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**Francisco Alpizar
Peter Martinsson**

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Are They Watching You and Does It Matter?

Evidence from a Natural Field Experiment

Francisco Alpizar ^{*a}

Environment For Development Program-CATIE, Costa Rica

Peter Martinsson ^b

University of Gothenburg, Sweden

Abstract

In a natural field experiment, we tested whether being alone or in a group had an effect on prosocial behavior as expressed in donations to a recreational park. We also explored whether the presence of people exogenous to the group at the time of the donation had any behavioral effect. Our first treatment aimed at identifying peer effects, whereas our second treatment was similar to being in the public eye. We found that being in a group significantly increases the share of people acting prosocially. Moreover, we found that only individuals who are part of a group are positively affected by the presence of a third party.

Key Words: Donation, natural field experiment, prosocial behavior, public disclosure

JEL Classification: C93, Q28

* Corresponding author

^a Francisco Alpizar, Environment for Development Program, CATIE, 7170 Turrialba, Costa Rica, (tel) +506 2558-2215, (fax) +506 2558-2625, (email) falpizar@catie.ac.cr;

^b Peter Martinsson, Department of Economics, University of Gothenburg, Box 640, 405 30 Göteborg, Sweden, (tel) +46 31 786 52 55, (fax) +46 31 786 10 43, (email) peter.martinsson@economics.gu.se.

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1. Introduction

Becker (1974, 1083) modeled the behavior of donors, when he noted that donations could be motivated by the “desire to avoid the scorn of others or to receive social acclaim.” This was further discussed by Bénabou and Tirole (2006). In their model, individuals with prosocial attitudes have greater incentives to act upon these motives if their actions are more visible. This effect is stronger when agents are more homogeneous in their reputational concerns, as one would expect among people who have chosen to participate in recreational activities together, among firms in a particular industry or trade association, or among individuals who self-select to join a particular organization or club. “When individuals are heterogeneous in their image concerns, however...good actions become suspected of being motivated by appearances, which limits the effectiveness of policies based on “image rewards,” such as public praise and shame” (ibid., 1654). If one mixes members of different groups, one expects to increase the heterogeneity of reputational concerns; firms within a particular trade association are expected to exhibit less heterogeneity than a collection of firms from several other such associations; individuals in a bridge club are likely to be very different from members of a biker club. In these cases, Bénabou and Tirole (ibid., 1665) would argue that “giving increased publicity to prosocial or antisocial behavior may be of somewhat limited effectiveness.”

In this paper, we discuss a natural field experiment that tested whether being alone or in a group has an effect on prosocial behavior as expressed in donations to a recreational park. The study also explored whether the presence of people exogenous to the group or individual at the time of the donation has any behavioral effect. Our first treatment is comparable to making actions (such as charitable behavior, environmental performance of firms, or political positions) public within a group of peers, whereas our second treatment is similar to being exposed to the general public.

Image rewards or social approval have been investigated in experimental laboratories and in the field. For example, Rege and Telle (2004) found a positive and significant effect on contributions to public goods when the subjects made their contribution decisions in front of their group, compared to contributing anonymously. Similarly, List et al. (2004) found that random disclosure of a donation to a public good significantly increased donations, compared to an anonymous control. Alpízar et al. (2008) found that conditional contributions were 19 percent higher, if made publicly in front of a solicitor. On the other hand, Noussair and Tucker (2007) found no effect from a public announcement of contributions in a multi-period public good experiment. Using a field experiment, Soetevent (2005) found significantly higher donations in the short-run to causes external to Dutch churches (but not in the long run or for internal causes) when collection baskets were open, which allowed congregants to see the contribution made by their direct neighbors, as well as

the total amount already gathered, compared to closed collection baskets. Ariely et al. (2009) tested for social approval both using a lab experiment and an artefactual field experiment, and they found that donations increased if they were publicized visually. A slightly different result was seen by Burnham and Hare (2007), who found that when subjects were watched by a robot with eyes, contributions significantly increased in a public good experiment.

A particularly strong element of our research design allowed us to disentangle group effects (within peers) from the effect of information disclosure to an outside party. When making a decision about how much to donate, we can think of four cases: 1) the individual is alone and nobody observes the donation; 2) the individual is alone, but an outside party (e.g., other visitors in the queue) observes the donation; 3) the individual is part of a group that learns about the individual's behavior, but no one external to the group observes the donation; and finally 4) the individual is part of a group, but other people (e.g., in the queue) can see the donation. Laboratory and field experiments have mainly focused on comparing cases 1) and 2), where individuals are exposed to outside parties or not (e.g., Ariely et al. 2009); or cases 1) and 3), where individuals are exposed to other members of the group or not (e.g., List et al. 2004; Rege and Telle 2004).

We used data from a natural experiment on donations to Cahuita National Park in Costa Rica. In this experiment, we clearly documented whether the visitors came alone or in a group, and whether others observed any donation made, resulting in the two-by-two design described above and the capacity to test all combinations. In practical terms, we believe our experiment is important because it sheds light on the effect of making information public to different subsets of the general population. This can easily be used as a policy instrument in its own right, whether to raise more funding in a charitable campaign or to twist the arm of individuals or firms to reduce pollution or increase recycling, for example (Blackman and Bannister 1998; Tietenberg 1998; Konar and Cohen 1997).

2. Experimental Design

Our natural field experiment was conducted in Cahuita National Park (CNP). The northern entrance to the park does not charge any entrance fee and receives approximately 50,000 visitors per year. When visitors enter Cahuita National Park, they have to cross a narrow bridge that leads to the registration hut. Registration in a logbook is compulsory for everyone entering the park, whether they choose to donate or not. This logbook is our main source of information. Signs and posters clearly invite visitors to make a donation, and donations are duly introduced in the logbook as proof of payment.¹ Typically, each visitor

¹ The logbook and the receipts for donations are control mechanisms for the park rangers, so there is no possibility of writing false information about the amount donated. The donation can be made either in Costa

takes a few minutes to complete the registration.

For the experiment, we needed to collect additional information on two issues: 1) whether the visitor arrived alone or as part of a group, and 2) whether the registration process took place in the presence of outside parties who were also queuing to get into the park. All this information was collected by a senior field researcher sitting inside the registration hut and bearing no mark or sign that could lead the visitor to think that information was being gathered. For all practical purposes, the registration process was business as usual.

In addition, we needed to control for exogenous factors that could affect the decision to donate, so the senior field researcher kept a separate extended logbook. First, park rangers could suggest a donation or the visitor could forcefully request an amount to donate. Second, because the registration book itself could provide information about the behavior of others, we hid previous entries. However, in some cases, visitors forcefully checked previous donations or there simply was not enough time to hide them. Such occurrences were carefully registered and dropped from the analyses reported in Section 3. Visitors on an organized tour normally do not decide their own contribution and they were also dropped from our dataset.

Finally, since visitors normally stay in the nearby town on average for three to four days, they often enter the park several times. From the registration book, we could identify their first visit, which was the only one used in this analysis. The natural field experiment was conducted from mid-January to mid-March 2008, and data was collected Tuesdays to Saturdays. Sundays and public holidays were not included because the number of tourist exceeded our capacity to keep the experiment under control. (Monday is the park staff's day off.) We collected data from 2,866 visitors, which are untainted by experimental artifacts and fully controlled for external factors of the effect of our two-by-two design. Table 1 shows the number of observations in each cell of our two-by-two design. As expected for a recreational activity, only 8 percent of the visitors arrive alone.

INSERT TABLE 1 HERE

3. Results

In table 2, we show the share of visitors donating in each of the four treatments. The message is quite clear. People travelling alone were not significantly affected by outside

Rican colones or in US dollars. We used an exchange rate of 500 Costa Rican colones per US\$ 1. Both currencies are used interchangeably in Costa Rica.

parties and, if anything, the effect indicates a reduction in the share of single travelers making a donation when the decision is visible by strangers. This is completely different behavior from individuals traveling as part of a group. In this case, individuals as part of a group tended to donate significantly more frequently than solitary travelers (10 percentage points). Moreover, when group members were observed by outside parties, they significantly tended to donate even more frequently (from 0.74 to 0.84), as compared to not being observed. The most striking effect is the difference in the share of those traveling alone versus those in a group, when both are exposed to outside parties. In this case, the share of donations made significantly increased by 30 percentage points.

INSERT TABLE 2 HERE

Table 3 shows average conditional contributions. In other words, we excluded those who chose not to donate. We observed a slight increase in conditional donations, when an outside party is present, which is only significant for individuals travelling in a group. Surprisingly, the conditional donation significantly decreased when visitors arrive in a group, significantly so for the case of no outside party present.

INSERT TABLE 3 HERE

Tables 2 and 3 show that single travelers donated significantly less frequently than group members, but those who actually do donate tend to donate more. This holds irrespective of third parties being present. The presence of third parties does play a role, but only for visitors travelling as part of a group. In this case, both the share and their conditional donations are significantly higher.

In table 4, we show the overall effect on donation. In line with the previous results, the significantly largest donations were made when group members were further exposed to public scrutiny. From a policy perspective, since most visitors come in groups, forcing a queue to build up to register in the park office will result in a 20-percent increase in donations (p-value = 0.000).

INSERT TABLE 4 HERE

4. Discussion and Conclusions

In this paper, we investigated the effects of being part of a group and of being exposed to an outside party on visitors making a donation to enter a recreational park. We found that just being exposed to others is not enough because people traveling alone do not react to the presence of others. This is in line with Bénabou and Tirole's (2006) idea that heterogeneity of individuals (single travelers are likely to consider themselves quite different from the usual recreational pack) plays a role in diminishing the convincing power of public disclosure. Still, it is important to stress that single travelers will indeed donate more if they chose to do so. Public donations within a group of travelers carry image rewards conducive to higher shares of visitors making a donation, but not for conditional or total donations. Surprisingly, when individual group members are exposed to outside parties, the image concerns are at their greatest, resulting in significant increases in share, conditional contribution, and total contribution variables. This seems to be the result of group-level image concerns. We have argued that our group-of-peers versus single-traveler treatment explores peer effects, whereas our exposure-to-outside-parties treatment looks at the effect of making information available to the general public. We found that both peer pressure and exposure to the public eye are incrementally correlated with more visitors making a donation, but directly exposing single travelers to public scrutiny has no effect. In terms of the park authorities, our results call for making sure that there is always a line outside the registration booth.

In summary, it is one thing to stand out as the “underperforming” party in a given group of friends, industry, or club, but it is something else—much more serious—to stand out in the public eye as the underperforming individual of your group.

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Table 1 Experimental Design and Number of Observations per Treatment

Group Membership	Presence of others	No outside party is present	An outside party is present
	Alone		205
Part of a group		2017	612

Table 2 Share of Individual Donation by Treatment

Group Membership \ Presence of others	No outside party is present	An outside party is present	H₀: No difference in share of donation due to presence of outside party
Alone	0.64	0.56	(p-value=0.405)
In a group	0.74	0.86	(p-value=0.000)
H ₀ : No difference in share of donation between alone and in a group	(p-value=0.002)	(p-value=0.000)	<i>Note:</i> A Fisher Chi2-test is used in all cases.

Table 3 Conditional Donation by Group

Group membership	Presence of others	No outside party is present	An outside party is present	H₀: No difference in conditional donation due to presence of outside party
Alone		2.15	2.41	(p-value=0.284)
In a group		1.94	1.99	(p-value=0.069)
H ₀ : No difference in conditional donation between alone and in a group		(p-value=0.076)	(p-value=0.127)	<i>Note:</i> A Wilcoxon-Mann-Whitney test is used in all cases.

Table 4 Donation by Group

Group membership	Presence of others	No outside party is present	An outside party is present	H₀: No difference in sample donation due to presence of outside party
Alone		1.38	1.36	(p-value=0.837)
In a group		1.43	1.72	(p-value=0.000)
H ₀ : No difference in sample donation between alone and in a group		(p-value=0.162)	(p-value=0.057)	<i>Note:</i> A Wilcoxon-Mann-Whitney test is used in all cases.