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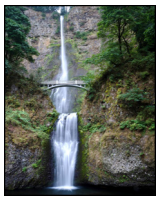

How anonymity and norms influence costly support for environmental causes

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ABSTRACT

Social norms are a key driver of pro-environmental action, but their influence may vary by context. An important contextual factor is behavior observability. We employ a laboratory quasi-experiment studying donations to environmental organizations under different levels of donor anonymity and under different levels of injunctive social norms. Decision observability amplifies the effect of norms: donations are 84% higher when observability is added to pro-environmental norms, compared to a setting with pro-environmental norms but anonymous decisions.

1. Introduction

People often follow social norms when making environmentally relevant decisions (Abrahamse & Steg, 2013; Bamberg & Möser, 2007; Klöckner, 2013; Scheibehenne, Jamil, & Wagenmakers, 2016). Yet, little attention has been paid to the contextual factors with which norms interact. This is surprising, as many authors within environmental psychology argue it is important to study the external context in which different motivational factors operate (Bohner & Schlüter, 2014; Guagnano, Stern, & Dietz, 1995; Reese, Loew, & Steffgen, 2014; Steg & Vlek, 2009). Unlike contextual moderators, person-level moderators have received more attention in the discipline, and this line of research suggests that certain factors, such as baseline behavior levels, can render norms all but ineffective (e.g. Schultz, Nolan, Cialdini, Goldstein, & Griskevicius, 2007). To understand and use the power of social norms effectively, we believe it is important to study key person-level, as well as contextual moderators.

Research in social psychology and behavioral economics suggests that one contextual factor that may moderate the influence of norms is behavior observability (Blanchard, Crandall, Brigham, & Vaughan, 1994; Schram & Charness, 2015). People may be more inclined to follow social norms when others can observe them, because this makes the threat of sanctions more credible (Anderson & Dunning, 2014).

We tie these two lines of research together, focusing on the interplay of pro-environmental injunctive social norms and behavior observability. We test our hypothesis that pro-environmental norms interact with behavior observability using a laboratory quasi-experiment on donations to environmental organizations, an example of non-activist support for environmental causes (Stern, Dietz, Abel, Guagnano, & Kalof, 1999).

1.1. Social norms and environmental behavior

A number of studies in environmental psychology move beyond merely measuring the effect of social norms on behavior by examining how norms interact with other variables, such as baseline behavior levels (Schultz et al., 2007), personal involvement (Göckeritz et al., 2010), personal norms (Schultz et al., 2016), attitudes (Wan, Shen, & Choi, 2017), ingroup identification (Fritsche, Barth, Jugert, Masson, & Reese, 2018), and behavior costs (Sudarshan, 2017).

As is apparent from this brief summary of former research, the moderators studied thus far are predominantly characteristics of the decision maker, rather than of the setting in which he or she acts. We contribute to the literature by investigating whether social norms interact with an important contextual moderator – decision observability. We focus, specifically, on injunctive social norms (i.e., shared beliefs on how one ought to behave, see Cialdini, Reno, & Kallgren, 1990).

1.2. Social norms and anonymity

As mentioned above, it is mainly research in social psychology and behavioral economics that suggests that norms may become more powerful when one's behavior can be observed by others. This intuition has been formalized by Andreoni and Bernheim (2009) – in addition to any intrinsically motivated norm compliance, people want to *appear* to follow social norms (which is only possible when others can observe

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their behavior).

Empirical research unequivocally supporting this theorizing is, nevertheless, scarce. In his experiment on donations to a charitable organization, Zafar (2011) manipulated anonymity and information about other participants' previous decisions (i.e., the descriptive norm). The results were indicative of some effect of descriptive norms, as well as of anonymity on subjects' generosity. The design, however, made it difficult to draw clean conclusions, mainly because the observed effects could also be attributed to learning.

Schram and Charness (2015) report a significant effect of obtaining advice (~injunctive norm) on subsequent giving in a modified dictator game. Importantly, the effect of obtaining advice was present only when comparing public donation decisions, not when comparing anonymous donation decisions. However, participants in the public treatment received significantly different advice than participants in the anonymous treatment, which makes ceteris paribus comparisons difficult.

Finally, Alpizar, Carlsson, and Johansson-Stenman (2008) study the effect of anonymity and social norms on donations to a national park in a field experiment. The authors find that non-anonymity increases giving and that descriptive social norms affect giving as well. They, however, do not test for an interaction between anonymity and social norms in their analysis (see also Bobek, Hageman, & Kelliher, 2013; Kraft-Todd, Yoeli, Bhanot, & Rand, 2015).

1.3. Hypotheses

Against the backdrop of the above literature review, we formulate three hypotheses. H1: Donations to pro-environmental organizations will be higher when injunctive social norms in favor of high donations are made salient. H2: Donations to pro-environmental organizations will be higher when decisions are observable than when decisions are anonymous. H3: The effect of injunctive social norms on donations will be moderated by the level of observability. The effect of injunctive norms will be strengthened when decisions are observable. To check the robustness of our results, we included two control variables – past donations and income.

2. Method

One hundred and thirty-six subjects (77 females) participated in the study during the spring of 2016. The Online Recruitment System for Economic Experiments (Greiner, 2015) was used for recruitment and z-Tree (Fischbacher, 2007) for programming. The study had two stages, an earning stage where participants earned money to be later donated (or kept) in the second stage, i.e., the donation stage.

The earning stage was identical for all participants. Participants earned 10 EUR for correctly counting how many times the letter "A" appeared in eight different 100-cell grids. The task was adapted from Cappelen, Nielsen, Sørensen, Tungodden, and Tyran (2013); see also Cherry, Frykblom, and Shogren (2002) who demonstrate the importance of using money participants actually earn in donation experiments. Participants earned 15.81 EUR on average, including a show-up fee and earnings from an unrelated task (note: all participants succeeded in the counting task).

In the donation stage, participants were assigned to one of four conditions in a 2 (injunctive norm: No norm vs. High norm) * 2 (observability of decision: Anonymous vs. Observable) between-subjects quasi-experimental design. They were given an opportunity to donate any portion of their earned surplus from the counting task (10 EUR) to an environmental organization of their choice.[1]

[1] Possible recipients: Environmental Defense Fund, Greenpeace, National Wildlife Federation, The Nature Conservancy, PETA, Rainforest Alliance, and WWF.

Social norm manipulation: In the No norm treatment, participants received no information concerning social appropriateness of different possible donations. In the High norm treatment, participants received, prior to making their own donation decision, information on what "other people previously participating in this experiment said is the most socially appropriate donation". Specifically, we presented to all participants in the High norm treatment the following normative evaluations elicited in a post-experimental questionnaire from actual previous participants:

> Participant 1 said donating 10 EUR is the most socially appropriate decision.
> Participant 2 said donating 10 EUR is the most socially appropriate decision.
> Participant 3 said donating 10 EUR is the most socially appropriate decision.
> Participant 4 said donating 10 EUR is the most socially appropriate decision.
> Participant 5 said donating 10 EUR is the most socially appropriate decision.
> Participant 6 said donating 10 EUR is the most socially appropriate decision.
> Participant 7 said donating 10 EUR is the most socially appropriate decision.
> Participant 8 said donating 5 EUR is the most socially appropriate decision.

Observability manipulation: In the Anonymous treatment, participants were informed that their decision will be "completely private and anonymous and it will not be revealed to others". In the Observable treatment, participants were informed that, at the conclusion of the session, their decision will be "revealed to other participants in this session" along with their first name and the place where they sit.

This study is a quasi-experiment. We randomly assigned sessions into the Anonymous vs. Observable treatments. However, the No norm and High norm treatments were run consecutively, as we needed to collect the normative information to be later presented to participants in the High norm treatment first. Due to budget constraints, this information was collected in the No norm treatment sessions, rather than outside the main sessions. Nevertheless, participants did not differ across treatments in terms of income, study major or gender (none of the three models where we regressed these background characteristics on treatments and their interaction was significant, all $ps > .4$). In addition, potential participants in the subject pool we used receive offers to participate frequently throughout the year, and our earlier sessions thus did not stand out as a special opportunity to take part in an experiment, which makes it unlikely that the earlier sessions attracted for example particularly motivated or conscientious participants. Finally, sessions were run within a short time span (six weeks), i.e., there was minimal room for the subject pool to change.

3. Results

Fig. 1 displays mean donations in the four conditions and the associated confidence intervals. Table 1 presents statistical tests. In Model 1 in Table 1, we regress donated amount on treatments and their interaction by means of an OLS regression. In Model 2, we add two controls: income and past donations to environmental organizations.

Hypothesis H1. received only weak support: participants donated more money when presented with pro-environmental injunctive norms, but this effect was (marginally) significant only when controlling for income and past donations.

Hypothesis H2. was supported: participants donated more when their donation decisions could be observed by others.