

# The Focusing and Observational Effects of Norms

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## Abstract:

This paper reports the results of an experiment examining the effect of norms on altruistic behavior in a non-strategic economic environment. Work in psychology suggests that thinking about or viewing the behavior of others enhances norm compliant behavior. In three treatments, subjects make a simple binary allocation decision similar to a dictator decision context. In a control treatment subjects simply make the choice. The first experimental treatment examines the effect of focusing subjects on what others might do when faced with an identical decision. Such “focusing” produces a significant change in behavior in the direction of greater sharing even though subjects don’t think others are generous. The second treatment examines the pure “observational” effect of norms by presenting subjects with information regarding the actual choices of previous participants. We find that observing the behavior of others, whether others share or not, increases the frequency of sharing, and that observing more sharing also produces greater sharing. This experiment eliminates strategic influences present in previous experiments and demonstrates a direct effect of norms on behavior.

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## **I. Introduction**

This paper addresses the influence of norms on economic behavior. Social scientists in economics, social psychology, and sociology all recognize the importance of norms in decision making.<sup>1</sup> The potential importance of norms is also recognized by municipal bodies struggling to find cost effective ways to encourage pro-social behavior. For instance, the Chicago Port Authority recently (2004) instituted a loud speaker system on its busses prompting patrons to be courteous.<sup>2</sup> Throughout the 1990's police forces shifted from squad car to foot patrols because it was thought that increased contact between civilians and officers would enhance norm compliant behavior (Wilson and Kelling 1982). This intervention was, in part, informed by an influential study conducted by Zimbardo in which he theorized that cues in the environment could increase the likelihood of certain norm-compliant behaviors over others (Zimbardo 1969).

As communities struggle with ways to enforce and promote pro-social behavior through norms, social scientists have had a difficult time determining the precise underlying mechanisms that, when activated, motivate norm-compliant behavior. No carefully controlled study in economics has directly examined the effect of norms on behavior, while eliminating other possible influences such as strategic considerations. And yet, if our intuition that norms exert a direct influence on choice is correct, then empirically demonstrating how and when norms play a role is a valuable endeavor.

Recent work in psychology suggests that the influence of a norm is crucially related to the degree to which individuals' attention is focused on the norm. That is,

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<sup>1</sup>See, for instance, Bar-Hillel and Yaari; Arrow 1971; Kahneman, Knetsch et al. 1986; Andreoni 1990; Cialdini, Reno et al. 1990; Sunstein 1996; Kallgren, Reno et al. 2000; Chekroun and Brauer 2002; Camerer and Fehr 2003; Bicchieri, 2005.

<sup>2</sup> Chicago Tribune, January 27, 2004

individuals do not always have norms in mind, and when they don't norms exert no effect on behavior. Thus, drawing attention to a norm, or "focusing," is a crucial component of producing behavior compliant with that norm. As one set of experiments in psychology demonstrate (Cialdini, et al., 1990), this means that the influence of environmental cues on norm-compliant behavior can sometimes produce counter-intuitive patterns. For instance, observing some anti-social behavior (such as littering), might actually produce less of such behavior (if it draws an individual's attention to the norm).

This paper describes an experiment, based on a theoretical framework developed in social psychology, addressing the influence of focusing on norm-compliant behavior in an economic decision involving pro-social behavior. We find that thinking about what others will do or observing others' behavior both have a direct and positive effect on pro-social behavior even when subjects don't think others are generous or when they observe others behaving selfishly. We present this as evidence of the focusing effect found in social psychology.

While previous experiments in economics examined similar treatment variables (allowing subjects to observe the behavior of others, having them think about the behavior of others), all of this previous work explored behavior in multi-player games in which the direct effect of norms on behavior cannot be separated from indirect effects due to strategic considerations. In our experiment, we eliminate such effects by using a decision in which only one subject in each pair makes a binding choice. This removes the possibility that behavior is primarily, and indirectly, influenced by affecting expectations of what other players are likely to do.

The paper is divided into sections as follows. Section II reviews work on norms in psychology and, in particular, the theoretical and experimental work on focusing and spreading activation. Section III describes the experimental methodology and Section IV presents the results. Section V concludes.

## **II. A review of related work**

This section provides background on related research in psychology and economics. We focus our attention on work in psychology (Cialdini, et al., 1990; Harvey and Enzle, 1981) that will directly motivate our experiment.

### *Research on norms in social psychology*

Numerous studies in psychology demonstrated an influence of norms on behavior and that thinking about what others are going to do or observing others' actions consistently evoked norm-complaint behavior (Sherif 1935; Asch 1956; Milgram, Bickman et al. 1969; Zimbardo 1969; Berkowitz 1972; Krauss, Freedman et al. 1978; LaTour and Manrai 1989). Based on this body of research, Harvey, Enzle (1981) and later Cialdini and colleagues (e.g., Cialdini, et al., 1990; Kallgren, et al., 2000), developed a theory in which norms are influential only when an individual's attention is focused on the norm. This theory of norms is strongly connected to the concept of focusing and the theory of spreading activation.

In psychology, "focus" is defined as a state of heightened awareness. It refers to the state in which an agent finds himself after observing cues relevant to a particular

concept or behavior. When an agent is focused by cues he is described as more likely and/or faster to recall ideas, words or behaviors (such as norms) related to those cues.

Spreading activation theory describes how cues in the environment can produce focusing. Conceptual networks are organized according to semantic similarity (Collins and Quillian 1972; Collins and Loftus 1975). Concepts are represented as nodes in a network (like a spider web) and linked to other nodes with similar properties.<sup>3</sup> Concepts, and their meanings, are retrieved through spreading activation. Thinking about or seeing a construct (the prime) activates the mental representation of it and then spreads activation, at a decaying rate, from the initial construct to related constructs (the targets) along the pathways that connect the nodes.

Harvey and Enzle adapted spreading activation to norms as a way to understand helping behavior (Harvey and Enzle 1981). As in spreading activation theory, they posit that representations of norms are stored in memory and that access to those representations is triggered by environmental cues (primes) to which the norm applies.<sup>4</sup> Norms are activated with a prime, whereby the prime could be words or actions that are related to the target behavior. Spreading activation implies that the accessibility of a target norm, given a prime, is increased the closer the target norm is to the prime.

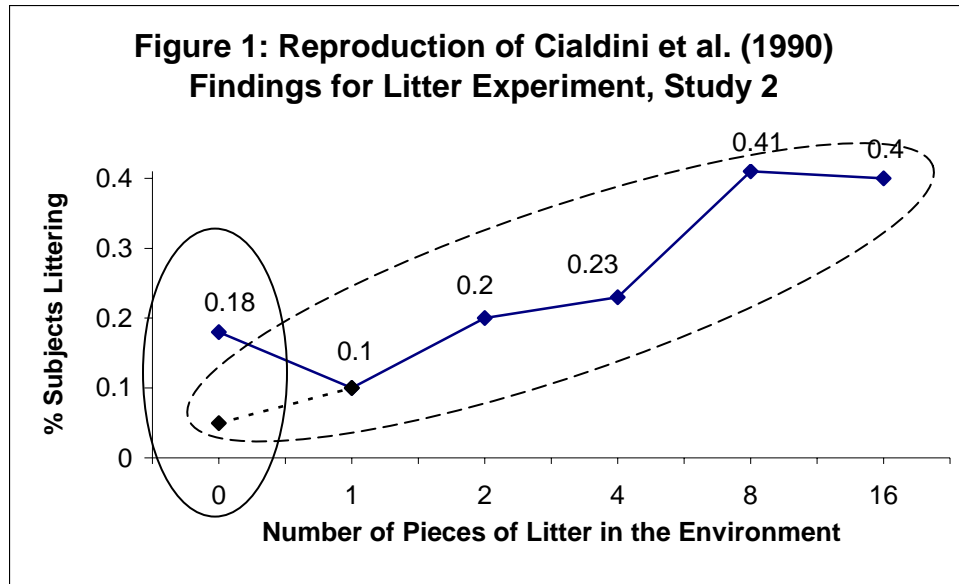
As researchers investigated spreading activation theory in the context of norms, several cues were found to effectively gain attention and prime pro-social norms. For instance, drawing individuals' attention to a prescriptive statement related to the norm or

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<sup>3</sup> For example, *car* and *truck* are each nodes. They have more links between them (a link for being machines, having to do with transportation, having tires etc.) than exist between *car* and *apple*. See McNamara and Holbrook (2003)

<sup>4</sup> Norms that are related to one another are stored in networks that are proximally closer than norms that are not closely related to one another and the psychic distance between norms corresponds with the strength of relation.

to norm-related thoughts was found to increase norm-compliant behavior (e.g. Cialdini, et al., 1990; Maxwell, et al., 1999). More importantly for our purposes, observing what others have done or thinking about what they are likely to do was similarly found to have a norm-focusing effect (e.g., Cialdini, et al., 1990; Harvey and Enzle, 1981).



Cialdini et al.’s work on focusing and norms is an important motivation for our experiment. Cialdini et al. (1990) tested the influence of norms on behavior, in the context of littering decisions. Based on their focus model, they predicted a “check mark” function (see Figure1 – the solid line), in which the likelihood that a subject litters generally increases with the number of pieces of litter in the environment (as subjects infer whether the “no littering” norm applies to the environment) but in which the frequency of litter is higher when there is no litter in the environment than when there is one piece of litter. The rationale behind this counter-intuitive prediction is that the absence of litter results in a lack of focus on the appropriate norm, while the presence of

even only one piece of litter acts as a cue that focuses subjects on the norm that littering is bad.<sup>5</sup> They find evidence of such a predicted effect across several experiments.<sup>6</sup>

Looking at Figure 1, we see that Cialdini, et al.'s, results on the influence of norms on littering behavior can be divided into two separate effects. The “observational” effect of norms refers to the positive relationship between how much litter an individual observes and how much that individual litters. This observational effect is denoted by the dashed-oval that traces out increasing littering rates as the number of pieces of litter is varied in the environment.

The “focusing” effect of norms refers to the impact of drawing attention towards a norm. The focusing effect produces the change in direction to the left of Figure 1 (the difference between the solid and dotted lines highlighted by the solid oval). The dotted line represents an extension (not observed by Cialdini et al.) of what presumably would have happened had there been a cue drawing subject’s attention to the fact that there was no litter in the environment. Presumably, this cue would have focused subjects on the anti-littering norm and on the fact that it was highly adhered to, and would have therefore lead to even lower littering rates. But, because subjects were not focused, they littered more than when there was 1 piece of litter.

### *Our experiment*

Our primary goal in this paper is to separately demonstrate the above two effects of norms in a non-strategic economic decision context. That is, we explore

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<sup>5</sup> They also predict, and find, that the more unsightly or prominent litter is the stronger the effect it will have.

<sup>6</sup> They do not get statistical significance in study 2, the graph reproduced below. But in subsequent studies they do find a statistically significant difference. We use the study 2 graph because it is particularly intuitive for conveying the intuition underlying all their studies.

whether behavior can be significantly influenced both through an “observational” influence of norms and also through a “focusing” influence. It is important to separate these two effects, since the results of Cialdini, et al., suggest they can influence behavior independently, and can counteract one another.

To this end we conduct an experiment in which subjects are faced with a binary choice in which they can either behave selfishly or pro-socially. If they act pro-socially, they produce equity and maximize social welfare. Thus, our experiments test the injunctive norm of behaving pro-socially. To separately test the two above influences of norms, we conduct two treatments: a *focusing* treatment and an *observational* treatment.

In the observational treatment, subjects draw 4 envelopes from a box containing choices made by previous participants. Thus, as with the larger oval on the right side of Figure 1, this treatment tests the direct influence of observing more or less people taking the pro-social action. The other treatment tests the focusing effect represented by the smaller oval on the left of Figure 1. We manipulate focusing by comparing a condition in which subjects make choices without any mention of the behavior of others to one in which their attention is drawn to the likely behavior of others by asking subjects to predict what others did.<sup>7</sup>

We find evidence of both effects. We find an influence of focusing in both the observational and focusing treatments. Specifically, we find that, relative to a control, asking subjects what they think others do produces more pro-social behavior and that showing subjects what others do also produces more pro-social behavior (even when subjects observe most others behaving selfishly). We also find evidence of the

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<sup>7</sup> We also include a condition in which subjects are directly focused on the norm (i.e., by asking them what others think should be done).



observational effect: observing more people behaving pro-socially produces more pro-social behavior.

*Related work on focusing and observational history*

Some previous experimental studies use treatments similar to our focusing and observational conditions. Here we review this work and note that none tests a direct effect of norms on behavior.

A few studies explore the effect of pre-play belief-elicitation on the behavior of subjects. For instance, Dawes, et al. (1977) and Croson (1999 & 2000) elicit beliefs about the likely behavior of other players prior to the play of a game. In this respect, their treatment is very similar to our focusing treatment. However, there are two important distinctions between this work and ours. First, subjects in Dawes, et al.'s, and Croson's experiments played games – such as a public goods game – against other subjects. Since subjects in such games care about reciprocating the behavior of others (see Rabin, 1993), the expectations of opponents' behavior are crucial. Asking people to think about what others do, aside from focusing subjects on a norm, might also influence their beliefs of what others are likely to do (especially if they know others are being asked the same question). This might therefore affect their actions for a reason other than focusing them on a pro-social norm and that norm exerting a direct influence on their behavior.<sup>8</sup> Second, in most of these studies the elicited beliefs dealt directly with what

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<sup>8</sup> Pillutla and Chen (1999) and Rege and Telle (2004) introduce a focusing treatment into a public goods game in a slightly different way – they change the labeling of the game to elicit norms of cooperation or self-interest. For instance, Pillutla and Chen refer to the game as either a “joint investing fund” (economic context) or a “social event” (non-economic context). They find greater contributions in the non-economic context, and argue that this is because different contextual cues prime different norms. However, the strategic nature of the interaction makes it possible that the influence on behavior is due to expectations.

the particular player expected his or her opponent(s) to do in the next play of the game. As a result, such elicitation might lead subjects to think more strategically or to believe that others will behave more strategically (perhaps allowing them to recognize dominant strategies in PD or public goods games).

Several studies also provide evidence that observing others' past actions, as in our observational treatment, influences behavior. For instance, Berg, et al. (1995), Duffy and Feltovich (1999), and Bohnet and Zeckhauser (2003) all find an effect of showing choices previously made by other participants to subjects about to play sequential games (such as the ultimatum game). Moxnes and Heijden (2000) and Rege and Telle (2004) find that showing laboratory subjects about to play a public goods game the behavior of previous subjects impacts behavior, while Frey and Meier (2002), Shang and Croson (2003), and Soetevent (2004) find similar results in field settings.<sup>9</sup> While these results are consistent with the prediction that observing others' behavior produces focusing on norms, the strategic nature of the games again raises a concern that the observation of behavior influences expectations of others' behavior, and therefore influences behavior through such expectations. For instance, someone observing uncooperative behavior among people who play public goods games might contribute less because they now expect others (who also observed lower cooperation) to also contribute less.<sup>10</sup>

Therefore, while treatments similar to our focusing and observational treatments have been used in previous experiments, none of these tests whether such

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<sup>9</sup> A number of papers examine the effect of false feedback about what counterparts are doing in strategic contexts (Messick, et al., 1983; Schroeder, et al., 1983; Poppe and Utens 1986; Fleishman 1988). The results of these studies all find a positive relationship between observed behavior and subjects' choices.

<sup>10</sup> In addition, several of these studies involve repeated play (e.g., Croson, 1999, 2000; Pillutla and Chen, 1999, Bohnet and Zeckhauser, 2003, Duffy et al. 1999, Moxnes et al., 2000), which makes it even more difficult to infer the direct effect of observation on behavior, absent any strategic influences.

influences affect behavior absent any strategic considerations. Indeed, no previous economics experiment manipulates focusing and observational history in a single-shot decision context where outcomes only depend on the actions of one player. Our experiment, which uses a “game” in which outcomes are determined only by one player and in which there is no repetition, allow us to evaluate the pure effect of our manipulations and therefore to more precisely address whether the change in behavior is the result of greater norm-compliance.

### III. Experiment Design

We use a binary dictator game in which subjects choose between two options, each of which allocates some money to the chooser and to a randomly assigned recipient. Table 1 presents the game as it was shown to subjects. The “pro-social” choice, X, gives \$5 to both players, while the selfish choice, Y, gives \$7 to the chooser and \$1 to the recipient.<sup>11</sup>

**Table 1: Payoffs in binary dictator game**

		Player A's Earnings	Player B's Earnings
		Player A's Choice	X
	Y	\$7	\$1

Groups of 16 to 20 Carnegie Mellon and University of Pittsburgh students recruited from an e-mail list arrived at the experiment and received instructions (see

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<sup>11</sup> This asymmetry in the payoffs was introduced so as to make the “pro-social” choice (X) both fair (payoffs are equal) and efficient (the sum of payoffs is maximized). As such, fairness and efficiency norms are not competing. The precise payoffs were chosen to generate roughly 50% of each kind of choices in the baseline/control treatment.

Appendix 2). The instructions described the game and informed subjects that every participant would specify a choice. Subjects were told that, after they made their choices, they would be randomly matched with one other participant and assigned to the role of either player A (dictator) or player B (recipient) and that their choice would only count if they were player A.<sup>12 13</sup>

We conducted four treatments, with a total of 190 subjects. The treatments are described in Table 2. In each treatment, subjects made a choice between X and Y in the above game (indicated by “Choice” in the table).

**Table 2. Our Treatments**

<b>Treatment</b>	<b>Number of subjects</b>	<b>Step 1</b>	<b>Step 2</b>
Baseline/Control	38	Choice	(Guess)
Focus (Descriptive)	34	Guess (do)	Choice
Focus (Injunctive)	18	Guess (should)	Choice
Observational	100	Observe 4 choices	Choice

*Baseline/control treatment*

In the *baseline* and *control* conditions, subjects made a choice without any prior observational or focusing intervention. Subjects in the baseline condition (1 session,

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<sup>12</sup> This was done by having each participant select a card that contained a number (1-10), specifying a match, and a letter (A or B), specifying a role within the match.

<sup>13</sup> It is possible that having subjects make choices prior to determining roles and matches might have influenced behavior. However, such an influence is constant between all our treatments. Since we are interested in changes in behavior based on – and between – our treatments, we chose this design to collect significantly more data, while allowing only the treatments to differ between conditions.

n = 18) were simply asked to choose between X and Y for the game depicted in Table 1. After making their choices they drew envelopes to determine their roles and pairings. We then paid subjects privately one at a time.

The control condition (1 session, n = 20) proceeded similarly to the baseline condition, except that after making a choice between X and Y and finding out their role, subjects were asked to guess what percentage of previous subjects had chosen X and Y.<sup>14</sup> After making a choice, subjects were instructed to guess the percentage of subjects in previous sessions who chose X and Y. Prior to making their guess, subjects each received an envelope that they were told contained the true percentages. They were told that after everyone made a guess and all sheets were collected, they could open the envelope and the experimenter would read the correct percentage aloud. Subjects were rewarded with a \$5 bonus for making a guess within 3 percentage points of the correct answer. Because the only difference between the baseline and control conditions is that control subjects made a guess *after* making a choice, we pool choices in the two conditions.

### *Focusing treatments*

We conducted two focusing conditions. The first, *descriptive focus*, tests the effect that we discussed earlier in the paper: that observing the behavior of others focuses a subject on the norm of behaving pro-socially. Recall that, based on work in spreading activation theory, we predict that thinking about the actions of others will lead subjects to consider how appropriate such actions are, thus focusing them on the pro-social norm.

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<sup>14</sup> These guesses were subsequently used in comparisons with the guesses in the Focus (descriptive) condition to determine whether guesses differed based on whether they are elicited before or after subjects made choices.

Therefore, we expect pro-social behavior to increase when subjects are asked to consider the behavior of others.

The second focusing treatment, *injunctive focus*, explores whether behavior differs from the descriptive focus condition if subjects are instead focused directly on the pro-social norm. This was done by asking subjects what they thought other people said one *should* do in such a decision context.

Subjects in the descriptive focus condition (2 sessions, n=34) made the same choice and guess as subjects in the control, except that the order was reversed. *Prior* to making a choice of X or Y, subjects in the descriptive focus condition each received an envelope, which they were instructed not to open. They were told that this envelope contained the percentage of subjects in previous sessions that had chosen X and Y. They were told that these subjects had not made a guess prior to making a choice. Subjects then made a guess about the percentage of subjects who chose X and Y. After these guesses were recorded, they made their own choice between X or Y. Roles and matching were then determined in an identical manner to the control and baseline. At the end of the session, subjects were told to open the envelope that contained the correct percentage and this number was also read aloud by the experimenter. They received a \$5 bonus for guessing within 3 percentage points of the correct value.

Subjects in the injunctive focus condition (1 session, n=18) faced the same decision but guessed what percentage of subjects said that X and Y *should* be chosen prior to making their own decision. In all other respects the order was identical to the descriptive focus condition. Subjects in the injunctive focus condition each received an envelope, which they were instructed not to open. They were told that this envelope

contained the average percentage of subjects in previous sessions that said X and Y should be chosen.<sup>15</sup> Subjects then made a guess about the percentage of subjects who said X and Y should be chosen. After these guesses were recorded, they made their own choice of X or Y. Roles and matching were then determined in an identical manner to the control and baseline. At the end of the session, subjects were told to open the envelope that contained the true percentage and this number was read aloud by the experimenter. Subjects again received a \$5 bonus if their guess was within 3 percentage points of the correct value.

### *Observational treatment*

In the observational condition, sessions consisting of 16 to 20 subjects played the same game as in the other treatments. However, prior to playing the game each subject observed the choices made by four previous participants. Recall that our discussion of previous work in social psychology (e.g., Cialdini, et al., 1990) produced the main prediction of a positive relationship between the amount of pro-social behavior observed and pro-social behavior by subjects in this treatment (the diagonal oval in Figure 1). However, since subjects' attention is being drawn to the behavior of others, as in the descriptive focusing treatment, we anticipate an increased level of pro-social behavior (X) relative to the baseline, due to subjects becoming focused on the pro-social norm.

Before conducting the observational treatment, we photocopied the actual choice sheets completed by participants in the control condition and placed them inside

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<sup>15</sup> At the end of one of the observational treatment sessions, we collected this information by asking subjects "What should one do in this situation?"

envelopes, with the participant number written outside. We made 8 such envelopes for each participant and placed them all inside a box.<sup>16</sup>

After receiving instructions regarding the game (see Appendix 2), subjects were told that prior to making a choice they would be able to observe the choices made by four participants in a previous session and that these participants had not observed the choices of previous subjects. They then took turns drawing four envelopes (with different participant numbers) from the box and wrote down the four participant numbers and corresponding choices. Thus each subject observed a history of actual choices made by four different participants in the control prior to making his or her own choice. After subjects wrote down the observed history of choices, they proceeded to make their own choices of X or Y. They were then assigned to roles and matched in the same way as in the other treatments, and were paid privately before leaving the experiment.

#### **IV. Results**

The main results are presented in Table 3 and Figure 2. Table 3 presents, by condition, the average frequency with which subjects chose X, the pro-social action (third column).<sup>17</sup> The fourth column of Table 3 presents the average guessed (control, baseline, and focusing treatments) and the average observed (observational treatment) frequencies

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<sup>16</sup> We varied the composition of envelopes inside the box slightly between sessions (by removing some participant numbers) to obtain variance in observational history. For the first 3 sessions, we did not manipulate the number of X and Y choices. However, since this produced very few observations at the extremes, we decided to manipulate the weighting. In one session we did this by using two differently weighted boxes, which together contained the whole sample. In other sessions we did this by removing the choices of a few participants but using only one box. The instructions did not state that the box included all of the choices in a previous session.

<sup>17</sup> We mistakenly allowed one subject who had previously participated in the control condition to participate again in a descriptive focus session. We, therefore, exclude this subject from the analysis. Since subjects' did not receive any feedback on what others had done until the end of the experiment, we do not worry about this subject's choices contaminating the behavior of other participants.



of subjects choosing X (or, in the injunctive focus treatment, the average guessed frequency of subject stating X should be chosen). Figure 2 presents, for the observational treatment, the proportion of subjects choosing X for every possible observation of others' actions.

As the first two rows of Table 3 reveal, the difference in frequency of pro-social choices between the baseline and control treatments is negligible so we pool the two conditions in the third row.

**Table 3: Comparison of Behavior across Treatments**

Treatment	N	Number choosing X (pro-social)	Mean guess / observation (std. dev.)
<i>Baseline</i>	18	6 (33%)	
<i>Control</i>	20	7 (35%)	<i>Guess(do) = 41.5% (35.8)</i>
<b>Baseline/Control combined</b>	38	13 (34%)	Guess(do) = 41.5% (35.8)
<b>Focus (descriptive)</b>	33	22 (67%)	Guess(do) = 39.6% (30.4)
<b>Focus (injunctive)</b>	18	13 (72%)	Guess(should) = 57.8% (26.0)
<b>Observational</b>	100	53 (53%)	Observ.(actual) = 41.5% (28.7)

Note first that the average guesses (of what percentage of others choose X) are very similar in both the control (41.5%) and descriptive focus (39.6%) conditions. These mean guesses do not differ significantly ( $t_{51} = 0.21$ ), meaning that the guesses appear not to be influenced by whether they are elicited before or after subjects make a choice.<sup>18</sup>

<sup>18</sup> The cumulative frequency of guesses for the control and focus treatments, depicted in Appendix 1, also suggests that guesses were unaffected by treatment.

The average guesses are also very close to the actual frequency of X choices in the baseline and control treatments (34%).<sup>19</sup> A comparison of the mean guesses with this actual frequency does not reveal significant differences either for the control ( $t_{19} = 0.92$ ) or descriptive focus ( $t_{32} = 1.01$ ) treatments.<sup>20</sup>

In the baseline/control treatments, in which there is no focusing manipulation, a minority of subjects (34%) choose the pro-social action X. However, in all the other treatments, in which subjects' attention is drawn either to the (likely) behavior of others or directly to the pro-social norm, the frequency of pro-social behavior is considerably higher. It is greatest in the two focus conditions (injunctive = 72%, descriptive = 67%), which do not differ significantly from each other ( $\chi^2(1) = 0.17$ ), but do differ significantly from the baseline/control (descriptive focus,  $\chi^2(1) = 7.44$ ,  $p < 0.01$ ; injunctive focus,  $\chi^2(1) = 7.10$ ,  $p < 0.01$ ). Thus, drawing subjects' attention to either the likely behavior of others or directly to the pro-social norm appear to have very similar effects, lending support to the prediction that having subjects think about the behavior of others focuses them on the pro-social norm.

The overall proportion of X choices in the observational treatment (53%) is also lower than in the baseline/control treatments, and this difference is statistically significant ( $\chi^2(1) = 3.90$ ,  $p < 0.05$ ). This is in spite of the fact that, on average, subjects observed more Y choices (58.5%) than X choices.

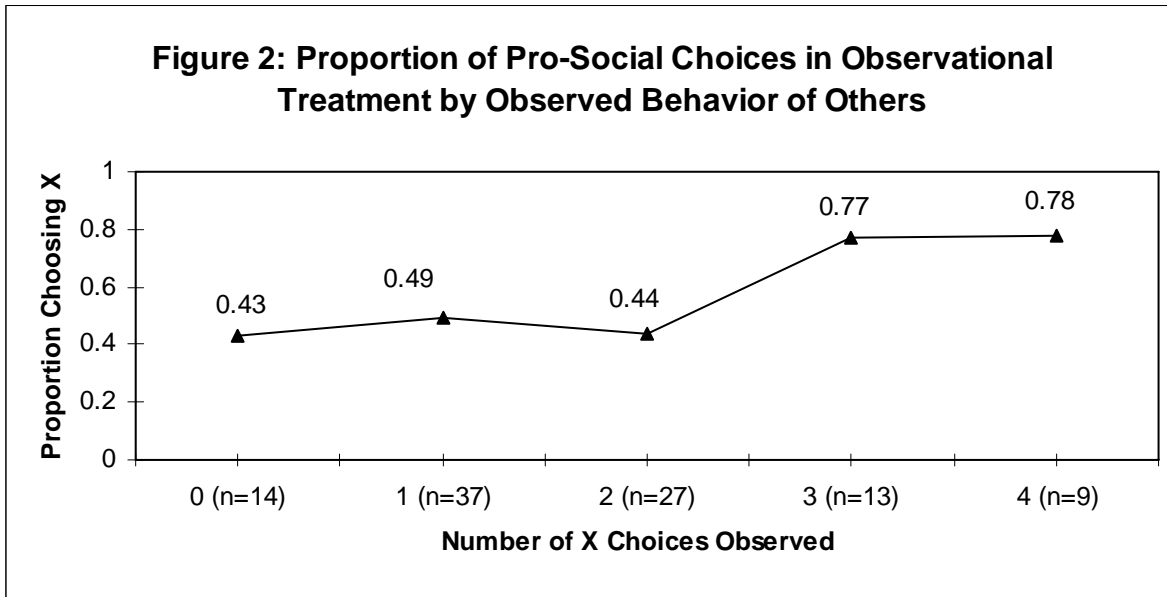
Figure 2 presents the frequencies of X choices made by subjects in the observational treatment, by the proportion of previous X choices observed. 14 subjects observed all selfish choices (YYYY), 37 observed 1 pro-social choice and 3 selfish

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<sup>19</sup> Carpenter and Matthews also find that subjects are well calibrated about the behavior of others (Carpenter and Matthews 2005).

<sup>20</sup> The correlations between guesses and choices are all positive. They range from 0.34 to 0.67.

choices (XYYY), 27 observed 2 pro-social choices and 2 selfish choices (XXYY), 13 observed 3 pro-social choices and 1 selfish choice (XXXY) and 9 observed all pro-social choices (XXXX).



The graph reveals a general trend consistent with the results obtained by Cialdini, et al. (1990). Subjects exhibited the greatest frequency of pro-social behavior (78%) when all four draws yielded X choices. In contrast, when subjects observed all Y (selfish) choices, they chose X 43 percent of the time. Overall, there is a positive relationship between the behavior a subject observes and what that subject does.<sup>21</sup> A probit regression of subjects' choices on the proportion of X choices observed yields a positive, statistically-significant relationship (see Table 4).

<sup>21</sup> One might be inclined to think that the relationship between what subjects observe others doing and what they themselves choose to do is not monotonic. One tentative reading of this pattern is that subjects are using a very coarse interpretation of the descriptive norm as either “most people share” or “most people don’t share” (with ties going to the “don’t share” interpretation). Observing 2 X’s and 2 Y’s is an ambiguous situation where self-serving biases can come into play (see Babcock and Loewenstein, 1997; Haisley and Weber, 2005).

A second noteworthy observation in Figure 2 is that while subjects who observed more selfish than pro-social behavior (i.e., 0 or 1 X choices) chose X less frequently (47%) than those who observed more pro-social behavior than selfish behavior (i.e., 3 or 4 X choices, 77%), they still behaved more pro-socially than subjects in the control/baseline treatment (34% X choices). While this difference is not statistically significant ( $\chi^2(1) = 1.48$ ) – and thus we cannot claim our results show that observing selfish behavior decreases selfish choices – we nevertheless find strong evidence against the notion that observing more selfish behavior than pro-social behavior increases selfish behavior. That is, even subjects who observe most others failing to behave pro-socially do not behave pro-socially with less frequency than subjects who are unfocused on the behavior of others (i.e., in the baseline/control).

We summarize our results as follows. First, focusing subjects on the behavior of others, by having them think about what others are likely to do, increases the frequency of pro-social behavior. Second, this change in behavior is comparable to the effect of focusing subjects directly on the pro-social norm (by asking them what they think others state one should do). Third, there is a positive relationship between subjects' pro-social behavior and the amount of pro-social behavior observed from others. Finally, when people observe the behavior of others, this, on average, produces more pro-social behavior, even when the majority of others are behaving selfishly. This is even true (though slightly and statistically insignificantly) when considering only the behaviors of individuals who observe only selfish behavior.

These results are demonstrated directly in Table 4, which presents probit regressions in which the dependent variable is whether a subject chose pro-socially ( $X=1$ ,

Y=0). The first regression demonstrates that all three treatments produce, on average, significantly higher proportions of X choices than the baseline/control, which is the omitted treatment. The second regression demonstrates the significant positive relationship, in the observational treatment, between what a subject observes others doing and a subjects' own behavior. The coefficient on the observational treatment in the second regression demonstrates the small positive, and statistically insignificant, effect of even observing all four people behaving selfishly (i.e., when the proportion of X choices observed is equal to zero).

**Table 4: Probit Regressions of Choice by Treatments and Observed Behavior**

Dependent variable: Choice (X=1)	1	2
Descriptive Focus (=1)	0.837 (0.308) <sup>***</sup>	0.837 (0.308) <sup>***</sup>
Injunctive Focus (=1)	0.996 (0.378) <sup>***</sup>	0.996 (0.378) <sup>***</sup>
Observational (=1)	0.482 (0.244) <sup>**</sup>	0.087 (0.307)
Proportion X Choices Observed		0.966 (0.459) <sup>**</sup>
Constant	-0.407 (0.210) <sup>*</sup>	-0.407 (0.210) <sup>*</sup>
Log-likelihood	-125.19	-122.90
N	189	189

Standard errors in parentheses

\* – p < 0.1; \*\* – p < 0.05; \*\*\* – p < 0.01

## V. Discussion of the Results Combined

This paper reports the results of an experiment testing the direct influence of norms on behavior. Based on prior work in psychology, we test for two possible kinds of such influence.

First, we explore whether norms exhibit a “focusing” effect, positing that norms fail to exert a significant influence on behavior unless they are primed with cues from the environment. In two focusing treatments, we find evidence of such an effect. Drawing subjects’ attention to the likely behavior of others or to others’ prescriptions for appropriate behavior both increase the frequency of pro-social behavior to very similar extents. Moreover, showing subjects the actual behavior of others produces an increase in pro-social behavior, even though most of these others are behaving selfishly.

Second, we test for an “observational” influence of norms, whereby individuals are more likely to engage in pro-social behavior when they observe others doing so. Our observational treatment demonstrates such a positive relationship, though it appears to perhaps be non-monotonic.

Our experiment is also valuable in that it builds on recent work in social psychology, testing the precise ways in which norms influence behavior. We find that these influences appear to operate in an economic context familiar and of interest to economic researchers.

Of course, our experiment is just a starting point for understanding how norms influence behavior. For instance, it is possible that other kinds of norms might operate in different ways – there may be norms upon which individuals are always focused or there may be norm-related behaviors that are uninfluenced by the behavior of others. Nevertheless, as our experiment suggests, there are ways in which norms influence behavior – often significantly – that merit further attention in economics.

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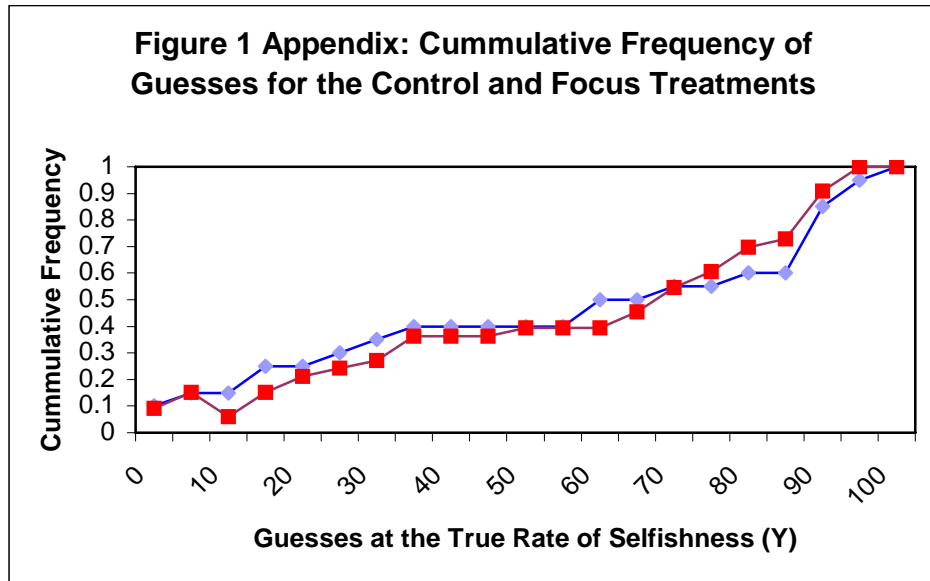
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(Alternate Dutch title: Tevens in deze uitgave - Een duit in het mandje -- de rol van anonimiteit bij kerkcollectes - Kerkgangers geven meer wanneer er met een mandje wordt gecollecteerd in plaats van met een traditionele collectezak. Het



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Appendix 1



## Appendix 2A: Instructions to the experiments (Control Treatment)

This is an experiment in decision-making. Several research institutions have provided funds for this research. In addition to a \$5 participation bonus, you will be paid the amount you accumulate during the experiment privately, in cash, at the conclusion of the experiment. The exact amount you receive will be determined during the experiment and will depend on your decisions and the decisions of others. If you have any questions during the experiment, please raise your hand and wait for an experimenter to come to you. Please do not talk, exclaim, or try to communicate with other participants during the experiment. Participants intentionally violating the rules may be asked to leave the experiment and will not be paid.

Please take an envelope from the experimenter.

Please open the envelope now. Each envelope contains a card with your participant number. Your participant number is private and should not be shared with anyone. Please do not lose the participant number as it will be used to determine how much money to give you at the end of the experiment and will be used throughout the experiment. This participant number will not be known to any other participant in the experiment.

This experiment will consist of a game between two people. For the game, each of you will be matched with one other anonymous person and one of you will be labeled Player A and the other will be labeled Player B.

The game is pictured below.

		Player A's Earnings	Player B's Earnings
Player A's Choice	X	\$5	\$5
	Y	\$7	\$1

In this game, Player A will choose one of two options: X or Y. Both players will receive payments based on the choice of Player A. If Player A chooses X then Player A receives \$5 and Player B receives \$5. If Player A chooses Y, then Player A receives \$7 and Player B receives \$1.

Are there any questions about the game? If you have a question, please raise your hand and wait for an experimenter to come to you.

You should play this game as if you are person A. Once everyone has made a decision, half of you will be randomly picked to be Player A and the other half will be randomly picked to be Player B. Every Player A will be matched with one Player B, and that Player A's decision will determine the payoffs received by both people in the pair. This means that everyone is equally like to be a Player A, and if you are randomly picked to be a Player A your decisions will determine yours and one other person's payoffs. Therefore, you should make decisions as if you knew you were going to be a Player A.

Your role will be decided by a second set of envelopes that the experimenter will distribute later. These envelopes will contain a card with a letter (either A or B) and a number. The letter will determine whether you are person B or person A. The number will determine the person you are matched with. The matching is anonymous, so no one will ever find out whom they played the game with.

Are there any questions before we proceed? If you have a question, please raise your hand and wait for an experimenter to come to you.

### **Choice Sheet**

Please indicate what choice you would like to make as Player A

Please indicate your choice (circle one):                    X                    Y

### **Matching Sheet**

Now the experimenter will come around with white envelopes for you to choose from. Please select **one** and record the information below. This will determine whether you are person A or person B in the game that you just played.

In the first space below, please first write the letter/number combination that was on the envelope you selected (e.g., A1, B2, etc.). Below that, please write your participant number (e.g., 1, 2, 3, etc.) in the space provided.

This will allow us to match you with another participant to determine everyone's earnings. Note that both your participant number and the letter/number combination that you drew are anonymous. No other subject will find out which numbers correspond to you.

Letter/number combination (e.g., A1, B2, etc.):                    \_\_\_\_\_  
Participant number (e.g., 1, 2, 3, etc.)                    \_\_\_\_\_

### **What do you think others in a previous session of this experiment did?**

The experimenter will now place a yellow envelope in front of each of you. Please do not open the yellow envelope until you are told to do so.

In previous experiments, different participants played exactly the same game that you have just played. In a moment, you will find out how many of those participants selected each of the two options. That is, you will find out precisely what percentage of previous participants selected X and what percentage selected Y. These percentages are written inside the yellow envelope you have in your possession. When you are done making your choices, and the experimenter has collected everyone's materials, you will be asked to open your envelope. The experimenter will also read the contents of the envelope out loud.

Before opening the yellow envelope we would like all of you to estimate what percentage of subjects chose each of the two options. In the space below, you should write what percentage of subjects you think chose X and what percentage you think chose Y. Please make sure your percentages add up to 100%. If your guesses are within 3% of the correct answer, then you will receive an additional \$5.

Percentage of subjects who chose:            X: \_\_\_\_\_ %        Y: \_\_\_\_\_ %

## Appendix 2B: Instructions to the experiments (Descriptive Focus Treatment)

This is an experiment in decision-making. Several research institutions have provided funds for this research. In addition to a \$5 participation bonus, you will be paid the amount you accumulate during the experiment privately, in cash, at the conclusion of the experiment. The exact amount you receive will be determined during the experiment and will depend on your decisions and the decisions of others. If you have any questions during the experiment, please raise your hand and wait for an experimenter to come to you. Please do not talk, exclaim, or try to communicate with other participants during the experiment. Participants intentionally violating the rules may be asked to leave the experiment and will not be paid.

Please take a white envelope from the experimenter.

Please also take a yellow envelope from the experimenter, but do not open it until you are told to do so.

Please open the **white** envelope now. Each envelope contains a card with your participant number. Your participant number is private and should not be shared with anyone. Please do not lose the participant number as it will be used to determine how much money to give you at the end of the experiment and will be used throughout the experiment. This participant number will not be known to any other participant in the experiment.

This experiment will consist of a game between two people. For the game, each of you will be matched with one other anonymous person and one of you will be labeled Player A and the other will be labeled Player B.

In previous experiments, different participants played exactly the same game that you are about to play. At the end of the experiment today, you will find out how many of those participants selected each of the two options. That is, at the end of the experiment, you will find out precisely what percentage of previous participants selected X and what percentage selected Y. These percentages are written inside the yellow envelope you have received and are holding. Before opening that yellow envelope, we will ask you to make a guess as to what percentage of people in previous experiments choose X and Y. If you are within 3 percentage points, you will receive an additional \$5 to whatever you make during the course of this experiment. At the end of the experiment, you will be able to open the envelope and see the percentage of people who choose X and Y.

The game pictured below is the one that you will play and the one about which you will be asked to guess the percentage of people who choose X and Y.

		Player A's Earnings	Player B's Earnings
Player A's Choice	X	\$5	\$5
	Y	\$7	\$1

In this game, Player A will choose one of two options: X or Y. Both players will receive payments based on the choice of Player A. If Player A chooses X then Player A receives \$5 and Player B receives \$5. If Player A chooses Y, then Player A receives \$7 and Player B receives \$1.

Are there any questions about the game? If you have a question, please raise your hand and wait for an experimenter to come to you.

You should play this game as if you are person A. Once everyone has made a decision, half of you will be randomly picked to be Player A and the other half will be randomly picked to be Player B. Every Player A will be matched with one Player B, and that Player A's decision will determine the payoffs received by both people in the pair. This means that everyone is equally likely to be a Player A, and if you are randomly picked to be a Player A your decisions will determine yours and one other person's payoffs. Therefore, you should make decisions as if you knew you were going to be a Player A.

Your role will be decided by a second set of envelopes that the experimenter will distribute later. These envelopes will contain a card with a letter (either A or B) and a number. The letter will determine whether you are person B or person A. The number will determine the person you are matched with. The matching is anonymous, so no one will ever find out whom they played the game with.

### **What do you think others in a previous session of this experiment did?**

In previous experiments, different participants played exactly the same game that you are about to play. In a moment, you will be able to find out how many of those participants selected each of the two options. That is, you will find out precisely what percentage of previous participants selected X and what percentage selected Y. These percentages are written inside the yellow envelope you have in your possession. Once all materials have been collected you may open the yellow envelope to see what others in previous experiments did. The experimenter will also read the proportion who choose X and Y out loud.

Before opening the yellow envelope, however, we would like all of you to estimate what percentage of subjects chose each of the two options. In the space below, you should write what percentage of subjects you think chose X and what percentage you think chose Y. Please make sure your percentages add up to 100%. If your guesses are within 3% of the correct answer, then you will receive an additional \$5.

Percentage of subjects who chose:            X: \_\_\_\_\_ %            Y: \_\_\_\_\_ %

## Appendix 2C: Instructions to the experiments (Observational Treatment)

This is an experiment in decision-making. Several research institutions have provided funds for this research. In addition to a \$5 participation bonus, you will be paid the amount you accumulate during the experiment privately, in cash, at the conclusion of the experiment. The exact amount you receive will be determined during the experiment and will depend on your decisions and the decisions of others. If you have any questions during the experiment, please raise your hand and wait for an experimenter to come to you. Please do not talk, exclaim, or try to communicate with other participants during the experiment. Participants intentionally violating the rules may be asked to leave the experiment and will not be paid.

Please take an envelope from the experimenter.

Please open the envelope now. Each envelope contains a card with your participant number. Your participant number is private and should not be shared with anyone. Please do not lose the participant number as it will be used to determine how much money to give you at the end of the experiment and will be used throughout the experiment. This participant number will not be known to any other participant in the experiment.

This experiment will consist of a game between two people. You will only play this game once. For the game, each of you will be matched with one other anonymous person and one of you will be labeled Player A and the other will be labeled Player B.

In previous experiments, different participants played exactly the same game that you are about to play. Before playing the game today, you will find out what four of those participants chose. That is, in a moment you will find out the precise choices made by four participants who were in the same position as you, but in a previous experiment. However, these four participants were not shown what anyone else had done. The experimenter is going to come around with a box from which you can select 4 yellow envelopes. Inside each envelope is the choice made by an actual participant in a previous session. When selecting, please make sure you only select 4 envelopes and be sure that they have different numbers on the outside labels.

The game that you will play, and the game that subjects in a previous experiment played, is pictured below.

		Player A's Earnings	Player B's Earnings
Player A's Choice	X	\$5	\$5
	Y	\$7	\$1

In this game, Player A will choose one of two options: X or Y. Both players will receive payments based on the choice of Player A. If Player A chooses X then Player A receives \$5 and Player B receives \$5. If Player A chooses Y, then Player A receives \$7 and Player B receives \$1.



Are there any questions about the game? If you have a question, please raise your hand and wait for an experimenter to come to you.

You should play this game as if you are person A. Once everyone has made a decision, half of you will be randomly picked to be Player A and the other half will be randomly picked to be Player B. Every Player A will be matched with one Player B, and that Player A's decision will determine the payoffs received by both people in the pair. This means that everyone is equally likely to be a Player A, and if you are randomly picked to be a Player A your decisions will determine how much you, and one other person, will earn in this game. You should make decisions as if you knew you were going to be a Player A.

Your role will be decided by a second set of envelopes that the experimenter will distribute later. These envelopes will contain a card with a letter (either A or B) and a number. The letter will determine whether you are person A or person B. The number will determine the person you are matched with. The matching is anonymous, so no one will ever find out whom they played the game with.

Now that you have your 4 yellow envelopes, please open them and take a minute to read the 4 choices. Please record the numbers on the outside of the envelopes.

\_\_\_\_\_