

Reputation and influence in charitable giving: an experiment

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Abstract Previous experimental and observational work suggests that people act more generously when they are observed and observe others in social settings. But **However**, the explanation for this is unclear. An individual may want to send a signal of her generosity in order to improve her own reputation. Alternately (or additionally) she may value the public good or charity itself and, believing that contribution levels are strategic complements, give more in order to influence others to give more. We perform the first series of laboratory experiments that can separately estimate the impact of these two social effects, and test whether realized influence is consistent with the desire to influence, and whether either of these are consistent with anticipated influence. Our experimental subjects were given the opportunity to contribute from their endowment to Bread for the World, a development NGO. Depending on treatment, “leader” subjects’ donations were reported to other subjects either anonymously or with their identities, and these were reported either before these “follower” subjects made their donation decisions. We find that “leaders” are influential only when their identities are revealed along with their donations, and female leaders are more influential than males. Identified leaders’ predictions suggest that are aware of their influence. They respond to this by giving more than either the control group or the unidentified leaders. We find mixed evidence for “reputation-seeking.”

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1 Introduction

Cooter and Broughman (2005) note that while many organizations publicly acknowledge their donors (e.g., in bronze plaques and opera programs), there is no systematic public record of an individual's overall philanthropy. To remedy this, they suggest that the IRS should start a voluntary "donation registry." Citing laboratory evidence, they claim that "many Americans would be more generous if other people observed their level of giving." While no such registry has yet been implemented, a host of nonprofit institutions and applications on the internet publicize donations and aim to take advantage of social connections to promote giving.¹ More generally, an Independent Sector report (Kirsch et al. 2000) noted that 77 percent of donors contributed as a result of a request from someone they knew well. As Carman (2003) noted, "fundraisers often design their campaigns to leverage the power of social influences," including via university alumni networks, "walk-a-thons," and displaying "thermometers that measure dollars raised towards their goal or the proportion of people who have made contributions." While it is often supposed that making donations public will lead to an increase in giving, there is still a lack of evidence on whether, how, when, and why this occurs. Much experimental (lab and field) and observational work has shown that people sometimes act more generously when they are observed (and observe others) in social settings. For example, Soetevent (2005) ran a field experiment in churches in the Netherlands, and found that reducing anonymity (moving from closed bags to open baskets) increases donations for certain church offerings. However, there are several possible explanations for the increased giving. An individual may give more in order to send a signal of her generosity (or wealth) and improve her own reputation (Harbaugh 1998b; Glazer and Konrad 1996). We call this the Reputation-Seeking or *Repseek* effect. Alternately (or additionally) she may value the charity itself, and, believing that contribution levels are strategic complements, give more when observed in order to influence others to give more and thus magnify her gift; we refer to this as the *Influencer* effect.² In turn, we call the actual influence on the follower's gift *F-Influence*. In this paper/article, we

¹ E.g., JustGiving (UK-based; Firstgiving in the US), DonorsChoose, Kiva, Change.org, Wikipedia, SixDegrees, and Facebook's "Causes" employ various versions of this strategy. JustGiving, which reported 10 million users in February 2010, enables users to start fundraising pages for a particular cause, publicize/publicizes their own donations, and recruit/recruits other donors, whose donations are sequentially posted on the page with their names or anonymously. A target and a measure of the total amount raised can also be posted. The US site touts that as of 2009 "supporters have raised over \$115 million on Firstgiving for causes they care about" http://www.firstgiving.com/Statements/about_us/team.asp.

² We remain open to alternate explanations with a more psychological flavor. People may prefer giving in group settings or a group setting may cue an altruistic mode of thinking. Furthermore, at least in soetevent/Soetevent's church setting, the effect may also include increased giving by "followers" who have observed previous gifts. If the followers are consistently favorably surprised by the gifts and gifts are strategic complements this may increase giving in net. However, having consistently incorrect priors (over others'

use a laboratory experiment involving actual charitable giving and face-to-face social interaction to separately estimate these effects, to differentiate these by observable characteristics of the subjects, and to test whether realized influence is consistent with the desire to influence, and whether either of these are consistent with anticipated influence. Our experimental design, a modified dictator game in which subjects can donate some, none, or all of their endowment to a real charity (in the mold of [Eckel and Grossman 1996](#)), is the first that can separately measure *Repseek* and *Influencer* effects. As we observe both ~~leaders~~ **leaders**³ (first-movers) and followers (second-movers) in a variety of anonymity/reporting conditions, we can measure the *actual* influence (*F-Influence*) of prior observed gifts and examine whether the apparent desire to influence is consistent with the achieved influence. We differentiate each of these effects by the gender of the leader and the follower, and by whether the reporting is anonymous or identified. Through eliciting incentivized predictions of what other subjects will donate, we are also able to impute the leader's *beliefs* of their own influence. Our experiment was run on 170 student subjects at the laboratory at the University of Jena, Germany. The subjects first participated in a "Meet and Greet" (M&G) stage in which they exchange names and their subject of study with another subject. After this, they read about the charity *Brot für die Welt* (in English "Bread for the World"), a nationally well-known and respected NGO that works with the Protestant church in Germany to ~~"support"~~ **"support"** the poor in Africa, Asia, Latin ~~America~~ **America**, and Eastern Europe in their attempts to lead a dignified life."⁴

They next read the rules of the experiment, including a description and an example of their specific treatment. Next, the subjects, under several treatments, decided how much of their endowment to give to the charity. Subjects could keep what they did not donate.

The treatments differed in the information transmitted and obtained. Before subjects were asked to donate, they met in pairs within the lab and exchanged some personal information in a ~~Meet and Greet~~ M&G stage (henceforth).⁵ Depending then on the treatment, the subject was either told that her donation would *not* be reported to any subject, told that it would be *reported anonymously* to a random subject who they have not met in the M&G stage, or told that it would be *reported, along with her identity*, to the subject who she met in the M&G stage. Similarly, subjects received either *no information* about others' choices, information about *some* (anonymous) subject's gift, or information about an *identified* subject's gift.⁶ When the donation is not going to be reported, there should be neither an *Influencer* nor a *Repseek* motivation. When

gifts) ~~is~~ **are** not an equilibrium phenomenon, and this explanation would not explain the increases in giving by first-movers when they are observed by others, as in [Carman \(2003\)](#).

³ The terms "leaders" and "followers" are for the purpose of this discussion ~~only~~ **only**—we do not use these terms in the experiment itself.

⁴ We chose this particular charity after consulting student assistants and academics familiar with German philanthropic sector; this was seen to be the most prominent charity that has not suffered a recent scandal.

⁵ All subjects participated in this M&G stage independently of the treatments to reduce contextual effects.

⁶ As a final dimension of variation this reporting either ~~occured~~ **occurred** in the *middle* of the experiment, when it had a chance to influence another subject's laboratory giving behavior, or it ~~occured~~ **occurred** at the very *end* of the experiment.

it is reported anonymously, there may be an *Influencer* effect (a desire to influence giving either within or after the experiment) but no *Repseek* effect. However, there may still be a desire to avoid ‘cognitive dissonance,’ as the subject might dislike the idea of donating less than what she thinks others expect her to give. Konow (2000) offers a theoretical framework and experimental evidence that subjects trade off material self-interest with fairness ideals, and that subjects act self-deceptively in order to reduce this cognitive dissonance. When it is reported along with the identity, there is the potential for both an *Influencer* and a *Repseek* effect.

In section Sect. 2, we review both the theoretical and empirical/experimental literature. We consider the theoretical case for each of the social effects we are interested in. We survey relevant laboratory and field experiments in voluntary contribution mechanisms (henceforth VCM) and charitable-giving settings. In section Sect. 3, we describe our experimental design and implementation. Section 4 presents and interprets our results and tests against alternative explanations, and briefly discusses some potential limitations to our results. We conclude in section Sect. 5, summarizing and interpreting our results, relating our findings to previous work, and highlighting their practical implications.

2 Literature review and background

Previous researchers have modeled the *Repseek* motive, emphasizing that philanthropy can improve the donor’s reputation as altruistic (Harbaugh 1998a) or wealthy (Glazer and Konrad 1996). These authors model reputation as a direct input into an individual’s utility function. Alternately, reputation may be cultivated and used for personal gain. For example, in a prisoner’s dilemma in a population with some conditional cooperators (e.g., agents with fairness norms as in Rabin 1993) and asymmetric information over a player’s type, a reputation for altruism may improve a player’s expected profit.⁷

For the leader to have an *Influencer* motive she must believe that the magnitude of her (reported) gift has a positive effect on the amount a follower who observes this gift will donate. There are several possible explanations for such an effect. First, if there is asymmetric information over the charity’s value, a leader’s gift may be a signal of the

⁷ If my opponent has preferences that imply reciprocity and she believes that I am so altruistic that Cooperate is my dominant strategy, she will certainly choose to cooperate as well. Whether reputation yields a direct or an instrumental benefit, as long as giving boosts my reputation I will choose to give more when my contribution is observed than when it is anonymous; this is the *Repseek effect*. For example, if two players are playing a game that is a prisoner’s dilemma in its material payoffs, and one player is altruistic and the other is a conditional cooperator and this is common knowledge, the cooperative outcome may be the only Nash equilibrium. See Ostrom (2000) for a related discussion of the survival of cooperative types in an evolutionary framework.

quality of the charity.⁸ This is modeled by Vesterlund (2003), and Potters et al. (2005) offer some experimental evidence for this in a standard laboratory VCM setting.

Second, there may be asymmetric information over the distribution of altruism in the population. For the reasons discussed above, an individual may seek to be known as altruistic relative to her reference group. Suppose each person knows her own altruism, but does not know the altruism of the others in her relevant reference group. She only has a consistent Bayesian prior belief of the family of distributions from which other players' altruism is drawn. Observing another player's gift gives her an informative signal of the altruism of others, and a larger gift will lead her to update her beliefs in a positive direction, and thus she may give more if she hopes to signal her own *relative* altruism.⁹

Finally, there are a host of explanations based on psychological mechanisms that could explain the (potential) positive influence of a leader's gift. Conformity may be a primal desire in itself (Bernheim 1994). Alternately, giving "less than the last guy" may lead to embarrassment, another primal. A reciprocity motivation (Sugden 1984) could also explain a leader's influence.

The leader's belief that she has an influence does not *in itself* imply that she will contribute more when she is observed. As a simple example, suppose that the leader gets utility only from private consumption and from her net impact on the charity's total receipts. Suppose she also believes that for every dollar she is observed to give her peers will give an additional dollar. In such a case, making her contribution observed is the same as offering a 50% price cut or a 100% match rate; these should have the same effect on her contribution.¹⁰ In general, if a product's price decreases, then expenditure on this product may increase or decrease, depending on the price-elasticity. Still, there may be some reason to anticipate a positive *Influencer* effect: if this observability is a rare opportunity, she is likely to take advantage of this *temporary* price cut by giving more than she otherwise would have.¹¹

Several lab and field experiments have investigated social influences on cooperative behavior. Charness and Gneezy (2008) compare giving in dictator games and ultimatum games and find that revealing the name of the proposer increased the amount transferred in the dictator game, but had no effect in the ultimatum game, where "strategic considerations crowd out impulses of generosity."

⁸ While pure public goods are traditionally seen to be strategic substitutes (see Bergstrom et al. 1986), more recent literature persuasively argues that charitable giving must involve a "warm glow" (see Andreoni 1990 and Sugden 1982), "reciprocity" (Sugden 1984), "impact" (Duncan 2004), or "identification" (Atkinson 2008) motivation, and the marginal utility of contributing need not diminish in others' contributions. Furthermore, in many VCM experiments, some players demonstrate "conditionally cooperative" or "reciprocal" preferences: they give more if they expect others to do so as well (Keser and van Winden 2000; Simpson and Willer 2008; Fischbacher et al. 2001).

⁹ Harbaugh (1998a) makes a similar point, noting that prestige benefits may be "relative to gifts by others", in particular a "reference group" of one's peers. He writes: "people should presumably increase their donations after being told that a member of their group has given a large amount." Romano and Yildirim (2001) offer a related model of "snob appeal."

¹⁰ Unless she is also altruistic towards the *followers* (more so than towards the person providing the match), in which case the match may have more effect on her contribution than the observability.

¹¹ Randolph (1995) makes a similar argument in the context of tax incentives.

Social effects have been examined in many VCM experiments. [Rege and Telle \(2004\)](#) note that their subjects take less money out of the common pool when they are observed by other subjects. [Guth et al. \(2007\)](#) have leaders report their gifts (but not their identities) to followers. They find that leaders' gifts are larger than followers' (particularly in later periods), and having a leader increases the average contribution. Our reanalysis of their data shows that the marginal influence of the leader on the other group members was close to 0.40 on average, i.e., when the leader gave \$1 more, the followers gave 40 cents more (details available by request).

[Andreoni and Petrie \(2004\)](#) (henceforth A&P) run a series of laboratory experiments, setting up five-subject groups who play eight rounds of a standard linear public good/VCM game. Subjects are rematched with new groups five times to play an additional eight rounds each time. The treatments include no-revelation, revealing identities alone (digital photographs), revealing individual amounts contributed after each round, and revealing both identity and contribution. They find that revealing contributions *with* photographs positively and significantly affects the level of contribution. ¹² There are important differences between A&P's experiments and our own. A&P have a different focus. They argue that "identification of other group members may serve to reduce social distance and encourage some level of social responsibility to the group." They do not consider reputation, and it is difficult to separately identify a *Repseek* and *Influencer* effect from their data. ¹³

The most important difference between our experiment *all* of the other laboratory experiments mentioned is that our experiment involves giving to an external charity that is widely believed to be socially valuable, while they use a VCM environment in which all the contributions are returned to participants in the experiment. Since [Eckel and Grossman \(1996\)](#), economists have differentiated between preferences in these two environments. For each of the three effects, *Repseek*, *Influencer*, and *F-Influenced*, the fundamental issues are different for actual charitable giving.

In VCM settings, it is unclear whether people have the "Nash construct" and whether there is common knowledge of rationality or of selfishness ([Sugden 1983](#)). Even in a one-shot game, some people may essentially assume (or act as if it is the case) that if they give more that means others are doing so as well and hence they may simply be acting out of an ultimate desire to maximize their own payoffs. ¹⁴

¹² They also find that the photograph treatment alone reduces the number of "laggards" (those who gave less than five of 20 tokens in the first period of four or more of the five eight-round treatments). This could be interpreted as a *Repseek* effect; albeit reputation only in a probabilistic sense (no one knows exactly how much you gave, but they will base their guess on the average gift).

¹³ Since their subjects learn their payoffs after each round, they implicitly learn the group's net contribution after each period, and thus have a potential *Influencer* effect in all of their treatments. This is confirmed by their finding that revealing individual contributions without identities has virtually no effect. This should not be surprising: there is hardly any informational gain from those reports. It is also unclear when identified subjects are contributing in order to boost their reputation *outside the laboratory* (the subjects are economics and business students at the same university), and when they are doing so in order to convince other people to cooperate with them in future rounds.

¹⁴ See the discussion of "commitment theories" in [Croson \(2007\)](#).

Desire for reputation in the charity setting is also distinct. People may desire ~~a~~ reputation for being cooperative in a game or for being generous to someone directly, but they may not care as much (or may care *more*) about a reputation for being generous to third party charities. Intuition, as well as most simple economic models would imply that, in the VCM environment, if subjects thought they had an influence, they would want to use it to increase their own monetary payoffs; Chaudhuri et al. (2006) offer experimental evidence of this. ~~But~~ However, with charitable giving, this is a distinct and nontrivial question that depends on preferences. Economic models of giving differ over whether an individual gets utility from others contributions, whether or not the individual *caused* others to make these contributions.¹⁵

People may be influenced by previous contributions in the VCM setting but not the charity setting, or vice-versa. As discussed above, if there is an influence in the charity setting it might be because previous gifts signal the charity's value, or signal the average level of altruism. It is important to understand whether these factors matter for a typical charity rather than for a lab-specific public good.

Several additional field experiments involving actual charitable giving are relevant. At least three such experiments present potential contributors with carefully selected information on previous contributions and observe how donations respond. Frey and Meier (2004) showed that students were more likely to contribute (a specified discrete amount) to at least one social fund supporting other students when they were told that 64% of their peers donated (in a recent semester) in comparison to when they were told that 46% of their peers donated (on average over the past ~~ten~~ 10 years). The authors claim this is evidence of conditional cooperation, as in Fischbacher et al. (2001); we interpret it as suggestive of *F-Influence*.¹⁶ Shang and Croson (2005) have callers to a radio fund informed that "we had another member, they contributed \$75 ~~/s*(s*\$180 or \$300)/~~" and find that the \$300 treatment lead to significantly larger average donations, an apparent *F-Influence* effect. Finally, Alpizar et al. (2008) run a field experiment at a national park in Costa Rica. They find an *F-influence* effect using a similar information-selection treatment as the other two ~~papers~~ articles. They also ~~find~~ find evidence for a reputation-seeking motive: contributions made in front of the solicitor are significantly higher than contributions made in private.

These information-selection treatments are not explicitly ~~deceptive~~ — the ~~deceptive~~ — ~~the~~ mentioned donations had indeed been made *at some point*. However, these findings do not correspond directly to the *F-Influence* effect we are seeking to identify.¹⁷ It is unclear what information a participant should draw from these announcements, as they were deliberately selected from a large pool of previous ~~donations~~ — some ~~donations~~ —

¹⁵ According to a strict warm glow model (Andreoni 1990) others' donations are inconsequential to an individual's utility. On the other hand, the warm glow could be interpreted to depend on an individual's net impact on total donations. If charity is a pure public good ("pure altruism"), an individual would gain as much utility from inducing others to donate as from giving herself. The predictions of a Kantian (mentioned in Sugden 1983) or reciprocity model (Sugden 1984) are not obvious.

¹⁶ While conditional cooperativeness could be a force behind *F-influence*, other models yield this as well.

¹⁷ Another distinction between our work and both Frey and Meier (2004) and Shang and Croson (2005) is that they focus on contributions to smaller-scale causes which offer either concrete benefits to the donor (public radio) or to close peers (fellow students), whereas our experimental contributions go towards a large-scale humanitarian cause.

some participant might have realized this. Furthermore, these papers/articles can not isolate the influence of an individual's gift on her peers, and can not differentiate this effect by the characteristics of the leader and follower.

Carman (2003) examines the workplace giving campaign from a large national bank. She finds some evidence of a leader effect – “captains” effect – “captains” and “pace-setters” give more (even after controlling for their observable characteristics) – but – but she cannot can not disentangle *Repseek* and *Influencer* effects. She also finds evidence for “the existence of social influences,” but her estimates need to rely on a plausible but nontrivial set of assumptions over the error structure and instrumental variable validity but in order to overcome the usual obstacles to identifying social influences in a natural setting (see, e.g., Manski 1993).¹⁸

In summary, although several papers/articles identify various social influences on pro-social behavior, none separately identify *Repseek*, *Influencer*, and *F-influenced* effects in the context of charitable giving, nor can they link these effects and measure their consistency with each other.

3 Experimental design

3.1 Implementation

Our experiments were conducted at the University of Jena on 80 male and 112 female subjects. Each subjects received €8, reflecting the local hourly wage level for students, who constituted most of our subjects. The experiment lasted for about one hour. 1 h. In total we ran 12 sessions, each session consisting of 16 subjects.

In considering reputation motives, we cannot can not rule out the possibility that subjects may care about their reputation *vis-a-vis* the experimenters, and this may interact with the *Repseek* effect and *Influencer* effect in unknown ways. Thus, we used very strong measures to guarantee subject-experimenter anonymity, and we made this anonymity common knowledge. The Jena University Experimental Lab was partitioned into an outer and inner part; it was made clear to all subjects that the inner part could not be seen from the outer part. The server PC and the experimenter remained in the outer part. Subjects drew a random number in private (not revealed to the experimenter) to determine their computer terminal. After the door separating the inner and the outer lab was closed/closed, they were instructed to go to the terminals. The session in the inner part of the lab was administered by a subject volunteer, who otherwise did not take part in the experiment. This subject was instructed to supervise the M&G stage (outlined below), to communicate with the experimenters in case subjects had

¹⁸ She also notes that she cannot can not separate “endogenous” from “contextual” effects, and hence cannot can not determine whether contribution behavior responds to the “giving behavior of one’s peers” or to the peers’ inherent characteristics. While our estimates may also be also vulnerable to this problem, we are able to test for at least some potential contextual effects. We also speculate that contextual effects (in particular, the extent to which an individual’s personality motivates others to give) are likely to be less important in our experiment than in the context of a giving campaign, as our subjects meet only briefly and the meeting occurs before they know that the experiment involves charitable giving.

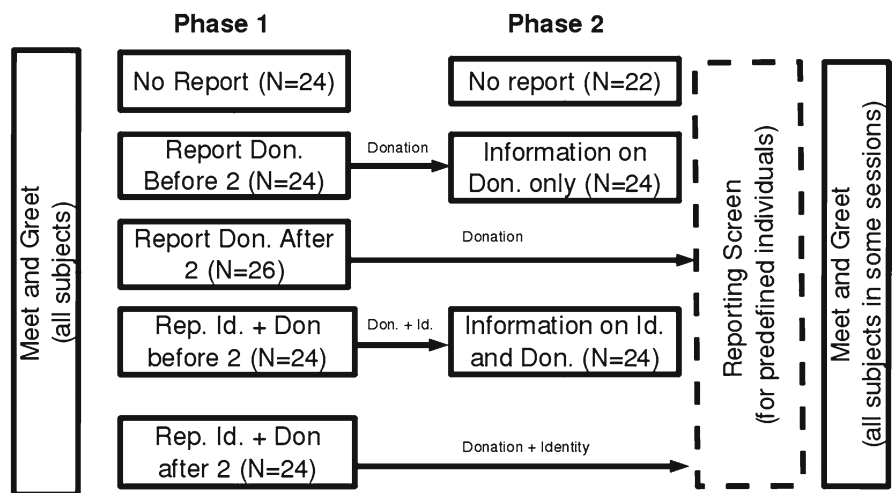


Fig. 1 Summary of experimental design

questions during the experiment, and to distribute the sealed envelopes with payments at the end of the experiment.¹⁹

3.2 Sequence and reporting structure

Subjects were randomly assigned to two groups labeled *Phase 1* and *Phase 2*: *Phase 1* subjects made their donation decisions before the *Phase 2* subjects. Phase 1 subjects were given treatments that varied in the reporting structure (no reporting, anonymous reporting, or identified reporting) and in *when* this donation was to be reported (before or after *phase 2* choices). The reporting structure is summarized in figure Fig. 1. Phase 2 treatments differed in the information a subject *received* about another subject's behavior. Phase 2 subjects received either anonymous reports about *phase 1* subjects' donations, reports from *phase 1* subjects they could identify, or no reports. Each subject participated in *either Phase 1 or Phase 2*.

3.3 Meet and greet stage

To create some social connection between potential partners and make them identifiable to each other, we conducted a M&G stage ~~prior to~~ *before* the treatments. In this stage, subjects met and exchanged their names and fields of study (or professions). To control for the possibility that this social interaction has a direct effect on giving behavior (and to be able to test for this), all subjects participated in this stage, whether or not they were in treatments with identified reporting. Subjects in the anonymous

¹⁹ We used a subject volunteer both to allow subject-experiment anonymity and to ensure that our promise to donate these funds to BFDW was credible. The subject volunteer was randomly assigned. As the computer screens were separated by privacy barriers and the payment envelopes were sealed, the volunteer did not learn individual subjects' contributions, and this was made clear to all *the* subjects.

reporting or no-reporting treatments were told (shortly before making their donation choice) that the person they met would *not* see their donation, nor would they see this person's contribution. Where the subject's treatment involved revealing his or her identity and donation to another subject, or receiving such a report, these subjects were assigned to be "partners" in the ~~meet and greet~~M&G stage, and were informed of this. Subjects who received a report at the end of the experiment were not informed that this would occur in advance.

At the point of the initial M&G ~~stage~~stage, subjects did not know what would follow - the ~~follow—the~~detailed instructions came subsequently.²⁰

3.4 Treatments

In the baseline "No Report" treatment (BL) *subjects' donations remained anonymous*—neither the gift nor the identity ~~were~~was revealed to any other subject within or outside the experiment.

In treatment "Reporting Donation before Phase 2" (RDb2) the donation but not the identity of the subject was revealed ~~before phase two~~Phase 2 to another subject, before this subject made a decision. In treatment "Reporting Donation after ~~phase~~Phase 2" (RDa2) the donation but not the identity was revealed ~~after phase two~~.Phase 2. Treatments RDIb2 and RDIA2 were similar to RDb2 and RDa2, but here both the leader and follower knew each other's identities from the M&G stage.

In treatment "Received Anonymous Information" (RecAI) ~~phase~~Phase 2 subjects received information on the donation from a non-identified ~~subject~~subject, and in treatment "Received Identified Information" (RecIdI) they received information from an identified donor. In both "received information" treatments a subject's second ~~phase~~Phase donation was not reported to any other subject.

3.5 Eliciting beliefs

After ~~phase~~Phase 1 subjects made their donation ~~choices~~choices, we elicited these subject's to predict the average donation of subjects who had neither received nor given a report. Subjects in a reporting treatment were also asked to predict the gift their partner (the person to whom their donation was to be reported) made. The subjects were paid €1 if their first guess was within a range of €1 of the actual donation or their second

²⁰ This was implemented as follows: The volunteer monitored the M&G stage and was advised to inform us if something went wrong. Subjects reported to their desk where they ~~found—on~~found—on the first page of their ~~instructions—their~~instructions—their subject number on a sticker and an explanation of the ~~meet and greet~~M&G stage. The computer screen advised them then to stand up again and meet the assigned partner, whose number was displayed on the computer screen. They then stood up and met the other subject and exchanged names, ~~ages~~ages, and fields of study or job. The volunteer then - after five minutes - announced ~~then—after 5 min—announced~~that it was time to return to the computers and the experiment continued at the terminals. In sessions ~~10–12,~~10–12, as a robustness check, subjects also met in a second ~~meet and greet~~M&G stage that was announced only to subjects whose decision and identity was reported to their partner, after all decisions had been made. In the analysis we pool these two conditions, as we do not find significant differences in behavior along our main treatments. (ranksum tests: *p*-values between 0.17 and 0.97).

Table 1 Composition of potential motives present in Phase 1 treatments

Treatment	Intrinsic	Influence inside	Influence outside	Reputation
Baseline	X			
Report don. (not id) before St. 2 (RDb2)	X	X	X	
Report don. (not id) after St. 2 (RDa2)	X		X	
Report don. and id before St. 2 (RD Ib2)	X	X	X	X
Report don. and id after St. 2 (RD Ia2)	X		X	X

guess was within €1 of the average donation.²¹ At the end of the experiment, all payments were distributed in numbered envelopes by the subject volunteer. Furthermore, subjects were given a report on an A4 page on how much they donated (this report did not contain any information that could link the donation to the subject) which subjects were to check and, if correct, put in a box at the entrance.²² This box was then emptied by the volunteer, and the sum of all donations was calculated. The volunteer then observed that the experimenters transferred the aggregate amount donated to the charity. This procedure was known to the subjects before they made their donations.

4 Results and interpretation

Table 1 gives an overview of the hypothesized effects of each treatment on the “motives” for giving—i.e., giving—i.e., the ways in which a subject’s own donation could increase her utility either directly or indirectly. An “X” is marked in the table where we hypothesize that an effect may be present for some or all subjects. However, we allow that the presence of each of these motivations may lead to nonlinear effects on donations, and there may be interactions in utility function itself (e.g., the marginal utility of reputation may decline as the “impact utility” one gains from influencing others to give more increases).

In the baseline treatment nothing is reported to others; here giving can not be motivated by reputation concerns nor the desire to influence other subjects. We will label the remaining motivation to make an anonymous donation “intrinsic”; this could include most of the models presented in recent work, study, including warm glow (Andreoni 1990), the desire for impact (Duncan 2004), and/or the desire to supplement a public good. In treatments RDb2 and RD Ib2, where the donation is “reported before,” there also may be a motive to influence the subject to whom the donation is reported to give more within the lab. When identity is also revealed (RD Ib2 and RD Ia2), donating more may also boost a subject’s reputation. While reporting after phase Phase2 eliminates the possibility of influencing another subject’s laboratory behavior, these reports (as

²¹ We are aware that from a theoretical point of view this compensation may not elicit the mean of the distribution of a subject’s beliefs, but will favor model predictions. We choose this because it was easier to explain than a more complex rule such as quadratic scoring, and because a feasible quadratic compensation scheme tends to offer rather flat incentives at points close to the correct prediction. Sonnemans and Offerman (2001) offer evidence suggesting that even a flat fee leads to good judgments; hence, we do not expect the choice of scoring rule to matter much.

²² All reports were returned to the box.

well as the other reports) may influence ~~real-world~~ **real-world** behavior after the end of the experiment, and reporters may anticipate this.

4.1 Phase 1 donations: Repseek and Influencer effects

We begin by analyzing donations in the first ~~phase~~ **Phase**. Table 2 displays average donations by treatment, broken down by whether and when the donation was reported (before or after ~~phase~~ **Phase2**) and according to whether the identity was revealed when reporting.

Result 1 A subject donates more on average when her identity and donation will be revealed to another subject, relative to the baseline “no ~~no~~ **no**report” treatment. This effect is larger where the report occurs before the partner has the opportunity to donate than when the report ~~occurs~~ **occurs** after all decisions have been made.

This result is shown in Table 2 (see “Compared Treatments” “Report id. ~~before - No~~ **before—No**report”) and (“Report id. ~~after - No~~ **after—No**report”). We can also see that when a subject’s donation is reported *before* ~~phase~~ **Phase2**, contributions are significantly higher when the identity is also reported: the difference is €1.15 (t -test p -value: 0.025, rank-sum p -value: 0.025). However, there is no significant difference between the identity reporting treatments when the reporting occurs *afterward* (see “Report after: id.—anon”).

Pooling across treatments, the difference between *Report before* and *Report after* is small and not significantly different from zero (“Pooled: Report before - after”); nor is the general difference between *Identity reported* and *Identity not reported* (“Pooled: id. Report - No ~~id.~~ **id.**report”) significant.²³

To check the robustness of Result 1, Table 3 presents exponential Poisson regressions (the Poisson pseudo-maximum likelihood estimator) and OLS regressions of the first-phase donation decision, estimating a separate effect for each of the reporting and reporting-timing treatment dummies. In Table 3, columns (1) and (2) include the interactions of the treatment dummy variables, columns (3) and (4) add controls for gender, ~~meet and greet~~ **M&G** partner’s gender, and the interaction of these. In column (5) and (6), we control for whether the subject had already donated to ~~B&W~~ **BFDW** or a similar charity (outside the lab) in this year. Finally, columns (7) and (8) include the

²³ There is an apparent anomalous result: subjects whose anonymous donation will be reported to another subject at the end of the *experiment* donate more on average than those whose anonymous donation will be reported to another subject before (and hence have a chance to influence) this follower subject’s decision (€2.49 ~~versus~~ **vs.** €1.64). This accords with our result (Table 4) that *anonymous* leaders’ gifts have a negative but insignificant relationship to followers’ gifts. On the other hand, as we show in ~~section~~ **Sect. 4.3**, both anonymous and identified leader subjects implicitly predict a positive relationship between their donation and the follower’s choice. ~~But~~ **However**, such theoretical speculation is probably not necessary: this result (the greater contribution of *RDa2* subject) is only marginally significant in simple tests, and the relevant coefficient is insignificant in controlled regressions (Table 3) and disappears almost entirely when we control for a subject’s prediction for other subject’s average contribution (Table 3, columns 7 and 8). As the latter control may be a proxy for a subject’s own generosity, this suggests that the apparent anomaly is an artifact of small-sample bias.

Table 2 Summary statistics: first-stage contributions by treatment (in Euros)

	No report	Report before	Report after	Total
Identity not reported				
Mean	1.69	1.64	2.49	1.95
Std. dev.	1.92	1.39	1.97	1.8
Median	1.75	1.00	2.00	1.75
Share pos. contr. (%)	60.67	79.17	92.31	82.64
Mean if contr. pos.	2.52	2.08	2.70	2.48
N	24	24	26	74
Identity reported				
Mean		2.79	2.14	2.46
Std. dev.		1.98	1.55	1.79
Median		3	1.5	2
Share pos. contr. (%)		95.83	95.83	95.83
Mean if contr. pos.		2.91	2.23	2.57
N		24	24	48
Total				
Mean	1.69	2.22	2.32	2.16
Std. dev.	1.92	1.79	1.77	1.81
N	24	48	50	122
Test of differences in treatments				
Compared treatments	p-value			
	Difference in €	t-test	Ranksum test	
Report id. before—no report	1.10*	0.056	0.021	
Report id. after—no report	0.45	0.376	0.149	
Report before: id.—anon.	1.15**	0.025	0.025	
Report after.: id.—anon.	−0.35	0.489	0.568	
Pooled: Report before—after	−0.10	0.777	0.773	
Pooled: id. Report—no id. report	−0.38	0.289	0.284	

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

subjects’ prediction for the average contribution as a regressor. This term is included to control for what subjects might see as the appropriate gift and further reduce the potential small-sample bias from random variation in the subjects assigned to each treatment.²⁴

The additional effect of identification relative to anonymous “Report before phase 2” (the third row of Table 3) is significant and positive in all but one

²⁴ While some might argue that this final control could be endogenous, reflecting a subject’s ex-post justification of her own decision, we note that (i) subjects have a financial incentive to make accurate predictions and (ii) the inclusion of this control does not substantially affect our key results.

Table 3 Regressions of Phase 1 donations

	Gender ctrls.				Other ctrls.		Belief ctrls.	
	(1) Psn.	(2) OLS	(3) Psn.	(4) OLS	(5) Psn.	(6) OLS	(7) Psn.	(8) OLS
Report before Phase 2 (d)	−0.055 (0.597)	−0.044 (0.483)	0.0037 (0.598)	0.013 (0.499)	0.084 (0.535)	0.11 (0.434)	−0.38 (0.491)	−0.33 (0.410)
Report after Phase 2 (d)	0.85 (0.618)	0.80 (0.549)	0.74 (0.624)	0.70 (0.568)	0.89 (0.594)	0.85 (0.538)	0.25 (0.432)	0.28 (0.402)
Report id. before 2 (d)	1.33** (0.655)	1.15** (0.494)	1.29** (0.641)	1.13** (0.496)	0.85 (0.539)	0.79* (0.459)	1.26* (0.670)	1.01** (0.507)
Report id. after 2 (d)	−0.31 (0.408)	−0.35 (0.499)	−0.32 (0.401)	−0.37 (0.504)	−0.43 (0.403)	−0.50 (0.523)	0.045 (0.304)	−0.0099 (0.332)
Female (d)			−0.33 (0.520)	−0.34 (0.562)	0.26 (0.290)	0.29 (0.310)	0.38 (0.257)	0.41 (0.291)
Partner female (d)			−0.60 (0.522)	−0.57 (0.515)				
Fem. × par. fem. (d)			1.05 (0.804)	0.97 (0.724)				
Previously donated (d)					0.95** (0.383)	0.97** (0.389)		
Belief: av. contr.							0.49*** (0.089)	0.69*** (0.154)
<i>Combined coefficients</i>								
Report b4 + id. Rep.	0.503* (0.268)	1.104* (0.562)	0.522** (0.267)	1.143** (0.570)	0.405 (0.259)	0.897* (0.536)	0.344 (0.221)	0.679 (0.479)
Report after + id. Rep.	0.236 (0.270)	0.450 (0.503)	0.183 (0.297)	0.333 (0.576)	0.189 (0.265)	0.352 (0.499)	0.149 (0.193)	0.273 (0.319)
Observations	122	122	122	122	122	122	122	122
R^2		0.061		0.081		0.126		0.391
Pseudo R^2	0.024		0.032		0.048		0.135	

Regressions are made on contributions of *all* subjects who donated in the first phase

Marginal effects; Robust standard errors in parentheses

(d) for discrete change of dummy variable from 0 to 1

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

specification; the other marginal effects are not significant. This is consistent with a greater desire to influence, and/or a greater anticipated influence, when a leader's identity is reported.

The coefficient on the binary variable “Previously donated” is positive and significantly different from zero. This accords with previous evidence (e.g., Landry et al. 2008) that people who have previously donated to a specific cause donate more when approached again.

4.2 Phase 2 donations: F-Influenced

We next examine whether subjects actually *have* an influence on their partner's contribution (when their gift is reported), which leads us to our second main result:

Result 2 There is a positive and significant relationship between the level of the reported gift and the donation of the subject to whom this was reported *if* the reporter's identity was observed.

This result is supported in Table 4, columns (3) and (4). Columns (5) and (6) show that this effect is mainly driven by donations of subjects whose partners are female.

Table 4 Regressions of Phase 2 donations (subjects who received a report before Phase 2)

	Ctrbn. partner		id. interact		Gender ctrls.	
	(1) Psn.	(2) OLS	(3) Psn.	(4) OLS	(5) Psn.	(6) OLS
Info. id. (d)	0.77 (0.475)	0.76 (0.488)	-0.57 (0.887)	-0.75 (1.066)	-0.58 (0.769)	-0.96 (0.886)
Partner contribution	0.13 (0.174)	0.16 (0.246)	-0.48 (0.398)	-0.34 (0.287)	-0.49 (0.362)	-0.39 (0.278)
id. inf. \times contr. P.			0.73* (0.426)	0.74* (0.431)	0.54 (0.423)	0.52 (0.370)
Female (d)					-0.40 (0.475)	-0.42 (0.547)
Partner female (d)					-0.30 (0.498)	-0.52 (0.485)
id. inf. \times contr. P. \times partner fem.					0.27* (0.149)	0.55** (0.257)
<i>Combined coefficients</i>						
Contr. partner + id. inf. \times contr. partner			0.142* (0.085)	0.404 (0.322)	0.033 (0.089)	0.129 (0.227)
Contr. partner + id. inf. \times c.p. \times fem.					0.192*** (0.040)	0.676*** (0.203)
Observations	48	48	48	48	48	48
R^2		0.078		0.170		0.271
Pseudo R^2	0.039		0.082		0.112	

The regressions include all subjects who have received a report of a contribution

This means that we excluded the 22 *No report* subjects of Phase 2

Marginal effects; Robust standard errors in parentheses

(d) for discrete change of dummy variable from 0 to 1

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

When the identities are not observed there appears to be a negative ~~although~~ ~~although not significant relationship~~ ~~significant relationship~~ between the gifts (see row 2 of Table 4, columns 3–6).^{25, 26}

²⁵ Subjects in the anonymous reporting condition may see their own gift as a substitute for the partner's gift and therefore donate less if their partner donated more; a "crowding-out" effect. The scale of this charity makes it doubtful seem that the partner's gift will significantly affect the marginal value of a contribution (as a public good). Still, subjects may gain warm glow from their partner's contribution, and this may have rapidly diminishing returns. Similarly, the subject may set a giving target for the whole experimental group and the reported gift may lead them to increase their expectations over others' total contributions and hence lower their own contribution. In the case where the partner's identity has been revealed, this crowding-out effect might be replaced by a feeling of reciprocity and/or solidarity towards the other subject and therefore the gifts may be complements.

²⁶ Note that the Phase 1 subject never observes the Phase 2 subject's choice; there is no "back-reporting." Subjects in the second phase did not know that there would be a second meet and greet M&G stage (in sessions 10–12) after all subjects made their donations, so they were not likely to fear that they might be asked by their partner what they donated (although we can not rule out this expectation).

Table 5 Contextual effects

	(1) M&G contact (Poisson)	(2) M&G contact (OLS)	(3) Idd. report (Psn.)	(4) Idd. report (OLS)
Contr. MaG partner	0.014 (0.036)	0.029 (0.077)	0.11 (0.070)	0.33 (0.302)
Female	-0.13 (0.228)	-0.25 (0.436)	0.11 (0.653)	0.090 (1.550)
Partner female	-0.26 (0.261)	-0.47 (0.457)	0.47 (0.411)	1.13 (1.082)
Fem. × par. fem.	0.56* (0.327)	1.08* (0.604)	-1.15 (0.754)	-2.02 (1.717)
Constant	0.68*** (0.171)	1.97*** (0.352)	0.34 (0.471)	1.15 (1.083)
Observations	144	144	24	24
R ²		0.035		0.242
Pseudo R ²	0.016		0.111	

Robust standard errors in parentheses

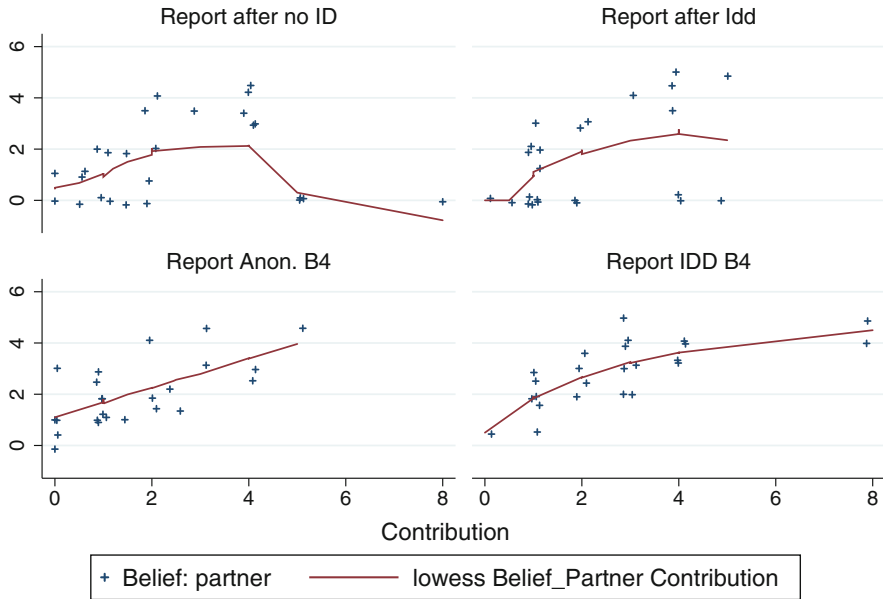
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Carman (2003) notes the possibility of a “contextual” influence from the “characteristics of one’s peers” rather than through their giving behavior. As all of our subjects take part in the ~~Meet and Greet~~M&G, we can test (in Table 5) for such “contextual” effects of M&G partners. Such effects may occur via characteristics that we the researchers do not observe. For example, having an M&G partner with a sympathetic face might cue a higher level of contribution. If this (partner’s) characteristic is also correlated to the partner’s contribution, our estimate of the influence of a reported gift may be entangled with this contextual effect and hence biased upwards. Columns ~~s*(s*1 and)~~ and ~~(2s*)s*~~ of Table 5 measure contextual effects of M&G partners who do *not* send or receive a donation report to one another.²⁷ We find no evidence of a “spurious” contextual effect correlated to the M&G partner’s ~~contribution – the~~contribution—the estimated parameters on “ContrMaGPartner” are close to zero with small estimated standard errors.²⁸ We find some evidence of a contextual effect through ~~gender – having~~gender—having a same-sex M&G partner seems to increase donations, although this effect is only significant at the 10% level.²⁹

²⁷ That is, at least not until after the follower subject makes her own choice; we remove subjects in RD1b2 and Rec1d1 treatments only.

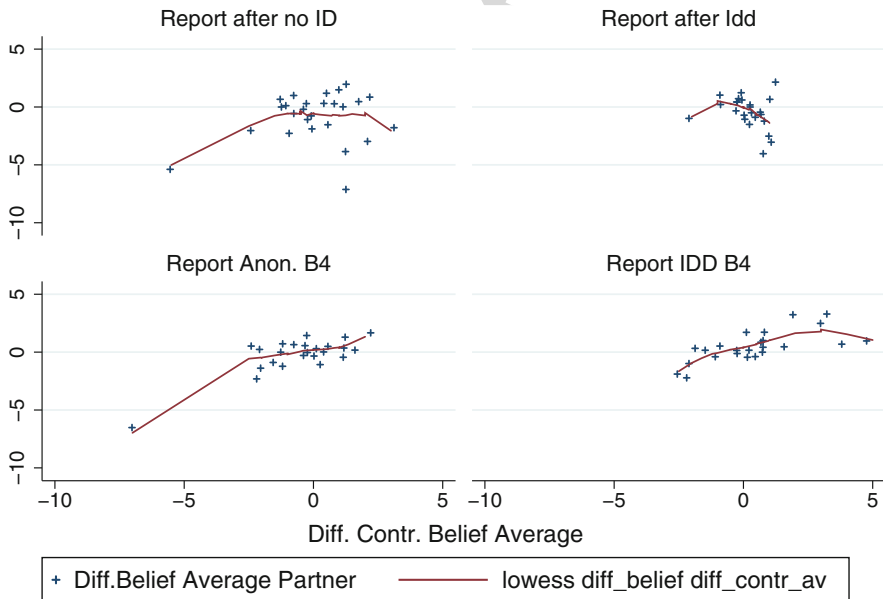
²⁸ Although we can not separate this contextual effect in the case where a leader’s identified gift is reported, these results suggest that this should not be a concern.

²⁹ In columns ~~s*(s*3 and)~~ and ~~(4s*)s*~~ of Table 5, we examine the 24 subjects who received an identified report from their M&G partner—~~here~~partner—here, we find no significant contextual effects (of gender), but the small subsample size and consequent large standard errors ~~implies~~imply that this is not a very powerful test.



Graphs by Reporting treatment

Fig. 2 Predictions by own contribution



Graphs by Reporting treatment

Fig. 3 Predictions by own contribution; relative to predicted average

4.3 Predictions: perceived influence

If the increased giving by leaders is consciously driven by the desire to influence followers, this implies that the leaders *believe* they have an influence. For leaders who “report before,” we would like to know what the leader believes is the follower’s response function – the function—the expected contribution as a function of the amount reported to the follower. Suppose that the leaders’ gifts were determined exogenously, or that the factors that determine how much a leader gives are uncorrelated to her beliefs about the follower’s response function. In such a case the leader’s average expected response function could be consistently estimated as the empirical slope of the “report before” leaders’ predictions in these leaders’ own contributions. Given this exogeneity, for leaders who report at the end, the equivalent empirical slope should be zero, as their ex-post reports can have no influence on prior behavior.

Result 3 A leader’s predictions for his partner’s gift increases in the leader’s own donation, particularly particularly, when the leader’s gift will be reported before the partner’s choice. This holds even controlling for the leader’s belief over the average gift.

In the RD_{b2} and RD_{ib2} treatments, a leader’s predictions for his partner’s gift indeed does increase in the leader’s own donation, as seen in the lower right and left scatterplots of figure Fig. 2.³⁰ This slope is positive and significant in regression analysis across a variety of specifications (see online Appendix C.1). However, the slope is also moderately positive in the upper left and right plots, for the RD_{a2} and RD_{ia2} treatments, where no influence is possible. This suggests a potential latent variable bias: the expected response functions are not orthogonal to own contributions. Those who contribute more may have a more rose-colored view of the world, trusting charitable organizations and believing others to be generous³¹ (and with a reciprocity motive the belief that other subjects will donate may itself increase donations).³²

However, there is still an important difference between the *Report before* and *Report after* plots. While 22 of 50 subjects in the *Report after* treatments predict their partner will contribute zero, only 1 of 48 *Report before* subjects makes this prediction. This difference is strongly significant across a range of parametric and nonparametric tests (available by request). To the extent that leaders predict an influence, it seems to be at the extensive margin: some leaders believe that revealing their own contribution lead their partner to give a positive amount rather than give nothing.

These results can be made robust to certain framing effects. It is conceivable that the *Report before* treatments have an independent effect on a subject’s beliefs over the

³⁰ The scatterplot points are given a small random “jitter”. These are fit with lowess smoothed lines.

³¹ This effect is known in the psychological literature as the “false consensus effect”. Subjects use their own type (in this case preference for charity) to make inferences over the generosity of the population. Insofar as the charitable giving interaction resembles a VCM game, this would also reflect the common observation that “those who believe others will cooperate in social dilemmas are more likely to cooperate themselves” (Ostrom 2000). The same patterns are consistent with the idea that (in spite of the monetary incentive to make a correct prediction) elicited beliefs are in part a “justification” of a players own choices.

³² This interpretation is further supported by the significant positive slope of predicted average contributions in own contributions (details by request).

contributions of others (but for any influence of reported donations), an effect that is distinct from that of the *Report after* treatments, and an effect that may vary according to a subject's own generosity, potentially affecting the relative slopes in the above figure. To the extent that this framing effect is the same for beliefs over "average" donations, we can use the subject's predictions of this as a control.

Figure 3 is similar to figure Fig. 2, but here the variables on both axes are expressed relative to (i.e., differenced from) the leader's prediction of the average contribution. Here, the slope is less pronounced; naturally, predictions for partners are strongly positively related to predictions for the average subject (who gets no report), and both are positively related to own contributions. Still, the slope appears somewhat positive in the "report before" treatments and close to flat in the "report after" treatments. The significance of these results are confirmed by regression analyses (in online Appendix C.1) that control for the "predicted average" variable. Again, the results are driven by the predicted zero contributions in the "report before" treatment.³³

We do not claim to have eliminated all possible sources of bias. If there is indeed a *Repseek* and an *Influencer* effect, then leaders' contributions themselves are likely to be higher (for a given level of underlying preferences and beliefs) under these reporting treatments, and hence a particular size gift will tend to come from a *less* generous person under these reporting treatments. To the extent that those who donate more tend to predict that their partner would give more (but for the influence of their own reporting) relative the mean, this would lead towards a bias *against* finding a predicted influence.

We see no evidence that predicted influence differs substantially between identified and unidentified reporting. Although, as demonstrated in section Sect. 4.2, the influence appears stronger when identities are reported, the leaders' predictions do not reflect this.

4.4 Discussion

As List (2007) and Bardsley (2008) note, subjects' behavior in dictator games is influenced by subjects' desire to conform to salient social norms. Experiments in this category (including charitable giving experiments) are thus particularly vulnerable to experimenter-demand effects. However, we are examining charitable giving in a social context meant to reflect real-world giving situations. We claim that similar social norms are present and influence subjects' donation behavior in the corresponding field settings (e.g., in a church with an open collection-plate) as well. We therefore argue for the *external validity* of our results even in the presence of potential demand effects (see Zizzo 2009, for a formal discussion of this general argument).

³³ As shown in online Appendix C.1, this "zero-driven" difference in relative average slope leads to a significant interaction coefficient in "one-stage" regression specifications but not in the conditional-on-positive part of two-part specifications such as zero-inflated-Poisson.

5 Conclusion

This experiment is the first (to the best of our knowledge) to disentangle three components of the motivation for charitable giving in social settings. We find that when a leader's donation and identity are revealed to a follower (before phase 2) the latter's donation increases in the former's. When the donation is reported without the leader's identity no such "influence" is observed. The "identified leader" subjects, the only subjects that have a significant influence, give significantly more than the subjects in the no-reporting (baseline) treatment, and also significantly more than the subjects whose donation and identity is reported after the follower subject's choice. These findings provide some evidence that individuals' utility comes not only from their own contributions, but also from their impact on the total amount contributed. The "identified leaders" correctly perceive that their contribution will have a positive influence on the subject it is reported to, and thus donate more to take advantage of what is, in effect, a temporary price reduction.

The evidence for a reputation-seeking effect is mixed. While subjects whose donations and identities are reported to another subject only at the end of the experiment do donate significantly more than baseline subjects, there is no significant difference from subjects who report only their donations at the end of the experiment. However, reputation-seeking is likely to depend on the nature and closeness of individual relationships; hence, we cannot rule out the possibility that reputation-seeking drives charitable giving in certain real-world environments.³⁴

A follower's gift tends to increase in a leader's gift only when the leader is identified. This suggests that influence is a complex psychological phenomenon, not the product of a consistent Bayesian updating (of beliefs over the average contribution nor over the worth of the charity); on average, such updating should be the same for identified and unidentified reports, as both are random draws from the population of subjects. The influence is found particularly when the leader is female.³⁵ This relates to earlier findings that female solicitors are more successful than males in some contexts (Lindskold et al. 1977; Landry et al. 2006), and contrasts with evidence that men tend to be more influential in general social settings (Carli 2001).

Leader subjects' predictions suggest that they believe they have an influence on their partner's donation. In particular, they seem to predict that they will have an influence on their partner's extensive margin decision (to donate versus not donate).

Our paper makes an important contribution to the literature on the motivation for altruistic decision-making in a social context, as well as to the evidence on gender roles in the arena of other-regarding behavior. Our findings are also relevant to the study of group dynamics, leadership, and influence (see, e.g., Hoyt et al. 2006). Finally, our results have direct implications for practitioners. Fundraising campaigns that employ

³⁴ Furthermore, given subjects may choose to discuss their choices outside the lab (and in the end meet and greet M&G stage), reputation-seeking may be present in all treatments; but if so, this relies on the subjects' reluctance to lie (see for example Vanberg 2008); the enforced reporting does not significantly contribute to this.

³⁵ This suggests that charities may prefer to focus on using females as leaders and pacesetters.

peer-driven strategies such as “leadership giving”³⁶ and “conspicuous compassion” (Bekkers and Wiepking 2008) must do so carefully: in our experiment receiving a report of a “leader’s” decision does not increase followers’ contributions on average; only reports of larger gifts have a positive effect. Furthermore, “disembodied” anonymous reports may not be influential: follower’s gifts only have a positive relationship to reports from *identified* leaders. However, reports need not come from close connections to be ~~influential~~—even ~~influential~~—even the brief acquaintance our subjects have with their “meet and greet” “M&G” partner appears to matter. Finally, our results suggest that charities may prefer to focus on using *females* as leaders and pacesetters.

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³⁶ Andreoni (2006) notes “The importance of the leadership phase of ~~fund-raising~~ ~~tundraising~~ is emphasized in almost all handbooks for fundraisers.”

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