those participants, 24 percent selected a probability equal to 50 percent, and 33 percent selected a probability equal to 90 percent (Figure A2 shows the distribution of

probabilities larger than 10 percent). Selecting a probability larger than 10 percent is consistent with a combination of self-interest and image concerns, since exiting gives the dictator a relatively large payoff while obfuscating who is responsible for the outcome. The observed heterogeneity of exit across amounts transferred suggests that participants indeed exited in order to increase their own payoff, rather than exiting at random: 79 percent of subjects who transferred \$2 or more selected a probability larger than 10 percent, while only 20 percent of subjects who transferred \$1 or \$0 selected a probability larger than 10 percent.<sup>12</sup>

To examine the ability of exit preferences to explain the response to the social information, I classify participants into three types based on their behavior in the dictator-exit game, and compare responses to the social information across types. A participant is *selfish* if she transferred \$0 in the dictator game and selected an exit probability equal to 10 percent; *reluctant* if, for any amount transferred, she selected an exit probability larger than 10 percent; and *generous* if she transferred \$1 or more and selected an exit probability equal to 10 percent. The distribution of types is 46 percent selfish, 41 percent reluctant, and 13 percent generous. The distribution of types did not vary significantly across treatments: when regressing the type on the treatment alone (no controls), no treatment is significant and an F-test fails to reject joint non-significance of the treatments ( $p=0.250$ ). A chi-squared test fails to reject the null that types across treatments come from the same distribution ( $p=0.437$ ). In addition, when regressing the exit probability on the treatment along, no treatment is significant and an F-test fails to reject joint non-significance of the treatments ( $p=0.618$ ).

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<sup>12</sup> Dana, Cain, and Dawes (2006) and Broberg, Ellingsen, and Johannesson (2007) also find that dictators who transfer larger amounts are more likely to exit. Note that selecting a probability larger than 10 percent after transferring \$0 or \$1 is consistent with image concerns: such behavior might indicate that the subject was willing to pay a cost of \$1, or impose a cost of \$1 on the recipient, in order to hide from the recipient the fact that she chose a relatively selfish transfer.

Table 2, Panel A, shows estimated effects of the social information in stage 1, replicating the probit regression in Table 1, column 1, but now including as additional regressors the participant type and its interaction with the information in stage 1. The three columns in Panel A come from a single regression; the first two rows show marginal effects of the information for each type, and the last row shows the mean intent to donate for each type with no information in stage 1. The information had a significant effect only on the reluctant type in  $50\phi$ -stage-1 (causing an increase of 21 percentage points,  $p=0.056$ ), and on the generous type in both treatments (causing an increase of 30 percentage points in  $50\phi$ -stage-1,  $p=0.037$ , and a decrease of 40 percentage points in  $\$5$ -stage-1,  $p=0.004$ ). To the extent that generous participants were genuinely motivated to give to the charity by altruism, their observed response to the information is expected, since, as discussed in the previous section, their giving is predicted to be crowded out by others' donations.<sup>13</sup> On the other hand, on its face the result that reluctant participants were not as sensitive to the information as generous participants seems to indicate that exiting the dictator game in the experiment is not proxying well for image concerns, or that image concerns were not as strong a mechanism through which social information influenced the decision to donate to the charity. However, the result in Panel A of Table 2 masks significant heterogeneity in the response to the information by the reluctant participants with respect to their *degree* of preference for exiting. A subject who selects a larger exit probability is revealing greater preference for exiting (i.e., greater image concerns), and thus would be expected to be increasingly more sensitive to the information in the direction of the (self-)image explanation. To examine this, I rerun the probit regression of the intent to donate, but now restricting the sample to reluctant participants, and including as

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<sup>13</sup> For this reason it is helpful to distinguish generous participants from selfish participants, even though both types indicated an exit probability equal to 10 percent. Since generous participants transferred some amount in the dictator game, they are potentially more likely to be altruists to some extent.

regressors the exit probability selected by the participant and its interaction with the treatments. The interaction effects should be significant if greater image concerns lead participants to respond more strongly to the information. Indeed, this is what is found. Column 2 of Table 2 shows the coefficient estimates of the regression. As the last two rows show, a larger exit probability is associated with significantly greater likelihood of opting in in response to information about a 50¢ donation, and significantly greater likelihood of opting out in response to information about a \$5 donation.<sup>14</sup> Thus, these results indicate that stronger image concerns are associated with greater sensitivity to the social information.

Performing a similar by-type analysis of the effect of the information on the amount donated is made difficult by the small sample size that results from conditioning on positive donations and on top of that dividing the subsample into treatments and participant types. As Table A4 shows, several treatment-type cells have as few as 3-5 observations, which makes it infeasible to estimate in any meaningful way the treatment effects for the different participant types, or the treatment effects within the reluctant type as a function of the exit probability.

Before concluding this subsection, it is important to note that the experimental design does not control for order effects between the solicitation and the dictator-exit game, and thus it is possible that choices in the former influenced behavior in the latter. However, the results do not indicate such influence. As noted above, neither the amount transferred in the dictator game nor the distribution of participant types varied significantly across treatments. In addition, I find no

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<sup>14</sup> If the amount transferred in the dictator game is a proxy for the subject's level of altruism, one might worry that the interaction effects in column 2 of Table 2 are evidence of the altruism channel rather than image concerns, since subjects who selected larger exit probabilities also tended to transfer larger amounts in the dictator game. To give evidence that image concerns and not altruism drive the interaction effects, Table A3 replicates column 2 of Table 2, now controlling for the amount transferred in the dictator game (column 1), or restricting the sample to dictators who transferred at least \$4 (column 2), in order to control for the subject's level of altruism. In both cases the interaction effects continue to be significant.

evidence of moral compensation throughout the experiment in either direction—either moral licensing, where individuals engage in selfish behavior following a generous action (Zhong and Liljenquist, 2006; Merritt, Effron, and Monin, 2010), or moral cleansing, where individuals restore moral standing by acting generously following some previous selfish behavior (Sachdeva, Iliev, and Medin, 2009). Specifically, I do not observe that subjects gave smaller(larger) amounts in the dictator game after making larger(smaller) donations to the charity. Instead, I find individual consistency in prosocial behavior across the two parts of the experiment: Regressing the intent to donate to the charity on the information in stage 1 and an indicator for transferring a positive amount in the dictator game finds that transferring a positive amount is associated with an increase of 25 percentage points in the intent to donate ( $p < 0.001$ ). And regressing the unconditional donation amount on all treatments and the amount transferred in the dictator game finds that transferring an additional \$1 is associated with donating an additional \$0.12 to the charity ( $p < 0.001$ ).<sup>15</sup>

## **6 Discussion**

This paper provides evidence that image concerns can affect the way giving behavior responds to social information. Subjects in the experiment declined to donate when they received information on a large previous donation before opting in, but increased donation amounts when they received the same information only after opting in. These reactions, if examined in isolation, could be interpreted as being motivated by altruism on the one hand, and conformity, learning about the quality of the charity, or reciprocity on the other hand. Both of these interpretations would lead

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<sup>15</sup> This result is in line with other findings of individual consistency in prosocial behavior. For instance, Dariel and Nikiforakis (2014) find that cooperation in a public-good game predicts reciprocation in a subsequent gift-exchange game.

one to believe that the provision of social information was welfare-enhancing for the donor. Yet, because the experiment in this paper examined the effect of information on both margins of giving separately, it was able to provide evidence that the reactions to the information were at least partly driven by a desire to not appear selfish. If so, it seems plausible that providing social information decreased donor welfare, through amplifying social pressure and self-image concerns. If one cannot easily assess donor motives and the welfare effects of social information from looking at changes in giving (especially at changes at the different margins in isolation), are there additional strategies one can use? One possibility might be to study the demand for social information directly. If donors are no worse off by learning how much others donate, as altruism and conformism theories posit, donors should not actively avoid social information. Avoidance of social information would be a signature of self-image concerns, much like the "willful ignorance" of information about the consequences of one's actions is (Dana, Weber, Kuang, 2007; Grossman and van der Weele, 2017).

The results in this paper also have practical implications for the design of fundraising mechanisms that seek to maximize donor participation and revenue. Fundraisers may find it beneficial to consider the content and the timing of the information as two separate variables to manipulate, especially if the solicitation involves an opt-in stage that is separate from the payment stage, as is the case when an email is sent with an invitation to attend a fundraising event or to visit an online fundraising campaign. Similarly, fundraising practices that seek to respect donor welfare, such as providing solicitees with the option to opt out of future interactions with the solicitor, should pay careful attention to how this option is framed with respect to social and self-image concerns, since subtle elements such as social information could have large effects in the opposite direction to what might be intended.

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**Table 1** Effect of the information on the decisions of whether and how much to donate

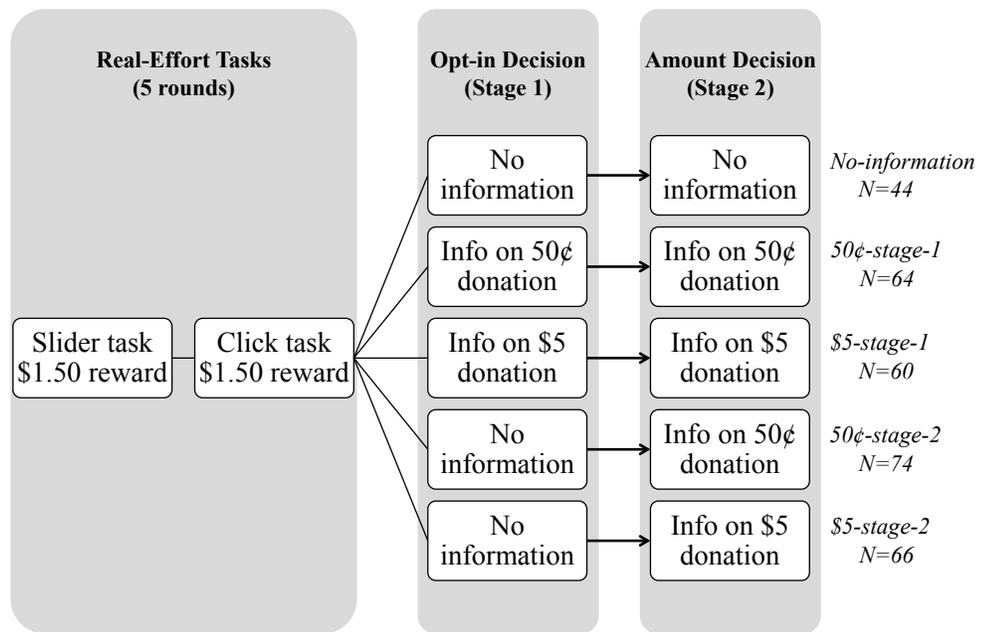
	Probit Intent to Donate (1)	Hurdle Model (2)	OLS Donation Amount (3)
<i>Panel A: Participation Decision (hundreds of a percentage point)</i>			
<i>50¢-stage-1</i>	0.230*** (0.064)	0.238*** (0.063)	
<i>\$5-stage-1</i>	-0.133*** (0.051)	-0.153*** (0.056)	
No info in stage 1 (mean)	0.359	0.348	
N	308	308	
<i>Panel B: Amount Decision (USD)</i>			
<i>50¢-stage-2</i>		0.215 (0.147)	0.243 (0.188)
<i>\$5-stage-2</i>		0.653*** (0.117)	0.600** (0.186)
No info in stage 2 (mean)		1.362	1.302
N		111	61

**Notes:** Treatment effects of the social information on the decisions of whether to donate and how much to donate. Column 1 shows effects from a probit regression of the probability of opting into stage 2, using as regressors the information in stage 1, controlling for age, gender, and pre-donation earnings. Column 2 shows results from a lognormal hurdle model. Panel A of column 2 shows effects from the participation equation, which is a probit regression of the probability of donating a positive amount on the full sample, using as regressors the information in stage 1 and controlling for age, gender, and pre-donation earnings. Panel B of column 2 shows effects from the amount equation, which is a truncated regression of the donation size on the subsample of positive donations, using all treatments as regressors and controlling for age, gender, and pre-donation earnings. Column 3 shows effects from an OLS regression of the donation amount conditional on opting into stage 2 on the information in stage 2, on the subsample of treatments that did not provide information in stage 2. Standard errors clustered at the session level in parentheses. \*p<0.1, \*\*p<0.05, \*\*\*p<0.01.

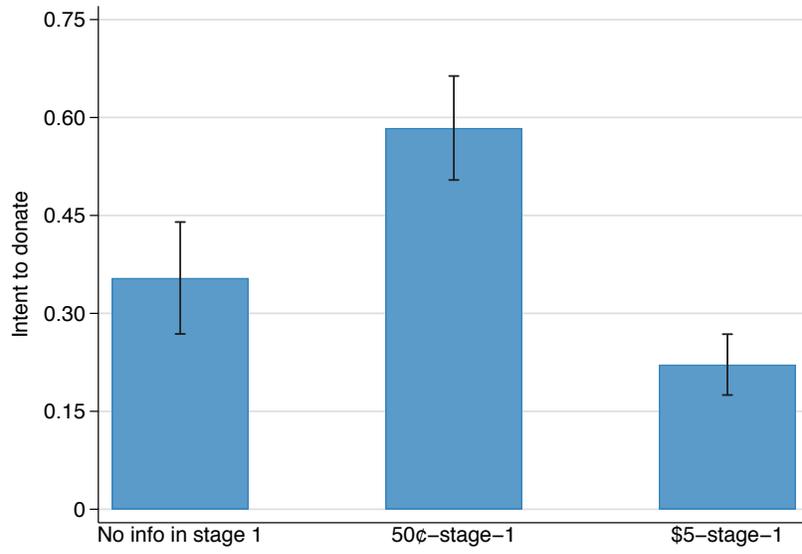
**Table 2** Effect of the information in stage 1 on the intent to donate across participant types

	A. Marginal Effects			B. Coefficients
	(1)			(2)
	Selfish	Reluctant	Generous	Reluctant
<i>50¢-stage-1</i>	0.132 (0.125)	0.213* (0.111)	0.304** (0.146)	-1.021 (0.778)
<i>\$5-stage-1</i>	-0.049 (0.057)	-0.127 (0.110)	-0.395*** (0.137)	0.683 (0.418)
Exit probability				-0.008 (0.006)
<i>50¢-stage-1</i> x exit prob.				0.025*** (0.009)
<i>\$5-stage-1</i> x exit prob.				-0.014* (0.008)
No info stage 1 (mean)	0.227	0.458	0.526	
N		308		127

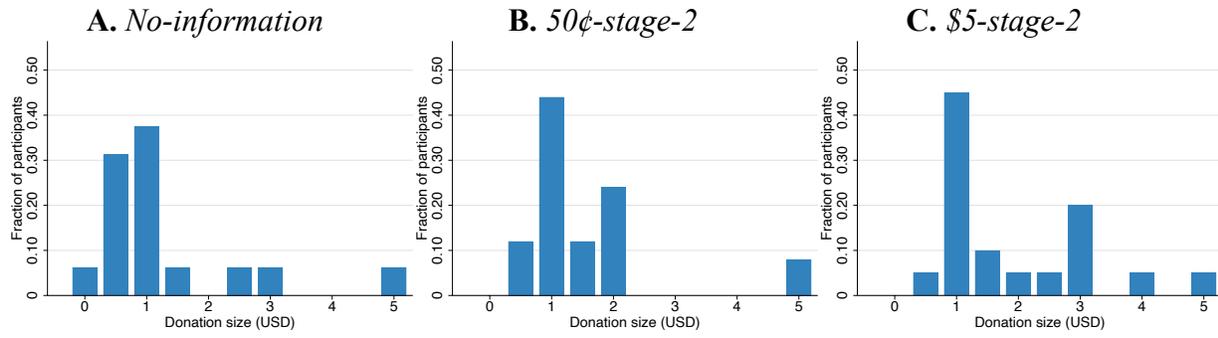
**Notes:** Panel A shows treatment effects on the intent to donate from a probit regression of the probability of opting into stage 2, using as regressors the information in stage 1, the participant type, and the interaction of the two, controlling for age, gender, and pre-donation earnings. Results in Panel A come from a single regression. Panel B shows coefficient estimates from a probit regression of the probability of opting into stage 2, restricting the sample to reluctant participants. The regressors are the information in stage 1, the exit probability selected by the participant, and the interaction of the two, controlling for age, gender, and pre-donation earnings. Standard errors clustered at the session level in parentheses. \* $p < 0.1$ , \*\* $p < 0.05$ , \*\*\* $p < 0.01$ .



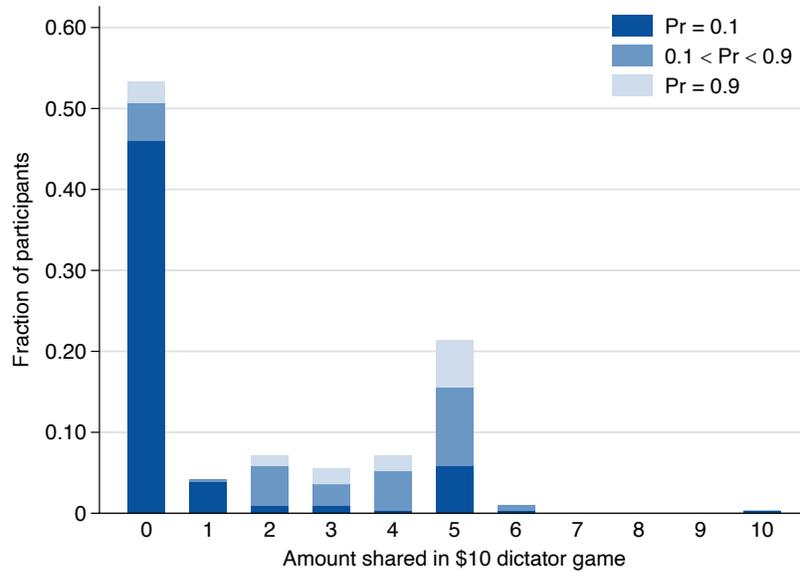
**Figure 1** Timeline of the solicitation and sample size for each treatment



**Figure 2** Intent to donate by information in stage 1



**Figure 3** Donation size conditional on intending to donate for treatments that did not provide information in stage 1



**Figure 4** Distribution of transfers and exit in the dictator game