Environment for Development

Discussion Paper Series

March 2008 ■ EfD DP 08-02

Does Context Matter More for Hypothetical Than for Actual Contributions?

Evidence from a Natural Field Experiment

Francisco Alpizar, Fredrik Carlsson, and Olof Johansson-Stenman

Environment for Development

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Abstract

We investigated the importance of the social context for people's voluntary contributions to a national park in Costa Rica, using a natural field experiment. Some subjects make actual contributions while others state their hypothetical contribution. Both the degree of anonymity and information provided about the contributions of others influence subject contributions in the hypothesized direction. We found a substantial hypothetical bias with regard to the amount contributed. However, the influence of the social contexts is about the same when the subjects make actual monetary contributions as when they state their hypothetical contributions. Our results have important implications for validity testing of stated preference methods: a comparison between hypothetical and actual behavior should be done for a given social context.

Key Words: Environmental valuation, stated preference methods, voluntary contributions, anonymity, conformity, natural field experiment

JEL Classification Numbers: C93, Q50

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Introduction

Context often matters even when conventional economic theory predicts that it should not (Tversky and Kahneman 1981). In this paper, we aim to quantify the effect of two types of contexts on people's voluntary contributions to a national park in Costa Rica: the degree of anonymity, and information about the contributions of others. We used a natural field experiment to investigate whether the influence of social context is different for hypothetical contributions than for actual contributions.

In the literature, there is ample evidence of context effects on environmental valuation, for example, that framing in terms of scenario description, payment vehicle, or the degree of anonymity influences survey responses (Blamey et al. 1999; Russel et al. 2003; List et al. 2004). Schkade and Payne (1994) used a verbal protocol methodology where they let people think aloud when answering a contingent valuation question, and concluded that people seem to base their responses on issues other than what the environmental valuation literature typically assumes. For example, the authors found that before the respondents provided an answer, more than 40 percent of them considered how much others would be willing to contribute.

However, much of the experimental evidence suggests that context also matters in situations involving actual payments or contributions (Hoffman et al. 1994; Cookson 2000; McCabe et al. 2000). More specifically, there is ample evidence of so-called *conditional cooperation*, meaning that many people would indeed like to contribute to an overall good cause, such as a public good, but only if other people contribute their fair share (Fischbacher et al. 2001; Frey and Meier 2004; Gächter 2006; Shang and Croson 2006). In light of this, the finding by Schkade and Payne (1994) may not be that surprising.

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One interesting question is whether respondent behavior is more sensitive to context (such as the perception of the behaviors of others) when making a hypothetical—but realistic—choice, compared to making a choice that involves an actual payment. Some have suggested that this difference may be large (e.g., Bertrand and Mullainathan 2001), whereas others, such as Hanemann (1994), believe that the difference is small (if it exists at all) and that context affects behavior generally and not just in survey-based valuation studies.[1] The empirical evidence for comparing the effects of context is rather scarce. Moreover, one may also question the result of comparing lab experiments with hypothetical and actual money, if the purpose is to measure how closely they resemble real life behavior. Levitt and List (2007) argue that lab experiments with real money are useful for identifying mechanisms, since the possibility of control is much higher compared to conventional empirical analysis. At the same time, results of lab experiments should be interpreted with more care when it comes to generalizing about quantitative findings outside the experimental context. Instead, Levitt and List advocate *field experiments*, where the subjects are observed without knowing that they are taking part in an experiment.

This paper presents the results of a natural field experiment—to use the terminology of Harrison and List (2004)—in Costa Rica, where we investigated the importance of anonymity with respect to the solicitor, and information about the contributions of others.[2] In particular, we quantified and compared these effects for two samples: one based on hypothetical contributions and one on actual contributions.

The effect of anonymity has been investigated previously for both hypothetical and actual treatments (Legget et al. 2003; List et al, 2004; Soetevent 2005). For example, Legget et al. (2003) found that a stated willingness to pay was approximately 23 percent higher when the contingent valuation survey was administered through face-to-face interviews rather than being self-administered by the respondents. List et al. (2004) looked at charitable contributions—both hypothetical and actual—to the Center for Environmental Policy Analysis at the University of Central Florida, using three different information treatments: (1) the responses were completely anonymous, (2) the experimenter knew the response, and (3) the whole group knew the response.

[1] Note that we do not refer to the issue of hypothetical bias, i.e., that there is a difference between stated and real contributions for a given context. A large number of studies found a hypothetical bias, although the occurrence and extent of it depended on a number of factors, such as the type of good and the elicitation method. For an overview, see List and Gallet (2001).

[2] For other recent field experimental studies on determinants of charitable giving, see, e.g., List and Lucking-Reiley (2002), Landry et al. (2006), and Karlan and List (2007).

While they found the largest share of "yes" responses when the whole group was informed of the response (followed by when only the experimenter knew the response), they also found that the differences among the information treatments were similar in the hypothetical and the actual voting treatments. A contribution of this paper tested whether this finding could be generalized to a field experiment setting.

The effect of information about the contributions or behaviors of others has been investigated in several field experiments (Alpizar et al. 2007; Frey and Meier 2004; Shang and Croson 2006; Heldt 2005; Martin and Randall 2005). For example, Shang and Croson (2006) investigated how information about a typical contribution to a radio station affected subject contributions. They found that their highest reference amount ($300) implied a significantly higher contribution than giving no information at all. The direction for smaller amounts ($75 and $180) was the same, although not statistically significant. As far as we know, no previous study has looked directly at how information about the contributions of others affects stated contributions.[3] Consequently, this paper is the first to analyze the difference between a hypothetical and actual treatment with respect to the influence of provided information about the contributions of others.

The body of this paper is organized as follows: section 2 presents our field experiment design, section 3 the corresponding results, and section 4 has the conclusions.

2. Design of the Experiment

The experiment and survey looked at contributions by visiting international tourists to the Poas National Park (PNP) in Costa Rica in 2006. We put great effort into ensuring that the situation was realistic and credible; there was nothing indicating that this was a university study to analyze people's behavior. This is potentially very important, as noted by Levitt and List (2007), because a perceived experimental situation may highlight people's sense of identity or self-image to a larger extent than outside the experimental situation (cf. Akerlof and Kranton 2000).

[3] However, one explanation of so-called yea-saying—the tendency of some respondents to agree with an interviewer's request regardless of their true views (Mitchell and Carson 1989)—is that respondents believe that the suggested bid in a contingent valuation survey contains information about the behaviors of others. If so, one may interpret observed yea-saying bias as an indication of the influence of the contributions of others. Several papers have investigated the presence of yea-saying; see, for example, Blamey et al. (1999); and Holmes and Kramer (1995).

The five people administering the experiment were officially registered interviewers of the Costa Rican Tourism Board. We began by inviting all potential solicitors by email to an initial screening meeting where we evaluated their personalities and abilities to speak fluently in both Spanish and English. Of ten possible candidates interviewed, we chose five who fulfilled all our requirements. The five solicitors participated randomly in all parts of the experiment. Nevertheless, we controlled for solicitor effects in the regression analysis. The solicitors underwent extensive, paid training both in the classroom and in the field. Once they were ready to start, we dedicated a whole week to testing their performance and to making small adjustments in the survey instrument. In addition, there were daily debriefing questions and regular meetings with the whole team to make sure that all solicitors were using the same exact wording of the scenarios.

The solicitors approached international tourists after they had visited the volcano crater, which is the main attraction of the park. The tourists were approached at a "station" outside the restaurant and souvenir shop, which was decorated with the logos of PNP, the National System of Protected Areas (SINAC), and the Tropical Agricultural and Higher Education Center (CATIE).[4] The solicitors wore uniforms with the logos of PNP and CATIE and carried formal identification cards that included a photo and signatures of park authorities. The uniforms were similar to those used by the PNP park rangers. A formal letter authorizing the collection of contributions and the survey was also clearly visible.

Only international tourists who could speak either Spanish or English participated in the experiment. The subjects were approached randomly, and only one person in the same group of visitors was approached. Selection of participants was a key element of the training sessions and we checked daily for subject selection biases. No corrections were required after the pilot sessions.

Subjects were first asked if they were willing to participate in an interview about their visit to the PNP. No mention of voluntary contributions took place at this stage, so we expected that participation was not affected by monetary considerations. Overall, participation rates were high (more than 85 percent each day). Once it was established that the subjects were international tourists and that they had already visited the crater, the solicitors proceeded with the interview. Before the experiment, the subjects were asked a few questions regarding their visit to

[4] The Tropical Agricultural Research and Higher Education Center had the main responsibility for data collection.

Costa Rica and to the national park. The solicitors also had standardized replies to the most common questions regarding the survey, the experiment, the institutions involved, etc. For further information, the participants were advised to talk to the main supervisor of the contribution campaign.

Table 1 Experimental Design for All Treatment Combinations

	Hypothetical contributions		**Actual contributions**		**Total**
	Anonymous	***Non-anonymous***	***Anonymous***	***Non-anonymous***	
No reference contribution	62 observations	62 observations	62 observations	63 observations	250
Reference contribution: $2	63 observations	62 observations	61 observations	63 observations	249
Reference contribution: $5	60 observations	61 observations	62 observations	62 observations	249
Reference contribution: $10	62 observations	62 observations	62 observations	62 observations	249
Total	**247** observations	**247** observations	**247** observations	**250** observations	**991**

In total, 991 subjects participated in the experiments. We conducted experiments both with hypothetical and with actual contributions. For each type of experiment, we used anonymous and non-anonymous treatments, as well as three different reference levels for the stated contributions of others. Table 1 summarizes the experimental design for all treatments. To avoid cross-contamination, we decided to conduct the hypothetical and actual treatments during the same period, but never simultaneously. This meant that all solicitors worked on hypothetical contributions during one part of the day and actual contributions during the other part of the day. This ordering was randomly decided. All the other different treatments were conducted simultaneously, and they were randomly distributed both in terms of time of day and among solicitors.

The different treatments required slight modifications of the interviewing script, as outlined below, but we were very careful to limit the differences between the treatments. Subjects also received a card where they could read the scenario and the instructions for the voluntary contribution. The experiment began with the same sentence for both treatments:

> I will now read to you some information about the funding of national parks in Costa Rica. Here is a paper with the information I will read.

After this, the participants were told about the main purpose of the request for a contribution. The wording that was unique for the hypothetical treatment is in parentheses, whereas the corresponding wording for the actual treatment is in brackets.

> The system of national parks in Costa Rica is now suffering from the lack of funds to achieve a good management of the parks, both for biodiversity conservation and tourism. Available funds are simply not enough and national parks are trying to obtain new funds. We are now (researching) [testing] a system at Poas National Park where visitors can make donations to the park. The entrance fee (would remain) [remains] the same— seven dollars—but people (would have) [have] the possibility to make voluntary donations to the park in addition to the fee. Contributions (would) [will] be used to improve the standard of living of park rangers, to provide better trails, and to make sure that this beautiful and unique ecosystem is well taken care of.

The effect of a social reference point was investigated by providing the subjects with information about typical previous contributions by other visitors. If a reference point was provided, the following sentence was read:

> We have interviewed tourists from many different countries and one of the most common donations has been 2 / 5 / 10 US dollars.

We obtained the monetary reference values from a pilot study conducted at the same park immediately before our main experiment; thus, the reference information is not based on deception. In the treatments with no mentioned reference amount, we simply omitted the above sentence.

Finally, the actual request for a contribution differed depending on whether the contribution was to be anonymous or not. In the anonymous cases, subjects were asked to go into a private area that was part of our interviewing station and write down their contribution on a piece of paper (provided) or put their contribution (if any) in a sealed envelope and then into a small ballot box. This way their contribution was completely anonymous to the solicitor.[5] The following text was then read:

> (If there was a possibility, how much would you donate?) [How much are you willing to donate to this fund?] Please go to the booth and (write down the amount of money you would like to donate if you had the possibility) [put the amount of money you would like to donate in the envelope]. Remember that donations will be used exclusively to maintain and improve the Poas National Park, as described before. When you are done, (please fold it twice) [please seal the envelope] and put it in this box. Do not show it to me, because your (stated donation) [donation] should be completely anonymous. Please put the (paper) [envelope] in the box even if you do not wish to donate anything.

[5] In order for us to identify the contributions and link them to the other questions in the questionnaire, an ID number was written on the envelope. The subjects were informed about the ID number and the reason for it. The important feature is that the solicitor was not able to observe the contribution, not even afterwards.

We provided a locked ballot box into which the contributions were put. This box was actually part of the interviewing station used for the experimental session. In the non-anonymous setting, the following text was read:

> (If there was a possibility, how much would you donate?) [How much are you willing to donate to this fund?] Remember that donations will be used exclusively to maintain and improve the Poas National Park, as described before. When you are done reading, please (tell me the amount of money you would like to donate if you had the possibility) [give the envelope and your contribution to me so that I can count and register your donation before sealing the envelope. Please return the envelope even if you do not wish to donate anything].

In this treatment, the subjects were aware that the solicitor was observing each contribution. In addition to the differences described above, everything else was identical in all interviews, and we expected the typical variations of a field experiment (weather, type of tourist, etc.) to affect our results randomly.

3. Experiment Results

Table 2 presents the basic results of the experiments. The most striking finding was the large amount of hypothetical bias. In the actual contribution treatment, 48 percent of the subjects chose to contribute and the average contribution was $2.43, while in the hypothetical contribution treatment, 87 percent of the subjects stated that they would contribute an average of $7.58.[6] Thus, the average contribution in the hypothetical treatment was more than three times as large as in the actual treatment, and the difference is highly significant using a simple t-test.

The large hypothetical bias came as no surprise. First, there is much evidence that suggests the existence of a hypothetical bias (List and Gallet 2001) unless certain measures are taken, e.g., the use of so-called “cheap talk” scripts (e.g., Cummings and Taylor 1999). We did not take any such measures. Second, there is also evidence that the hypothetical bias is

[6] As always, in stated preference surveys with an open-ended question, a number of respondents state very high numbers. These responses have a strong influence on the average contribution. We have therefore dropped observations stating contributions larger than $100. The lowest contribution we deleted was $450. In the actual contribution experiment, the highest contribution was $50.

Table 2 Summary Results of Contributions for Different Treatments

Treatment	No. of observations	Share positive contribution	Conditional average contribution (std)	Sample average contribution (std)
		Hypothetical contributions		
Total	494	0.87	8.73 (10.56)	7.58 (10.27)
Anonymous	247	0.88	8.97 (11.69)	7.92 (11.35)
Non-anonymous	247	0.85	8.49 (9.26)	7.25 (9.07)
No reference	124	0.83	11.76 (15.81)	9.77 (15.07)
Reference: $2	125	0.88	6.00 (6.94)	5.28 (6.80)
Reference: $5	121	0.88	7.08 (5.82)	6.20 (5.92)
Reference: $10	124	0.89	10.22 (10.08)	9.07 (10.03)
		Actual contributions		
Total	497	0.48	5.09 (5.74)	2.43 (4.70)
Anonymous	247	0.47	5.00 (5.65)	2.37 (4.62)
Non-anonymous	250	0.48	5.17 (5.84)	2.48 (4.80)
No reference	125	0.45	6.48 (7.45)	2.90 (3.58)
Reference: $2	124	0.56	3.46 (3.81)	1.92 (3.32)
Reference: $5	124	0.44	4.82 (3.24)	2.10 (3.21)
Reference: $10	124	0.47	5.92 (7.05)	2.78 (5.20)

particularly large for public goods, compared to private goods (List and Gallett 2001; Johansson-Stenman and Svedsäter 2007).

The signs of the effects of different social contexts were largely as expected. For example, if people choose to donate, they will donate substantially more if they are given a $10-

reference point instead of a $2-reference point. This held for both the hypothetical and the actual treatments. The effect of anonymity was less clear. In the case of actual contributions, the conditional contribution was larger in the non-anonymous case, as one might expect, whereas the opposite pattern held in the hypothetical case.

However, the main purpose here was neither to investigate the extent of hypothetical bias nor to quantify the importance of various kinds of social contexts, but instead to investigate the response differences between the hypothetical and actual treatments with respect to these social contexts. Table 3 summarizes these differences.

Table 3 Contribution Differences between Different Treatments Divided along Hypothetical and Actual Contribution Treatments

	Contribution differences between samples	
	Hypothetical contributions	**Actual contributions**
	Non-anonymous	***Anonymous***
Share positive contribution	- 3 percentage points	1 percentage point
Conditional contribution	-$0.48 (-5%)	$0.17 (3%)
Sample contribution	-$0.67 (-8%)	$0.11 (5%)
	Reference $2	***No reference***
Share positive contribution	5 percentage points	8 percentage points
Conditional contribution	-$5.76 (-49%)	-$3.02 (-47%)
Sample contribution	-$4.49 (-46%)	-$0.98 (-34%)
	Reference $5	***No reference***
Share positive contribution	5 percentage points	-1 percentage point
Conditional contribution	-$4.66 (-40%)	-$1.66 (-26%)
Sample contribution	-$3.57 (-36%)	-$0.80 (-28%)
	Reference $10	***No reference***
Share positive contribution	6 percentage points	2 percentage points
Conditional contribution	-$1.54 (-13%)	-$0.56 (-9%)
Sample contribution	-$0.7 (-7%)	-$0.12 (-4%)

The first part in table 3 reports the comparison between non-anonymous and anonymous treatments. For example, for hypothetical contributions, the share of people contributing was 3

percentage points lower in the non-anonymous treatment, and the sample average contribution was $0.67, or 8 percent, lower. By comparing the second and third columns, we could compare the response difference between hypothetical and actual contributions for a given social context treatment. Although there were indeed differences between the hypothetical and actual treatments, they were rather small (particularly compared to the hypothetical bias). More importantly, although we excluded some extreme outliers, the mean values were still rather sensitive to a few observations.

In order to deal with the outlier problem, we also present the results from a regression analysis. The dependent variable, "contribution," was censored since it equaled zero for a substantial fraction of the subjects. In addition, there are two issues of interest here: whether to contribute anything at all, and how much to contribute, given a positive contribution. Since there were good reasons to consider these as two different decisions, a basic Tobit model would be inappropriate. We therefore used a simple two-stage model. The decision whether to contribute anything or not was modeled with a standard probit model. The decision concerning how much to contribute, given a positive contribution, was modeled with a regression model that used only subjects with a positive contribution. For completeness, we calculated both a standard OLS regression and a robust regression, where the latter put a lower weight on outliers.[7] The base case in the regression models was given by actual contributions in the anonymous treatment with no mention of a reference contribution. In table 4, marginal effects for the two estimated models are presented together with the total marginal effect, i.e., including the effects of the probit stage. All marginal effects are calculated at sample means.[8] The total marginal effect is calculated as:

$$\frac{\partial E[C_i]}{\partial x_i} = \frac{\partial P[C_i > 0]}{\partial x_i} E[C_i \mid C_i > 0] + \frac{\partial E[C_i \mid C_i > 0]}{\partial x_i} P[C_i > 0],$$

where $E[C_i]$ is the expected contribution of individual *i*, $P[C_i > 0]$ is the probability that individual *i* contributes anything at all, and x_i is a covariate. Both the probit model and the regression models include a constant.

[7] We used the rreg command in STATA. First, a standard regression was estimated, and observations with a Cook's distance larger than one were excluded. Then, the model was estimated iteratively: it performed a regression, calculated weights based on absolute residuals, and regressed again using those weights (STATA 2005). See Rousseeuw and Leroy (1987) for a description of the robust regression model.

[8] For the probit model, the marginal effect for dummy variables was for a discrete change of the variable from zero to one.

We presented four different models for the contribution decision: two where the dependent variable was the contribution (one with a standard OLS regression and one with a robust regression), and two where the dependent variable was the natural logarithm of the contribution (one with a standard OLS regression and one with a robust regression). In all models, we pooled the hypothetical and actual contribution data.

In order to correct for an overall hypothetical bias, we included a dummy variable for the hypothetical experiment. To be able to identify response differences between the hypothetical and actual contribution treatments with respect to the different social contexts (the main task of this paper), we created interaction variables between the dummy variable for hypothetical treatment and the dummy variables for each social context. The results are presented in table 4.

The coefficient associated with the hypothetical experiment was, as expected, large and highly significant in all models, reflecting a large hypothetical bias. The four coefficients in table 4 below show the influence of the different social contexts for the actual contribution experiment. Interestingly, there was no difference between the anonymous and non-anonymous treatments. These results can be compared to List et al. (2004), who found that the proportion of subjects voting in favor of a proposal to finance a public good was significantly lower in a treatment where subjects were completely anonymous (20 percent), compared to a treatment where the solicitor observed the behavior (38 percent). The likelihood of a positive contribution was also higher in the treatment with a $2-reference contribution, compared to giving no reference information at all, whereas the corresponding effect on conditional contributions was negative. It thus appears that while providing a low reference point increases the probability of a positive contribution, the average size of the contribution is lower when compared to not providing a reference point.

Our main interest lay in the last four coefficients. They reflected the difference in social context effects between the hypothetical and actual experiments, where we controlled for an overall difference between the two experiments. For non-anonymity, we did not find any significant difference between the hypothetical and actual experiments for any of the presented models. For reference contributions, we did not find any significant difference between the hypothetical and actual experiments for the $2- and $5-reference contributions; this applied both to the probability of a positive contribution and to the size of the conditional contribution. For the $10-reference contribution, we did not find any significant difference in most models. However, in the case of a robust regression where the dependent variable was the contribution, we found a significant difference (at the 10-percent level). For the $10-reference level, the increase in contributions was $1.40 higher in the hypothetical experiments, compared to the

Table 4. Regression Analysis of Hypothetical and Actual Contributions to the National Park

The coefficients reflect marginal effects evaluated at sample means. All models include an intercept, solicitor dummy variables, and subject characteristics variables. P-values are in parentheses.

		Dependent variable: Contribution				Dependent variable: Log (contribution)			
	Probit	OLS regression		Robust regression		OLS regression		Robust regression	
		Conditional effect	*Total effect*	*Conditional effect*	*Total effect*	*Conditional effect*	*Total effect*	*Conditional effect*	*Total effect*
Hypothetical contribution (HC*)	0.390 (0.000)	5.604 (0.001)	6.649 (0.000)	1.935 (0.003)	4.191 (0.000)	0.613 (0.000)	1.034 (0.000)	0.442 (0.002)	0.920 (0.000)
Non-anonymous treatment	0.013 (0.738)	0.072 (0.951)	0.147 (0.891)	-0.119 (0.790)	0.018 (0.970)	0.029 (0.791)	0.040 (0.721)	-0.043 (0.673)	-0.007 (0.946)
Treatment with a $2 reference contribution	0.089 (0.086)	-2.944 (0.073)	-1.315 (0.373)	-1.995 (0.001)	-0.679 (0.304)	-0.576 (0.000)	-0.244 (0.112)	-0.699 (0.000)	-0.327 (0.026)
Treatment with a $5 reference contribution	-0.018 (0.752)	-1.450 (0.404)	-1.104 (0.481)	-0.069 (0.916)	-0.179 (0.800)	-0.106 (0.504)	-0.100 (0.546)	-0.103 (0.486)	-0.098 (0.535)
Treatment with a $10 reference contribution	0.015 (0.791)	-0.328 (0.848)	-0.111 (0.943)	0.110 (0.865)	0.182 (0.793)	-0.139 (0.372)	-0.070 (0.666)	-0.074 (0.612)	-0.026 (0.866)
HC* non-anonymous treatment	-0.062 (0.347)	-0.428 (0.772)	-0.750 (0.585)	0.276 (0.620)	-0.278 (0.687)	-0.001 (0.997)	-0.100 (0.525)	0.087 (0.488)	-0.041 (0.786)
HC* treatment with a $2 ref. contribution	-0.003 (0.977)	-2.824 (0.169)	-1.911 (0.315)	-0.805 (0.299)	-0.558 (0.554)	-0.045 (0.811)	-0.034 (0.875)	0.035 (0.840)	0.020 (0.925)
HC* treatment with a $5 ref. contribution	0.076 (0.333)	-2.991 (0.162)	-1.437 (0.461)	-0.655 (0.417)	0.128 (0.888)	-0.161 (0.408)	0.014 (0.946)	-0.114 (0.533)	0.046 (0.820)
HC* treatment with a $10 ref. contribution	0.073 (0.359)	-1.145 (0.586)	-0.224 (0.907)	1.420 (0.074)	1.494 (0.101)	0.221 (0.248)	0.265 (0.206)	0.205 (0.252)	0.255 (0.206)
Solicitor dummy variables	Included	Included	Included	Included	Included	Included	Included	Included	Included
Subject characteristics variables	Included	Included	Included	Included	Included	Included	Included	Included	Included

increase in contributions was $1.40 higher in the hypothetical experiments, compared to the actual experiments. This finding is far from robust, however, and in the standard OLS regression, the sign was reversed (although the effect is insignificant).[9] In the two models with the log of contribution as the dependent variable, both the OLS and the robust regressions showed that the influence of the $10-reference level on the conditional contribution was about 20 percent higher in the hypothetical treatment compared to the actual treatment, but the coefficient was insignificant in both cases.

4. Conclusions

This paper discusses a test for whether people are more influenced by social contexts in a hypothetical experiment than in an experiment with actual monetary implications. We based the test on a natural field experiment with voluntary contributions to a national park in Costa Rica. We found a large hypothetical bias. However, we did not find any significant differences between hypothetical and actual contributions with respect to the effects of social context, except for one treatment and one regression model for which a significant effect at the 10-percent level was observed. The results suggest that social context is important in general and is not a phenomenon that is primarily present in situations that do not involve tradeoffs with actual money. This can be compared to the findings by List et al. (2004), who observed similar effects of different information treatments for hypothetical and actual voting treatments. Our results consequently imply a generalization of the findings by List et al. to a field experiment setting—most importantly—and which also encompasses provided reference contributions.

Our results also have important implications for validity tests of stated preference methods, such as the contingent valuation method. A frequently used test, which is typically considered reliable, is to compare the hypothetical responses from a stated preference method to a corresponding set-up that involves actual money (e.g., Cummings et al. 1997; and Blumenschein et al. 2007). However, it follows from the results here that treatments that involve actual monetary payments are also vulnerable to framing effects, which calls such tests into question; this conclusion parallels List et al. (2004). Moreover, we have in addition shown that people appear to be almost as vulnerable to framing effects even if they do not know that they are participating in an experiment. Thus, the result of the validity test is not only vulnerable to the framing of the stated

[9] The underlying reason for this rather large difference between the robust regression and the OLS regression results was, of course, the influence of a few large contributions.

preference formulations (use of cheap talk scripts, etc.), but also to the context in which the actual behavior is observed. If the ultimate purpose of the test is to find out the extent to which the stated preference method reflects the valuation in reality, it is important that the actual comparison case resembles as closely as possible the social context in which the valuation typically takes place in reality. Future research based on other samples and different situations is encouraged in order to test the extent to which the conclusions here are robust.

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