The Differential Impact of Social Norms Cues on Charitable Contributions

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May 2, 2016

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[1] Thanks to Ernst Fehr, Simon Gächter, Herbert Gintis, Jeffrey Carpenter and Bettina Rockenbach and Bob Cialdini for comments. Any errors remain our own.

Abstract

Using a field experiment, we test the channel by which normative cues affect the decision process to donate to a public library. Our treatments consist of a reciprocity cue or an eyespots cue that is placed on the solicitation materials mailed out to potential donors during a public library fundraising drive. The data are consistent with a two stage decision process by which individuals first decide whether to make a donation and then decide how much to donate. We show that both cues significantly affect donation behavior by enhancing the intensity of the behavior while only one cue enhances the likelihood of engaging in the behavior. These results imply that what might look like a subtle or even fickle effect of normative cues on behavior is an economically sizable effect when we take into account what aspect of the decision process is affected by the cue.

Keywords: Decision Making, Social Norms, Field Experiment, Public Good

JEL: C93, D03, D64

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One challenge with predicting the effect of social norms on behavior is that it is unclear whether, in the presence of a salient norm, behavior is changed on the intensive and or extensive margin. If normative cues impact the decision of whether to engage in a behavior differently from the decision of how intensely to engage in the behavior then aggregate measures of behavior change may seem subtle, small and or unstable (Levitt and List 2007; Krupka and Weber 2013). In the context of charitable contributions, using normative cues to increase charitable contributions is an important topic of study because they provide a mechanism to sustain public goods contributions and minimize free-riding (Ostrom 2000; Andreoni 1988).

Several studies examine the role of social information (knowing what others gave) on charitable contributions and their impact on crowding-out other (Andreoni 1989, 1990) or future contributions (Shang and Croson 2009). In the context of charitable donations, three recent papers explore the impact of increasing or decreasing social pressure through the use of social cues. DellaVigna et al. (2012) and Klinowski (2015) test the impact of decreasing social pressure -- avoiding a face to face interaction in the former case or learning what others have contributed before or after making a decision to donate -- on both the likelihood to donate and the subsequent decision to donate. Andreoni et al. (2016) test the impact of increasing social pressure by making it hard or easy to avoid a charity solicitation and varying whether the solicitors were silent or asked passersby to "please give".[1] These results strongly suggest that actors use social cues to decide if and how much

[1] We thank an anonymous referee for pointing out this connection.

to give to a charity. However, few have examined the differential impact of normative cues, which do not communicate information about others' donation behavior, on the decision to make a donation and the decision about how much to donate.

Even if a normative cue is effective at increasing the total amount of money raised, it may be more desirable to increase the number of donors than it is to increase the donation amount. Shang and Croson (2009) show very nicely, that new first time donors who sign up do not drop out but continue to donate in subsequent years. Thus, it is desirable to have mechanisms that increase participation in the charitable drive because fundraisers are often concerned as much with increasing the number of future donors as they are with collecting donations in any given cycle.

In this paper we conduct a field experiment using the decision to donate to a public library in response to a mail solicitation for donations. We deploy two treatments that vary social norms cues (an observation cue and a message evoking reciprocal norms) and compare the cues' impact on intensive and extensive behavior change. This allows us to separately test the differential impact of two different normative cues on charitable giving within the same setting – the decision to donate to the local public library.

Setting our experiment in the field has several important advantages that strengthen both the import of our findings as well as our interpretation of the findings. In the laboratory the relative benefits and costs of contributing to a public good may be exaggerated or more salient relative to behavior outside of the laboratory (Levitt and List 2007). In the laboratory subjects know they are in a study, they decide to show-up and have scheduled an hour for the task, and they are usually given an endowment to be used in the experiment. From this perspective, the decision to contribute to a public good might

feel like it is just "a click away" – it is both immediate and low cost to implement. A decision to contribute to a public good made outside of the laboratory often takes place against the backdrop of a busy day - the solicitation envelope comes in the mail with bills and advertisements and the envelope is often opened at a later date. A person who decides to contribute must write a check or supply a credit card number and then post the letter back to the requestor. In the context of our treatments, our ability to execute this experiment in the field allows us to circumvent some of the typical concerns that might hamper interpretation of these treatment effects in the laboratory (eg. demand effects or boredom)[2] as well as to underscore the consistency of the impact of our treatments on behavior and the size of their impact.

We examine two very different cues that are hypothesized to make social norms salient – an eyespots cue that unconsciously triggers feelings of being observed and a reciprocity message that consciously triggers feelings of indebtedness. Our choice of two cues that operate at the conscious and unconscious level is motivated by the considerable literature in judgment and decision making that highlights two forms of reasoning: intuitive and deliberative (see Kahneman 2011). On the one hand, reasoning can be deliberative and is characterized by relying on explicit knowledge to inform judgment and choice and, on the other hand, reasoning can be an intuitive process that employs information that is difficult to verbalize and/or are outside of conscious awareness (Chase, et al. 1998; Kahneman 2011). In both cases, cues can serve as inputs into human decision-making processes but their effect on the decision making process may operate through different channels. It is possible in the context of our experiment that these two cues could affect the donation

[2]Cf. Siegel 1961 and Zizzo 2010.

decision process at different points: either at the decision to participate and/ or the conditional decision of how much to participate.

The "eyespots" cue is a visual cue - a watermark placed on the solicitation materials. It has been shown to automatically (and often unconsciously) be processed as a face (Bednar and Miikkulainen 2003). Biological and fMRI evidence of the effect of observation cues suggests that responsiveness to 'observation' cues is involuntary. When we are observed, a dedicated facial recognition area of the brain, known as the fusiform, is activated (Tomasello et al. 2007; Kobayashi and Kohshima 1997). The area is sensitive to extremely minimal cues such as the direction of the head of another group member or the position of the eye-whites surrounding our pupils (Kummer 1967; Cosmides and Tooby 1992; Langton et al. 2000; Kobayashi and Kohshima 2001; Milinksi and Rockenbach 2007). As a result of the fusiform's sensitivity, exposing actors to minimal eye-like cues (such as eyespots) activates this region while a neutral version with a similar logo – an inversion of the spots pattern – does not (Farah et al. 1995; Emery 2000; Bednar and Miikkulainen 2003). Research investigating *social gaze* has shown that it is possible to 'fool' the automatic and unconscious facial processing system by providing it with inputs (such as the mere picture of eyes, or a stylized picture of a face, sometimes called the *eyespot cue*) to which it is sensitive, even though the normal circumstances under which the system was designed to operate (actually seeing a face) do not in fact hold (Bednar and Miikkulainen 2003; Milinksi and Rockenbach 2007).

A substantial literature in laboratory experiments demonstrates that when eye-cues are present then behavior tends to be more pro-social (Haley and Fessler 2005; Soetevent 2005; Bateson et al. 2006; Burnham and Hare 2007; Rigdon et al. 2009; Milinksi and Rockenbach

2007; Ekstrom 2012). For example, in a field experiment, Bateson et al. (2006) placed pictures of eyes, that were alternated with a neutral flower picture, over a donation box in an office coffee room. They find that in weeks where the eye pictures were posted over the donation box, more money was left in the donation box than in weeks where the flower images were posted over the box. However, it is not possible in Bateson et al.'s study to determine whether the increase in contributions stemmed from higher participation or from an increase in the amount individuals left. Ekstrom (2012) conducted a field experiment in which he placed eye or control images onto bottle recycling machines at the back of Swedish grocery stores. Those recycling could opt to donate a fraction of the bottle refund. He found that eyespots increased the number of donations and the proportion donated to the charity but only on days when there were few people in the supermarket.[3]

The "reciprocity message" cue we use in our experiment is a text-based cue – a message on the solicitation materials which reminds recipients of their "debt" to the public library. Specifically, it reads "You count on your community, can they count on you?". This message is crafted to evoke the reciprocity norm which says that we should try to repay in kind, what another person has provided us. (Cialdini, 2009; p.19).

The experimental literature has several examples where reciprocity evoking messages are used to affect behavior; however it is difficult to pin down whether the response is on the extensive or intensive margin of behavior. Cialdini et al. (1990) examine the frequency with which individuals litter in response to environmental cues about the frequency of

[3] Other laboratory studies using dictator games find that eye images increase donation amounts (cf. Ridgon et al. 2009; Oda et al. 2011; Nettle et al. 2013;) Though in laboratory studies where strategic considerations are more salient, Fehr and Schneider 2013 and Lamba and Mace 2010, find no effects.

others' littering and in response to normative messages about littering.[4] The study finds that littering *rates* are sensitive to the cues. However, it is not possible to test whether intensity is also affected (individuals only have one item to litter).

In subsequent experiments, Goldstein et al. (2007) placed cards in subject's hotel bathrooms that encouraged guests to reuse washroom towels but had messages offering different reasons for doing so. In one condition, the message on the card stated that the hotel had already donated to an environmental organization on the guest's behalf and the guest was asked to reciprocate the hotel's action by reusing his bathroom towels. Of those guests who received the reciprocity cue, 45.5% reused their towels at least once during their stay as compared to a 30% rate of reuse among guests who received a baseline appeal. As in the earlier work, they observe an increase in the rate of the towel reuse but it is not possible to tell whether the treatments resulted in an increase in intensity of participation since this amount of reuse was not coded. In this research we are able to test whether the treatment increases the rate or the intensity of the behavior or both. This will allow us to test the effect of the treatment on two parts of the decision making process.

We chose the eyespots cue because it is a visual cue that potentially operates at an unconscious level (ie. it does not need to be consciously perceived to have an effect), has a natural and tested baseline (inverting the spots) and because the effect of observation on norm compliance has been shown to reliably increase one's tendency to comply with a social norm even in the absence of punishment or reputation loss (Haley and Fessler 2005; Bateson et al. 2006; Burnham and Hare 2007; Rigdon et al. 2009). It is noteworthy that

[4] Examples of such simple reminders include messages such as "April is 'keep Arizona beautiful month'. Please recycle" or "Please don't remove petrified wood in order to preserve the natural state…of the forest". (Cialdini et al. 1990; 2003).

the eyespots cue is not linked to a *specific* norm but rather it is linked to increasing awareness that others are watching and, it is hypothesized, to be correlated with an increase in the desire to behave in a socially appropriate manner (Milinski and Rochekbach 2007). Specifically, in this context socially appropriate behavior should increase both the response rate as well as the average contribution relative to the baseline.

We chose the reciprocity message cue because it likely operates at the conscious level (ie. it has to be actively read to have an effect), has been shown to enhance one's tendency to comply with the request and because it is linked to a *specific* norm. This message focuses actors on reciprocating the debt incurred by the requester. In the context of our message, in kind compliance entails participation (by donating) – the library was there for you, now you should be there for them. However, it does not necessarily stipulate an amount to donate. As such, we predict that more individuals make a contribution than in the baseline but that there is no significant increase in the amount they donate. In addition, the reciprocity message is one of the most simple, common and direct "messaging" appeals one can deploy in the field of fundraising.

The cues are noteworthy in their own right because they are subtle; in this sense we set the bar high for us to find an effect in the field. However, the cues are also both appropriate both for testing the impact of normative cues on decision making as well as for the context of soliciting donations to a local public library.

Our main contribution is to test the impact of two cues that leverage different normative motivations to make charitable contributions and to show that these normative cues operate on behavior differently. We find that the two different cues significantly affect donation behavior and that they both do so by increasing the intensity of the behavior (giving more

relative to a baseline). However, only the 'reciprocity message' cue increases the likelihood of making a donation in the first place.

The differential impact of normative cues on charitable giving is important. While some interventions may well change the set of people who donate, other interventions may change the size of the donations without changing the set of people who are donating. Depending on how these cues impact behavior, it can be difficult to identify normative influences on aggregate behavior or the impact may seem subtle, small and or unstable (Levitt and List 2007; Krupka and Weber 2013).

Experimental Design

We conducted our study using a mail fundraising campaign of a public library. Solicitations are mailed out to all library card holders who have checked out a book in the last three years. This library typically solicits individual contributions by mail. In the year before our experiment, the library mailed out 5,500 solicitations and 3.22% of the targets responded with a donation. Materials for our experiment were based on previous fundraising campaign solicitation packets, but were modified by the experimenters to include either a 1/3x1/3 inch minimal eyespots cue or a neutral logo (the inverted eyespots), and either a message reminding the reader of their debt to the public library (from here on the "reciprocity message") or a neutral message (a full set of the materials can be viewed in the Appendix, section 1).

Respondents were randomly assigned to receive solicitation packets associated either with the baseline, eyespots or reciprocity message treatment. The baseline packet included a neutral "spot" logo and a neutral message on the exterior of the envelope, an appeal letter that contained the spots logo at the bottom left hand corner, and a remittance form that

contained the neutral spots logo at the top of the remittance form. The neutral message on the exterior was similar to one used in previous year's campaigns and asked, "Have you been to your public library lately?"

The message is "neutral" in the sense that it is the text which the library used in previous years' fundraising drives ("Have you been to your public library lately?") and therefore does not represent a change from how donations were solicited in previous years. The inverted eyespots was the other component of the neutral treatment. The "neutral" spots were taken from studies that measure neural responses to non-face like and face-like images among infants. The neutral constellation of these spots elicits different neural reactions than the eyespots constellation. These findings are reviewed in Bednar and Miikkulainen (2003)[5], referenced in Milinksi and Rockenbach (2007) and they are the identical stimuli used in Rigdon et al. (2009).

The eyespots package consisted of the same materials. It included the identical neutral message used in the baseline on the exterior of the envelope but had an "eyespots logo" on the outside of the envelope, on the appeal letter and on the top of the remittance form (Figure 1a, panel B).

Figure 1a and 1b about here.

The reciprocity message packet included the identical neutral spot logo used in the baseline treatment. However, the message on the outside of the envelope read "You count on your community, can they count on you?" (Figure 1b, panel B).[6] The messages and

[5] See figure 5 and the comparison of figure D to G in Miikkulainen 2003.

[6] A very similar message was used in Goldstein et al. (2007). There, like in our study, the authors interpret the message to evoke a norm of reciprocity for a debt already incurred by the requesting party.

logos from all three treatments are depicted in Figures 1a-1b (full materials are provided in the Appendix).

The library also provided us with access to their card catalogue. We merged the card catalogue data (using name and address information) with the names that comprised our donor mailing list. As a result, we have information on each potential donor's library usage merged with the donor database (where previous donation history is tracked).

Of the 1,078 individuals who received the baseline logo, 4.73% were existing donors (individuals who had previously contributed). [7] Of the 2,180 individuals who received the eyespots logo, 5.83% were existing donors, and of the 2,179 individuals who received the reciprocity message, 5.83% were existing donors.[8] Thus more than 90% of those receiving a solicitation in each treatment were individuals who had library cards (and had used them in the last three years) but had no donated previously. We test for random assignment of potential donors to our treatment conditions on observable dimensions (eg. donor age, library use, previous donations, zip code). We find no relationship between treatment assignment and any of the observable dimensions (results are reported in the Appendix, section 2.1).

Results

[7] Those who contributed to the capital campaign in the months just before our study started (n=391) were dropped because of the special (one time) nature of the capital campaign and the possibility that it would crowd out the intent to donate again so shortly after.

[8] We opted to place more of our subjects in the treatment conditions because we believed (ex-ante) that the variance in donations in our treatments would be larger than the variance in our baseline. For example, in Ekstrom (2012) we use Levene's test of unequal variances in the proportion donated in his control and his eyes treatments and find that the variances are not equal ($p<0.01$) between treatment and baseline. Following List (2011) we wished to maximize the efficiency of our treatments (since the response rate is also historically only just over 3%), so we designed the intervention with unequal sample sizes.

Figure 2 plots the response rates (and standard errors) in the baseline (1.2%), eyespots (2.2%) and reciprocity message (3%). There are very few patrons who give in the baseline (n=13; average of $24.23 donated) and for this reason we report the results of both non-parametric and parametric tests for our analysis.

To test whether the treatments increased the number of donors, we run non-parametric tests on the equality of proportions to compare participation rates between the baseline and the eyespots treatment and find that this is significant at $p<0.05$. Similarly, a test of proportions participating in the baseline and in the reciprocity message is significant at the $p<0.05$ level.

Figure 2 about here

Figure 3 plots the unconditional mean donations made in the baseline, eyespots and reciprocity message treatments in panel A and the conditional donations in panel B. We see that both treatments increase the average donation relative to the baseline. Comparing unconditional donation amounts, donors who received the baseline solicitation contributed $0.29 on average while donors who received the eyespots solicitation contributed $0.99 and those who received the reciprocity message contributed $1.05. Mean donations (conditional on making a donation) are $24.23 in the baseline, $43.3 in the eyespots treatment and $35.95 in the Reciprocity Message treatment. A Two-sample Wilcoxon rank-sum test comparing donations in the eyespot to baseline is significant at the $p<0.05$ level. However, comparing the reciprocity message to the baseline finds no significant differences ($p=0.43$). Using the same non-parametric approach, we can also compare the donation amounts in the eyespots and reciprocity; we find marginal *significance ($p=0.07$).*

Figure 3 about here.

Table 1 reports the relevant descriptive statistics as well as the Wilcoxon rank-sum tests. In pair-wise comparisons of the baseline to treatment, the Wilcoxon rank-sum tests reject that the donations are from the same distribution.

Table 1 about here.

Having tested the basic results of the experiment using non-parametric tests, we now wish to run regressions; however, these impose more restrictive assumptions on the data. The typical approach, is to run a probit predicting participation and then a second regression, usually OLS, on donation amounts that is conditional on participation (ie. non-zero donations). However, because a large portion (97%) of the data contain zeros – ie there are lots of corner solutions – we opt to use a hurdle model.[9]

Both Wooldridge (2010) and Cameron and Trivedi (2010) suggest using a two-step model that addresses corner solutions. Cragg's two part model uses a probit to predict the participation decision (step one) and a truncated normal regression (step two) to predict the conditional donation amount (Cragg 1971). The advantage of a hurdle model is that it overcomes a key limitation to other censored data approaches (such as using the tobit model) because it allows participation and donation amount to be determined by separate processes through the incorporation of a probit model in the first tier and a truncated normal model in the second regression. It also assumes that the latent variable has a truncated

[9] One approach is to use the 'standard type I tobit' model – treating the $0 donations as a corner solution. However there are shortcomings to such an approach. The tobit model assumes that a single process determines both the value of the continuous observations (donation amounts) and the discrete process (decision to donate). This is a very restrictive assumption; one can easily imagine that the decision to donate and the decision regarding how much to donate may reflect a two-part decision process. Second it might not be appropriate to treat the $0 observations as censored since "a zero is a zero" in our context. Though we report the tobit regressions in the Appendix, we note here that when we computes the LM-statistic for the tobit specification, we reject the null ($p<0.05$) and conclude that a tobit specification is unsuitable. Further, as Wooldridge notes, in the context of charitable donations, "We cannot think of a counterfactual for y in the two different states ("How much would the family contribute to charity if it contributes nothing to charity?" "How much would a woman work if she is out of the workforce?")."

normal distribution; thus, the support for the latent variable is (0, infinity) which means that there is no possibility that the model predicts negative outcomes on the dependent variable.

Note, that our decision to use the two-step or hurdle model is consistent with the practice of running two separate regressions: one on the decision to donate and a second on the donation amounts. The approach differs in that we don't run an OLS in the second step but use a truncated normal model and we use the Craggit command in Sata.

Formally, the model can be described as:

$$y_{i,1}^{*} = w_i'\alpha + v_i \qquad \text{Participation equation}$$

$$y_{i,2}^{*} = x_i'\beta + u_i \qquad \text{Donation amount equation}$$

$$y_i = x_i'\beta + u_i \qquad \text{if } y_{i,1}^{*} > 0 \; and \; y_{i,2}^{*} > 0$$

$$y_i = 0 \qquad \text{otherwise}$$

In the first part of the estimation process we use the full data set to estimate the treatment effect on the probability of making a contribution. In the second part of the estimation we use only the positive donation observations to estimate the treatment effect on the donation amount.

Table 2 and 3 about here.

Table 2 reports the analysis on the eyespots and baseline data while table 3 reports the analysis on the reciprocity message and baseline data.

For each treatment, the top panel reports the "yes/no" decision to respond to the solicitation and the bottom panel reports the truncated normal estimates for the decision to

donate a non-zero amount.[10] Both panels include an indicator for whether the patron was in the treatment or the baseline, the dollar amount of the patron's last donation, the total number of times a patron previously donated to the library and the current number of books checked out from the library and an interaction between the current number of books checked out and the treatment dummy.

Focusing just on table 2, the first specification tests for the effect of treatment on participation and donation amount without controls (column 1) while the second two specifications add additional controls. Without controls, the eyespots treatment significantly increases the probability of making a donation (column 1, β=0.259, $p<0.01$). Once we include controls, the eyespots treatment no longer significantly increases the probability of a response over the baseline (column 2, β=0.113, p=0.163; column 3 β=0.133, p=0.333). The impact of eyespots on donation amount is significant across specifications. Without controls, eyespots increases donation amount by \$53.81 ($p<0.01$) when no controls are included, and with controls by \$30.47 ($p<0.01$; column 2) or \$25.86 (p=0.058; column 3). One way to think about this result, is that once we add controls some of the explained variation shifts toward personal characteristics and decreases the impact of the treatment effect (making it harder to detect the result).

On the other hand, the reciprocity message does increase the probability of a response significantly over the baseline (column 1, β=0.365, $p<0.01$; column 2, β=0.286, $p<0.05$; column 3; β=0.335, $p<0.05$). In the bottom panel we see that the reciprocity message

[10] We also test the truncated normal hurdle model against the log normal hurdle model. The models differ on their assumption regarding the latent variable. The former assumes that the latent variable has a truncated normal distribution and the latter assumes that the latent variable has a log normal distribution. The Vuong test rejects the log normal model in favor of the truncated normal in both the eyespots and the reciprocity regressions at the $p<0.01$ level.

increased the average dollars donated relative to the baseline; when no controls are included the coefficient is insignificant ($170.82; n.s.) however, with controls the treatment increases contributions by $6.01 ($p<0.05$; column 2) and $5.53 ($p<0.05$; column 3).

In short, the eyespots and reciprocity treatments both increase giving on both margins. However, reciprocity has a larger impact on the extensive margin while eyespots and reciprocity have similar effects on the intensive margin.[11]

One prominent explanation for the effect of normative cues is that they make people aware of norms which, once aware of, they wish to comply with because either they have internalized the norm or because there may be social consequence if others are willing to punish those who break the norms (Fehr and Fischbacher 2004; Gintis 2009). However a competing explanation is that actors have reputation-maintenance motivations. In these theories, norm compliance happens because the act serves as a signal to others which, in turn, builds reputation (Fehr and Schneider 2013). If reputation is a motivator for choice, then norm compliant actions should increase when actors believe they are likely to be in repeated interactions. By interacting a measure of repeated interactions with the treatment dummies, we can create an imperfect test to distinguish between these two different explanations. We can test whether those who are likely to interact with the library repeatedly are more greatly affected by the treatments than those who do not. We can also think of such an interaction as allowing us to assess whether people who use the public library the most are also most willing to donate.

[11] This can be seen in a pooled model which we include in the appendix in section 2.4.

Our measure of repeated interactions is the current number of books a patron has checked out (this ranges from 0 to 84 with a mean of 1.67).[12] This measure is nice because of the particulars of this library – the library is small and the small staff do both the fundraising and the running of the front desk. Thus, patrons are known to the staff and when a patron enters the library to check out a book he is also likely to come face to face with the person managing the fundraising.

What we find is that for eyespots the interaction effect in the first tier is insignificant (β=-0.008; p=0.706) and, though positive and significant in the second tier the effect size is small compared to the main effect of eyespots (β=0.741, p<0.01 for the interaction as compared to β=25.86, p<0.01 for the eyespots indicator variable; column 3). However, even with reputation based models, the norms may guide *which* behaviors are the ones that garner the actor a good reputation. In the reciprocity message treatment we find that interacting the current number of books checked out with treatment is insignificant in the first and second tier (β=-0.024; p=0.125 in the first tier; β=-0.323; p=0.376 in the second tier) while the indicator variable for treatment remains significant in both tiers. Thus, the data do not appear consistent with a reputation-maintenance model but rather with a desire to comply with social norms that is triggered with the cues. However, in the case of the eyespots treatment, the data support a small additional effect of increasing donations among those who use the library more.

Conclusion

[12] Rather than choose a patron's lifetime number of books checked out, we chose the current number of books checked out because the lifetime number of books is not recorded in a fashion that allows us to account for when the books were checked out (a patron could have been very active many years ago or just recently and we would not be able to distinguish this). By using the current number of books checked out, we confidently capture those who are currently using the library and distinguish them from those who have done so sometime in the previous 3 years (the window the library keeps records on).

A large body of research in psychology and economics references of directly studies the influence of normative cues on behavior. Yet it remains unclear whether such normative cues affect the intensive or extensive margin of behavior. If cues affect only one margin, or affect different margins (depending on the cue) or affect both margins, then it is possible that the effect of normative cues is missed, or deemed small or deemed fickle and hard to capture or model. In this paper we leverage the two stage decision process associated with making a contribution to a public library to test the channel through which these cues operate.

We find that both cues significantly affect donation behavior and that they both do so by increasing the amount of the donation while only the reciprocity message also increases the likelihood of deciding to donate. Our results imply that social norm cues may not uniformly affect the decision process, but can have a differential impact on those who are already inclined to engage in a particular behavior. This finding is important because it tests the channel through which cues in the environment enhance norm compliance. By unpacking the effect of the cues on the decision making process we are able to demonstrate an economically sizeable effect while also shedding light on why the effect of normative cues on behavior may seem so unstable or small.

It is a little bit surprising that eyespots impact the intensive margin but not extensive margin. Based on the social observation frame work we would have predicted both an extensive and intensive margin effect. DellaVigna et al.'s result would suggest that (implied) social pressure should increase both margins. Ekstrom finds that both are increased as well but only on days where there are few people in the market. We can only

posit that perhaps the social observation cue has a, relatively, stronger effect on the intensive margin because actors try to match or exceed what is expected of them.

Finally, our work has practical implications. The use of message-based cues is one of the most straightforward environmental cues one can deploy – these cues are pragmatic and relatively inexpensive ways to reach many people. Messages can remind people of what the injunctive norm is for a particular context and thus focus attention on the norm. But there is a second way that messages can affect behavior: a message can remind people that they will be disapproved of if they fail to comply with the social norm. In practice however, the use of messaging to remind actors that others will disapprove of non-normative behavior is not often employed – perhaps because it runs the risk of raising defensiveness on the part of the recipient or could result in some negative consequence for the user of such cues. Our minimal eyespots treatment can be seen as a way to leverage evaluation concerns to motivate behavior *without* producing negative consequences for the user and may explain why the eyespots cue yielded so much larger of an effect on donations than the reciprocity message.

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Tables

Table 1. The Unconditional Mean Contribution in the Baseline, Eyespots and Reciprocity Message Treatments

	N	Mean	SD	Min/Max	Wilcoxon z-value comparing Baseline to treatment
Baseline	1,078	$0.29	$3.01	$0 / $50	
Eyespots	2,179	$0.99	$7.96	$0 / $100	-2.141*
Reciprocity Message	2,180	$1.05	$8.42	$0 / $200	-3.066**

Table 2: Treatment Effect on the Probability and Amount of Donation for Eye Spots

STEP ONE: Participation Decision	Model: Probit From Cragg's two-step model		
	1	2	3
'Eye spots' indicator	0.259	0.113	0.133
	[0.04]**	[0.081]	[0.137]
Last $ donated		0.015	0.015
		[0.001]**	[0.001]**
Total # times donated		0.394	0.394
		[0032]**	[0.033]
Curr. # books borrowed		0.014	0.019
		[0.002]**	[0.014]
'Eye spots' indicator X Curr. # books borrowed			-0.008
			[0.021]
Constant	-0.255	-2.517	-2.531
	[0.026]**	[0.068]**	[0.107]**
STEP TWO: Donation Amount Decision	Model: Truncreg		
'Eye spots' indicator	53.812	30.472	25.862
	[19.167]**	[14.034]**	[13.635]^
Last $ donated		0.010	0.102
		[0.034]**	[0.034]**
Total # times donated		4.383	4.341
		[0.815]**	[0.838]**
Curr. # books borrowed		0.957	0.317
		[0.028]**	[0.169]^
'Eye spots' indicator X Curr. # books borrowed			0.741
			[0.220]**
Constant	-30.181	-10.947	-6.263
	[18.549]^	[14.251]**	[12.950]
Sigma	41.489	30.162	29.787
	[2.214]**	[2.083]**	[2.180]**
N	3,253	3,253	3,253
Log-Likelihood	-596.322	-500.978	-500.697

Note: Standard errors are in square brackets, all regressions are clustered on zip code.

Table 3: Treatment Effect on the Probability and Amount of Donation for Reciprocity

STEP ONE: Participation Decision	Model: Probit From Cragg's two-step model		
	1	2	3
'Reciprocity Messg.' indicator	0.365	0.286	0.335
	[0.092]**	[0.163]*	[0.163]*
Last $ donated		0.011	0.011
		[0.001]**	[0.001]**
Total # times donated		0.481	0.477
		[0.031]**	[0.031]**
Curr. # books borrowed		0.008	0.019
		[0.014]	[0.014]
'Recpcty' indicator X Curr. # books borrowed			-0.024
		[0.016]	[0.016]
Constant	-2.255	-2.497	-2.525
	[0.026]**	[0.104]**	[0.104]**
STEP TWO: Donation Amount Decision	Model: Truncreg		
'Reciprocity Messg.' indicator	170.816	6.012	5.528
	[214.993]	[2.920]*	[2.859]*
Last $ donated		1.108	1.081
		[0.179]**	[0.178]**
Total # times donated		1.182	1.266
		[1.341]	[1.133]
Curr. # books borrowed		0.227	0.191
		[0.088]**	[0.073]**
'Recpcty' indicator X Curr. # books borrowed			0.324
			[0.366]
Constant	-416.591	-23.980	-23.864
	[753.019]**	[26.352]	[26.374]
Sigma	105.918	27.339	27.333
	[94.325]**	[13.203]*	[13.204]*
N	3,257	3,257	3,257
Log-Likelihood	-706.629	-598.807	-598.145

Note: Standard errors are in square brackets, all regressions are clustered on zip code.

Figure captions

Figure 1a. **Baseline and Eyespots solicitations.** Examples of materials received by 1,165 potential donors in the baseline treatment (A) and 2,329 potential donors in the eyespots treatment (B).

Figure 1b. **Baseline and Reciprocity Message solicitations.** Examples of materials received by 1,165 potential donors in the baseline treatment (A) and 2,334 potential donors in the reciprocity message treatment (B).

Figure 2: Figure 2 reports the response rates (and standard errors) in the baseline (1.2%), eyespots (2.2%) and reciprocity message (3%).

Figure 3: Figure 3 reports the unconditional mean amounts contributed (and standard errors) by donors receiving the baseline, eyespots and reciprocity message.

Figure 1a

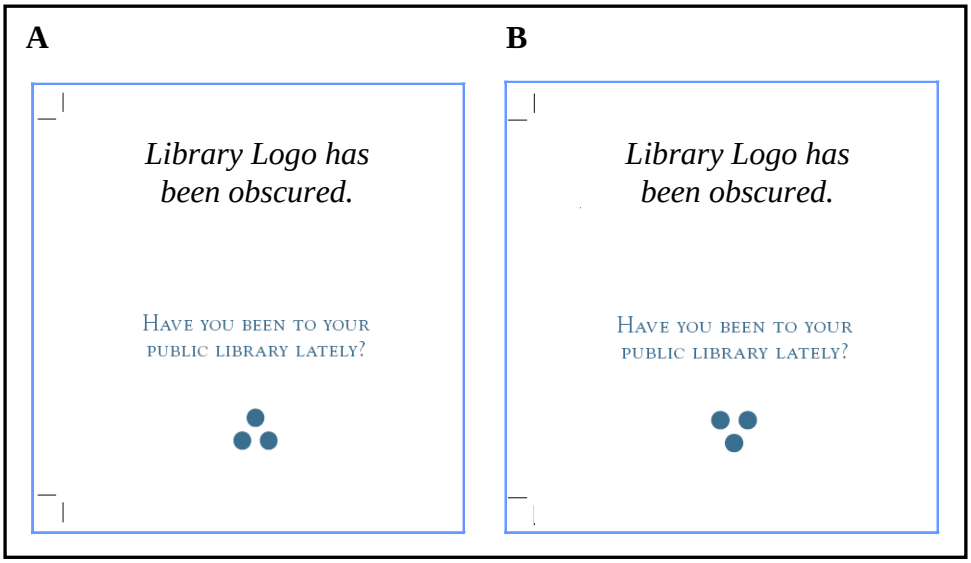

Figure 1b

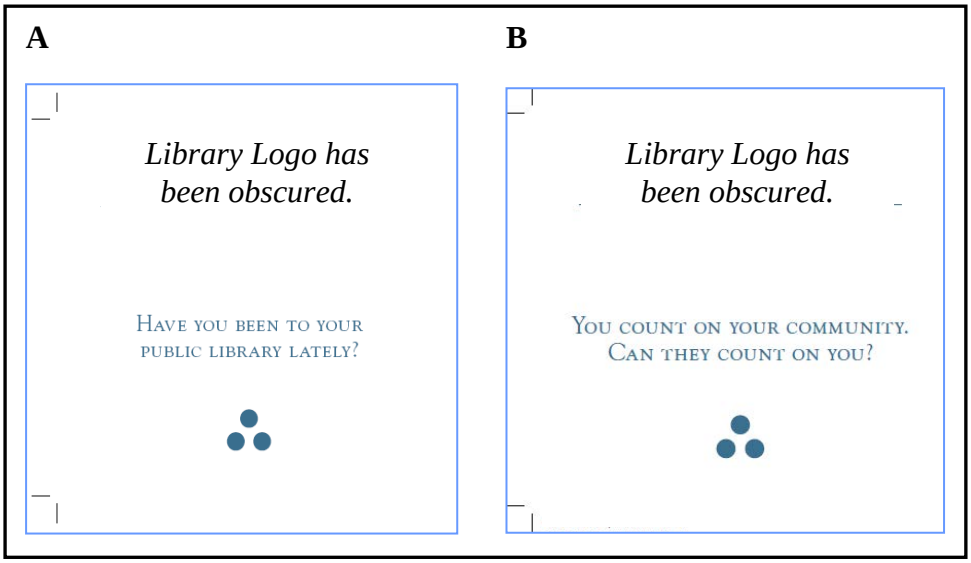

Figure 2. Response Rate in Baseline, Eyespots and Reciprocity Treatments

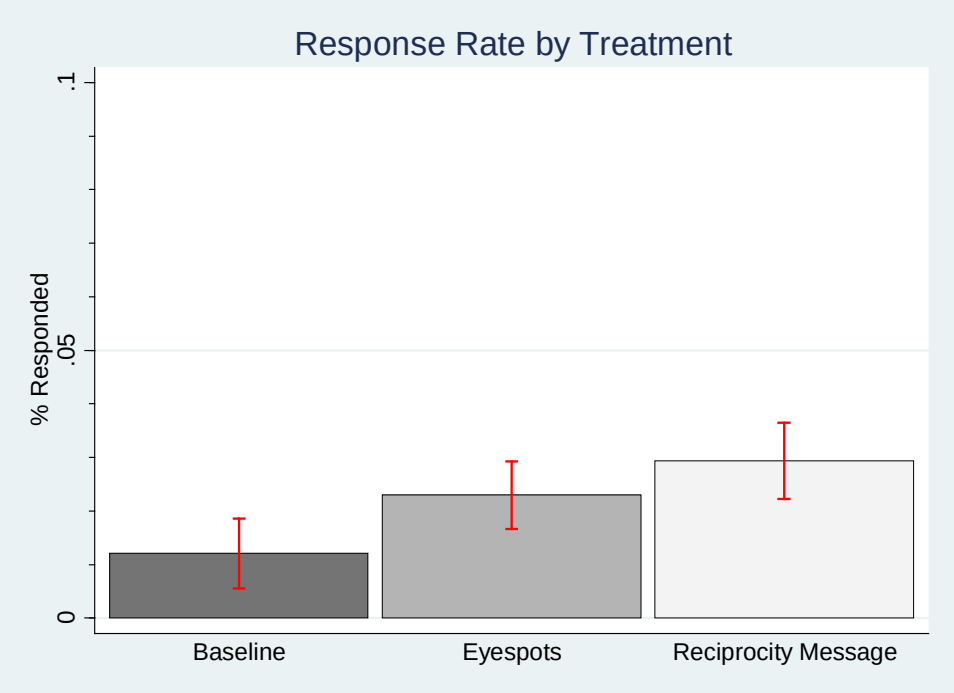

Figure 3. The Mean Contribution in Baseline, Eyespots and Reciprocity Treatments