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Natural-field dictator game shows no altruistic giving ☆

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ABSTRACT

Economic experiments are increasingly being used in a number of research areas and are a major source of data guiding the debate surrounding the nature of human prosociality. The degree to which experiment behavior accurately reflects external behavior, however, has long been debated. A number of recent studies have revealed just how remarkably sensitive participants are to cues of a lack of anonymity. Similarly, others have suggested that the very structure of the experimental context induces participants to choose prosocial options. In order to truly create anonymous conditions and to eliminate the effects of experimental contexts, participants must not be aware of their participation. Here, I present the results of a natural-field Dictator Game in which participants are presented with a believable endowment and provided an opportunity to divide the endowment with a stranger without knowing that they are taking part in an experiment. No participants gave any portion of the endowment to the stranger. Baseline frequencies of prosocial behaviors exhibited under experimental contexts might therefore be substantially inflated compared to those exhibited under natural contexts.

1. Introduction

Humans are remarkable in the extent to which they engage in cooperation, altruism and other forms of prosocial behavior with non-kin and even perfect strangers. There remains great debate concerning the nature and proximate motivations of human prosociality, as well as the ultimate origins and maintenance of such behavior (Burnham & Johnson, 2005; Gintis, 2000; Guala, 2012; Henrich, 2004). Researchers have long relied on economic experiments to inform this debate, as such methods allow for the level of control necessary to test the nuanced predictions of competing models. A number of researchers, however, have questioned the degree to which the prosocial behaviors exhibited under experimental contexts reflect behavioral patterns outside the lab (i.e. their external validity) (Burnham & Johnson, 2005; Guala, 2012; Gurven & Winking, 2008; Haley & Fessler, 2005; Levitt & List, 2007; List, 2009). Paramount among the concerns is the possibility that participants in anonymous experiments continue to behave as if they are being observed because of elements of the experimental context (e.g. recording one's decisions, the presence of researchers, etc.) (Fessler, 2009; Gigerenzer & Gigerenzer, 2005; Hagen & Hammerstein, 2006; Haley & Fessler, 2005). We explore the impact of the experimental context by comparing the results of a traditional Dictator Game including a strong form of anonymity to a natural-field Dictator Game in which participants are unaware they taking part in an experiment. Under the experimental context, donations were comparable to those reported in previous studies. However, no participants gave any money under the natural-field condition, suggesting the experimental context is positively influencing prosocial behavior.

1.1. External validity

The degree to which results obtained under experimental contexts can be generalized to other settings, including natural or real-world settings, is often referred to as "external validity" (Campbell & Stanley, 1963). While few question whether the results of physics experiments conducted in a lab fail to illustrate how bodies behave in nature, there are a number of reasons why human behavior might be influenced by the artificial and observed circumstances of experimental protocols (Levitt & List, 2007). While some studies have revealed positive associations between laboratory and real-world behavior (e.g., Englmaier & Gebhardt, 2010; Fehr & Leibbrandt, 2008; Franzen & Pointner, 2012b), others report only weak associations if any at all (e.g., Barr & Zeitlin, 2010; Benz & Meier, 2005; Gurven & Winking, 2008; Hill & Gurven, 2004).

Zizzo (2010) suggested that participants in economic experiments might be influenced by "cognitive experimenter demand effects" (CEDEs), which result from the actual nature of the artificial task and how it creates certain expectations about appropriate behaviors. Numerous factors can contribute to cognitive CEDEs, such as the establishment of the option set available to participants,

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emphasizing contextual variables of interest, or the particular research instruments used. For instance, in the Dictator Game (DG), participants are given an endowment and then provided an option set with a single active choice: to give however much of the endowment they would like to a random recipient. This might influence beliefs concerning how the game is "supposed" to be played. It undoubtedly causes them to consider this prosocial option more than if they had not been told of it (Bardsley, 2008; List, 2007; Pedersen, Kurzban, & McCullough, 2013). If the task is evident and does not require instruction, the experimental context itself does not appear to influence participant behavior (e.g., Fessler, 2009), but few experiments meet these criteria. Reducing CEDEs often presents a challenge, as they are established by the volunteering of the participant, the establishing of the research setting and the creating of the research task itself. Research that is completely free of CEDEs must therefore take the form of natural observation.

Another factor that might lead to differences between real world and laboratory behavior is the salience of the anonymity that is offered (Franzen & Pointner, 2012a; Haley & Fessler, 2005). Researchers frequently offer participants some level of anonymity in economic games in order to eliminate reputation-mediated effects. Anonymity typically refers to a mutual lack of awareness between interacting participants, but can also include anonymity between participant and experimenter (Levitt & List, 2007). The impact of anonymity is particularly important as different models concerning the proximate nature and evolutionary origins of human prosociality place different weights on the importance of reputation maintenance as a motivating factor (Haley & Fessler, 2005; Nowak & Sigmund, 1998). It is clear that participants are sensitive to reputational effects —the presence of observers increases prosocial behaviors (Andreoni & Bernheim, 2009; Kurzban, DeScioli, & O'Brien, 2007; Milinski, Semmann, & Krambeck, 2002), while stronger forms of anonymity decrease prosocial behaviors (Dana, Weber, & Kuang, 2007; Franzen & Pointner, 2012a; Hoffman, McCabe, Shachat, & Smith, 1994). Yet, even under the strongest forms of anonymity, prosocial behaviors are not entirely eliminated.

A number of recent studies, however, have revealed just how sensitive participants are to the possibility of being observed (Bateson, Nettle, & Roberts, 2006; Haley & Fessler, 2005; Nettle et al., 2013; Rigdon, Ishii, Watabe, & Kitayama, 2009; although see Lamba & Mace, 2010). Very subtle cues, such as an image of observing eyes or even dots arranged to vaguely resemble a face, increase the frequency (although not the amounts) of prosocial donations (Nettle et al., 2013). Despite assurances of anonymity, participants must still somehow record their decision with the knowledge that it will be reviewed and analyzed. The anonymity that is offered might therefore fail to meet the contextual requirements to be psychologically salient to all participants. Thus, the question remains: are these baseline levels of prosocial behaviors under anonymous experimental conditions the result of evolved predispositions to behave prosocially or follow internalized norms, or are they result of some reputation-concerned individuals still perceiving the experimental context as being non-anonymous?

1.2. Natural-field experiments

In order to provide absolute anonymity and eliminate the impacts of the experimental context, participants must be unaware that they are taking part in an experiment and made to believe that no one else is aware of their decision. This type of field experiment is often referred to as a natural-field experiment (Harrison & List, 2004). For such experiments, some level of engagement is often necessary in order to implement a treatment, initiate the task or establish appropriate controls. In some instances, researchers are able to very accurately recreate common laboratory experiments under natural-field settings, providing insight into, among other things, the impact of the laboratory conditions on player behavior (e.g., Camerer, 1998; List, 2006). The ability to recreate such experiments is often determined by the complexity of the task as well as sheer serendipity. While other forms of field experiments (more representative sample pool, natural currency, etc.) might improve the salience of certain tasks to participants, only the natural-field form allows for an exploration of how individuals behave in these tasks when they believe to be free from scrutinizing observation (Harrison & List, 2004).

The DG is a prime candidate for a natural-field study—it is one of the simplest games and one of the most widely used. As described above, a participant is given a windfall endowment and told that they can distribute the endowment between themselves and an anonymous recipient however they choose. Starting with Kahneman, Knetch, and Thaler (1986), at least 129 studies have since been published involving the use of the DG, including a combined 20,813 observations (Engel, 2010). Although there exists substantial cross-cultural variation, with participants from non-Western societies tending to be more generous, the vast majority of these studies involve Western populations. The mean offer from the meta-sample is 28% of the endowment with nearly two-thirds of participants offering a non-zero amount (Engel, 2010). The fact that participants tend to offer some amount, when the offering of nothing unambiguously maximizes their returns, has been presented as evidence that humans do not behave in ways that maximize wealth and have the capacity to act altruistically (Camerer, 2003; Henrich et al., 2004).

To date, only one other method has been employed (in two separate studies) to recreate the DG as a natural-field experiment (Franzen & Pointner, 2012b; Stoop, 2012). Natural-field experiments rarely replicate all aspects of their laboratory analogs; thus, different natural-field methods can capture different elements of the original protocol. In Stoop's well-controlled study, for instance, participants received an ostensibly misdirected envelope in the mail. The envelopes were transparent and included a conspicuous thank you note and a cash prize addressed to and intended for someone else who had volunteered. The task was therefore to decide whether to keep the money or go to some effort to mail the letter to the intended recipient. Participants in the natural-field design behaved similarly to those who were given the same task but aware that it was an experiment. In such a design, much of the DG is captured, except that the recipient has strong property rights to the endowment and the decision is largely dichotomous. Previous studies have shown that strong recipient property rights can lead to very different outcomes, sometimes achieving 100% non-zero donations (Carlsson, He, & Martinsson, 2010; Cherry, Frykblom, & Shogren, 2002; Oxoby & Spraggon, 2008). Thus, Stoop's study suggests that participants' motivation to follow strong social norms (e.g. do not steal others' property) is unaffected by the experimental context. However, most Dictator Game studies utilize windfall endowments, for which property rights are weak and social norms ambiguous. Yet approximately two-thirds of participants continue to donate non-zero sums under such conditions. If the costs of failing to uphold social norms are lower when the norms are ambiguous, participants under such conditions might be more willing to reduce prosocial behaviors upon greater assurances of anonymity. Thus, a traditional windfall endowment might provide for a more sensitive test for the effects of experimental context. Here, we attempt a natural-field DG that utilizes a windfall endowment similar to most DG studies.

2. Methods

2.1. The dictator game

The study consisted of three DG Conditions carried out over three two-week trips to Las Vegas, Nevada over the summer of 2012. Participants included 90 individuals (30 per condition) waiting alone

at bus stops within one block of a major casino. Individuals were excluded if they were visibly intoxicated, mentally unstable or homeless. In order to create a natural-field DG, two major components must be recreated in a natural environment in a way that does not raise suspicion. These include the delivery of a windfall endowment of a liquid, divisible commodity and the opportunity to anonymously give any portion of that endowment to a random, unknown individual. In order for the endowment to be considered a windfall, receipt of the endowment must not be based on the participant's actions. This could possibly include such actions as winning the endowment in a game of chance, or even finding it on the ground.

To recreate these two components, the following steps were taken. Confederate 1 (JW) approached one of 12 pre-determined bus stops within one block of a Las Vegas, Nevada casino. He wore one of two shorts/t-shirt combinations that projected what we believed to be representative of the upper and lower portions of the average socio-economic status of individuals waiting at a bus stop. Once another lone individual began to wait at the bus stop (sometimes already present), Confederate 1 pretended to take a phone call and walked some distance away, facing away from the participant. Having a cellular phone did not seem to make Confederate 1 stand out socioeconomically, as cellular phones (and even smart phones) were ubiquitous at the bus stops. Confederate 2 (NM) then approached hurriedly while talking on a phone. Upon passing the participant, he pretended to notice chips in his pocket, stopped briefly and claimed to the participant that he was late for a ride to the airport and asked the individual if he/she wanted the casino chips, which he did not have time to cash in (three $5 chips and five $1 chips). For Condition 1, Confederate 2 then walked off. For Condition 2, Confederate 2 then, around the moment of handing over the chips, instructed the individual, "I don't know, you can split it with that guy however you want," while gesturing towards Confederate 1. During the entire interaction, Confederate 1 was sure to face the opposite direction. Note that this method of delivering a windfall endowment of a liquid, divisible commodity is believable because the commodity is conditionally liquid—casino chips only have value when one is able to trade them for cash. We include Condition 1 here so as to test for a CEDE due to the articulation of the option set available to participants—something that is typically a necessary component of experiments in the laboratory. Here, participants in both conditions will have the same options available to them, but only in Condition 2 are they told of these options.

After Confederate 2 had left, Confederate 1 pretended to end his conversation and moved within ten feet of the participant. The experiment ended when the individual gave him any chips, moved to leave the bus stop, the bus appeared to be coming, or thirty seconds transpired. In order to be included under Condition 1, the participants had to be aware of Confederate 1's presence. Three individuals were excluded for failing to meet this criterion as the bus came immediately after handing off the money for two participants and one immediately took off to cash in the chips. It was assumed that participants in Condition 2 were immediately made aware of Confederate 1's presence by the additional instruction.

Upon the termination of the natural-field portion of the study, Confederate 1 disclosed the true nature of what had just transpired and had the participant complete a short questionnaire. The questionnaire covered basic demographic information and an altruism battery adopted from the National Altruism Study that was included in the 2002 General Social Survey (Smith, 2003). Additional questions inquired as to whether the participant was suspicious of the artificiality of the experience, whether he or she felt Confederate 1 was aware of the endowment, and whether he or she felt others were aware of their behavior. For their completion of the questionnaire, they received an additional $10 in cash (they were allowed to keep the chips as well). No identifying information was recorded and questionnaires were placed upside-down into an envelope and sealed to be entered at a later date. If participants expressed reluctance for fear of missing the bus, or a bus did approach, they were offered $15 in cab fare so that they could miss the bus and complete the questionnaire. After they completed the questionnaire, they were also given a short debriefing form explaining the purpose the study.

Condition 3 was a more traditional DG utilizing the same population and currency and offering anonymity in a manner very similar to that employed by Hoffman and colleagues (Hoffman et al., 1994). Individuals waiting alone at a bus stop within a block of a casino in Las Vegas, Nevada were approached and asked if they wished to participate in a study that would involve them receiving some money. If they agreed, they were then consented only to the DG portion of the study and not the questionnaire (this was because the participants in Conditions 1 and 2 were unaware of the $10 payment when they made their donation decisions). In this experiment, participants were handed two envelopes, a yellow envelope with the word "KEEP" on it, and a white envelope with the word "GIVE" on it. They were then given $20 worth of chips as well as six fake chips. The chips were handed to them in a small chip-holder box with a divider in the middle and "FAKE" written on one side and "REAL" written on the other. While the researcher's back was turned, they divided the real chips between the two envelopes as they desired, and then distributed the fake chips between the two envelopes so as to make them feel roughly the same. In this way, the researcher remained totally unaware as to the composition of the chips in the donation envelope. It was explained to them that the chips in the "GIVE" envelope were to be recorded by a separate research assistant at a later date and handed out to a random individual waiting at a bus stop. They were to take those in the "KEEP" envelope home with them.

After completing the DG portion of the study, the participant was then informed of the questionnaire. Procedures for the questionnaire followed those outlined for Conditions 1 and 2. The only difference in the questionnaire for Condition 3 is that it did not include questions concerning whether the participant was suspicious that the event was staged or if Confederate 1 or others had seen what had transpired.

2.2. Locations and schedule

A number of bus stops were initially selected in Las Vegas, Nevada, that were within one block of a casino and were not in high

Table 1
Bus stop locations.

Location	Area	Casino Chips	Cond 1	Cond 2	Cond 3
Casino Center Blvd × Carson Ave	Downtown	Fremont	0	1	2
Carson Ave × Casino Center Blvd	Downtown	Fremont	5	6	3
Main St × Ogden Ave	Downtown	Las Vegas Club	2	2	4
Main St × Fremont St	Downtown	Las Vegas Club	3	4	2
Las Vegas Blvd × Fremont St	Downtown	The D	0	0	2
Ogden Ave × Las Vegas Blvd	Downtown	El Cortez	4	2	2
Las Vegas Blvd × E St Louis Ave	Las Vegas strip	Stratosphere	1	0	3
Main St × Las Vegas Blvd	Las Vegas strip	Stratosphere	5	6	1
St Louis Ave × Las Vegas Blvd	Las Vegas strip	Stratosphere	0	0	2
Las Vegas Blvd × Riviera Blvd	Las Vegas strip	Riviera	1	1	2
Spring Mtn Rd × Las Vegas Blvd	Las Vegas strip	Treasure Island	6	4	4
Las Vegas Blvd × Tropicana Ave	Las Vegas strip	Excalibur	3	4	3

pedestrian-traffic areas. A total of 12 bus stops were identified, with six in the Downtown area and eight along the Las Vegas strip (Table 1). The bus stops were sampled roughly in turn—bus stops would be skipped over if three hours passed without an opportunity for sampling a lone individual. Bus stops that utilized chips from the same casino were considered interchangeable, as they could be monitored at the same time. Some bus stops were abandoned because of low success rates. All casinos were within one block of the bus stop, although one bus stop was moved by the city during the course of our study to be one and one-half blocks away.

The Condition to be employed was determined prior to arriving at the bus stop. Conditions 1 and 2 were roughly alternated, although it was sometimes necessary to run the same condition multiple times in a row to balance out uneven distributions caused by the aforementioned skipping over. Condition 3 was mostly carried out (24 of 30 participants) during the first two-week trip. Roughly a month was allowed between trips so as to limit the number of individuals who were aware of our agenda and to allow the bus stops to "refresh" as people's schedules changed.

3. Results

3.1. Dictator games

Because of the nature of the study, conditions could not be as tightly controlled as in the laboratory. On occasion, other individuals would approach the bus stop; busses would come; participants would run off or refuse to fill out a questionnaire. Most individuals accepted the chips in Conditions 1 and 2; however, five refused because they did not speak English, and 12 refused the chips for other reasons. While the reasons for these refusals were not ascertained, many seemed incredulous, and they might have been suspicious that it was one of the many scams being run on the streets of Las Vegas (indeed, one of the authors fell victim to one of these). Of those who received chips, nine participants in Condition 1 and 11 in Condition 2 did not fill out the questionnaire. Three participants refused to complete the questionnaire in Condition 1, and four refused in Condition 2. Another four ran off in Condition 1 and two in Condition 2. Finally, five participants were lost to busses coming in Condition 2 (as described above, two individuals were excluded from the Condition 1 as their bus came before they could notice Confederate 1). For those without questionnaire data, ages were estimated on a 5-point scale (for those who did complete the questionnaire, our estimates correlate at $r = 0.903$, $n = 44$, $p < 0.001$). These age estimates were then used to compare the samples of the different conditions.

On occasion, other bus riders would approach the stop after the experiment had begun. This occurred on seven occasions for Condition 1, five for Condition 2 and 15 for Condition 3. There was no difference, however, in Condition 3 donations between those who were at bus stops to which additional riders arrived and those who were at bus stops that remained empty ($t = 0.786$, $n = 30$, $p = 0.439$). Furthermore, except for one instance in Condition 1 and one in Condition 3, those arriving maintained a great enough distance or arrived late enough that it did not seem likely that they could be aware of what had transpired.

Table 2 presents the descriptive statistics for the samples. The three samples did not significantly differ in gender composition, age, income, or resident composition. For Conditions 1 and 2, 25% and 16% respectively were suspicious that the event was staged. Furthermore, 10% and 12% thought that others had seen what occurred, and 50% and 31% thought that I may have witnessed what had occurred. Note that these last two possibilities should increase prosocial behavior, particularly if the participant believed that I had witnessed their receipt of the endowment and instructions to share it with me.

The results are striking (Fig. 1). The distribution of donations offered in Condition 3 is comparable to those of laboratory DGs, with perhaps slightly higher rates of giving a non-zero amount (83.3%) and a higher rate of hyperfair offers (16.7%). This might be due to the nature of the currency used. Handing 20 $1 chips was not feasible in Conditions 1 and 2; thus three of the chips were worth five times as much as the other five. Donating $11 dollars therefore involved fewer chips than donating $4. However, the mean donation of $5.43 (median = 5) is 27% of the total, very similar to the 28% reported in a meta-analysis of DG studies (Engel, 2010). Despite the relative similarity of the results of Condition 3 to those of laboratory studies, all 60 individuals who received the endowment without knowing an experiment was taking place, including the 30 who were directly told they could divide the endowment with Confederate 1 however they wanted (Condition 2), kept all of the chips. The differences between Condition 3 and Conditions 1 ($U = 75.0$, $p < 0.001$) and 2 ($U = 75.0$, $p < 0.001$) are, of course, statistically significant. With a sample of 30, we can be 95% confident that the true rate of giving a non-zero amount is at most 9.5% ($1–0.05^{1/30}$).

3.2. Altruism battery

The battery consisted of four questions about beliefs surrounding charitable giving, and 11 questions concerning the frequency of charitable actions (an additional question concerning religious behavior was also included but not used here). The belief questions did not exhibit good internal consistency (*Cronbach's* $\alpha = 0.401$, $n = 58$) and were therefore not used. The frequency questions, however, did exhibit good internal consistency (*Cronbach's* $\alpha = 0.836$, $n = 56$). Using a 1 to 6 scale and summing the measures resulted in near identical results as using the first principal component, and sums are therefore used here. The means of the sum of the frequency responses for Condition 1 ($\overline{x} = 39.17$, $SD = 9.04$, $n = 17$), Condition 2 ($\overline{x} = 42.38$, $SD = 11.63$, $n = 16$) and Condition 3 ($\overline{x} = 39.83$, $SD = 11.44$, $n = 23$) were not significantly different ($F = 0.407$, $n = 56$, $p = 0.668$). Furthermore, there was no significant association between this sum and donation amount in Condition 3 (*Pearson's* $r = -0.070$, $n = 23$, $p = 0.752$).

Table 2
Descriptive statistics across conditions.

	N	Interviews	Women	Average Age (N)	Median Income (N)	Visitor to LV (N)	Suspicious (N)	Others Witnessed (N)	Author Witnessed (N)
Condition 1	30	21	9	43.4 (30)	16[a] (16)	5 (18)	5 (20)	2 (20)	10 (20)
Condition 2	30	19	10	42.6 (30)	15 (15)	1 (19)	3 (19)	2 (17)	6 (19)
Condition 3	30	30	10	42.1 (29)	20 (27)	6 (30)	–	–	–
Tests for Differences (p-value)		0.001[b]	0.950[b]	0.949[c]	0.298[d]	0.187[b]	0.507[b]	0.863[b]	0.242[b]

[a] Annual income in thousands.
[b] Chi-square goodness of fit.
[c] Analysis of variance.
[d] Kruskal–Wallis one-way analysis of variance.

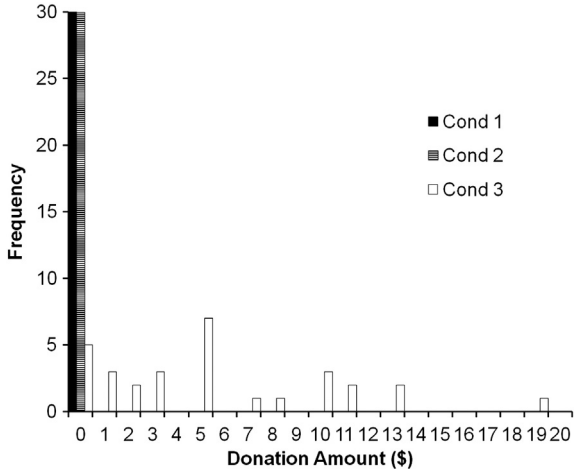

Fig. 1. Frequency of donation amounts across all three conditions. No donations were given for participants in Condition 1, in which the participant was given money but not any suggestion of what to do with it, and Condition 2, in which the participant was given money and told he or she could split it with Confederate 1 however they wanted. In the traditional Dictator Game (Condition 3), individuals gave a median of $5 with 83.3% giving a non-zero amount.

4. Discussion

This is only the second natural-field DG to have been conducted (Stoop, 2012), and perhaps the largest and simplest version of a DG to have a universal zero-donation response. There are, however, a number of ways in which the natural-field Conditions 1 and 2 differ from a laboratory DG, which might partly explain the stark differences. It is possible that people might be willing to donate to a random stranger, but not to Confederate 1 in particular. Confederate 1 is an unmenacing 35-year old male (5′ 7″, 150 lb). There were numerous participants who wore clothing indicative of a higher socioeconomic status than those worn by Confederate 1, although many individuals reported very low income or no income at all. Thus, some might have refrained from donating any money because they decided they were more deserving than Confederate 1. Altering aspects of the potential recipient, such as gender, attractiveness or neediness, might have impacted the frequency of donations. These changes, however, often alter the display benefits received from donating, and do not merely facilitate altruistic giving. Furthermore, while income has been found to influence DG donations (Lusk & Briggeman, 2011), it was not correlated with donations in Condition 3 in the present study (*Spearman's* $r = -0.009$, $n = 27$, $p = 0.966$).

It is possible that the participants in Condition 2 did not fully register the instruction to divide the endowment due to the excitement of such an odd encounter. While we did not inquire as to the degree to which participants understood or considered the instruction, Confederate 2 was sure to point to Confederate 1 and clearly state the instruction, and many participants acted as if they knew of the instruction. For instance, one participant walked away and stopped to wait for a cross walk signal. As Confederate 1 approached to disclose the nature of the study, the participant extended a handful of chips. After being told of the study, she admitted that she thought Confederate 1 was not aware of the transaction or the instruction to divide the chips, but after seeing him approach, assumed that he must have known and therefore offered some chips.

Perhaps the greatest difference between the natural-field condition and the traditional DG is that the recipient (Confederate 1) is aware of the identity of the donor in the natural-field condition. Thus, while donating zero might have offered greater anonymity than is possible under laboratory conditions, donating a non-zero amount involved much less anonymity. Previous evidence suggests such non-anonymity should increase prosocial behavior (Andreoni & Bernheim, 2009; Kurzban et al., 2007; Milinski et al., 2002), although participants might be reluctant to initiate a conversation with a stranger. Two individuals in Condition 1 initiated conversation with Confederate 1 simply to relay their good fortune (although not to donate any money), suggesting some people are willing to engage strangers.

Finally, the three conditions all differ from laboratory studies in that they were conducted in a public setting. Thus, while all attempts were made to ensure that no one else could hear or know of participants' decisions, people could have been watching them, perhaps cuing them to assume a state of non-anonymity. Lamba and Mace (2010) found that Ultimatum Game participants did not respond to the number of individuals within the room as long as their responses were still anonymous, suggesting participants take into account what information is available to potential observers. Note that while Lamba and Mace's study suggested that the mere presence of others did not cue participants to assume a state of non-anonymity, it did not test whether the recording of one's decision led participants to this assumption—this is something that can only be assessed in a natural-field study, as there would be no way to access the data otherwise.

It may not be possible to faithfully recreate all aspects of laboratory economic games in natural settings (although see List, 2006). Indeed, laboratory experiments are often conducted specifically because such conditions cannot be replicated in the field. In the natural-field DG reported here, we believe the similarities are great enough to demand a reevaluation of the true nature of prosociality exhibited in many laboratory experiments. While previous studies found no impact of experimental context on participant behavior for certain tasks (Fessler, 2009; Stoop, 2012), the current study suggests experimental context does influence participant behavior under the conditions common to traditional DG's. Experimenter demand effects present in traditional economic games might be the true culprit, although the lack of variance between Conditions 1 and 2 precludes any formal inferences from the present study. It was our general observation, however, that Condition 1 participants reacted differently after the natural-field portion than Condition 2 participants. Once the nature of the study was disclosed to Condition 1 participants, many remained confused as to what potential behavior was being assessed, as donating a portion of the endowment to a stranger seemed unnatural. As mentioned above, two individuals even told Confederate 1 what had occurred, never making any indication that they were considering donating a portion of their endowment. No confusion was observed among Condition 2 participants, suggesting that cognitive experimenter-demand effects at least influence what participants consider. Natural-field experiments are the only recourse available to fully eliminate such effects.

The alternative possibility is that participants are responding to a more salient form of anonymity offered by the natural-field conditions. It is well established that DG participants respond to stronger anonymity by reducing donations (Andreoni & Bernheim, 2009; Franzen & Pointner, 2012a), suggesting that any residual perception of non-anonymity would result in some positive donations even in the absence of pure or impure altruistic motivations. Absolute anonymity may prove a poor replacement for absolute secrecy, which is what actually needs to be recreated. When an individual makes a self-regarding decision under secret conditions, no one else is ever aware that a decision was even made. Such a scenario is much more common in everyday life than the odd conditions that would be necessary to allow only for anonymity and is one that cannot be recreated under laboratory conditions.

Supplementary Materials

Supplementary data to this article can be found online at http://dx.doi.org/10.1016/j.evolhumbehav.2013.04.002.

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