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# The Stability of Social Preferences in a Low-Income Neighborhood

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# The Stability of Social Preferences in a Low-Income Neighborhood

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We investigate whether social preferences are stable across contexts using a field population of low-income Americans. We develop and demonstrate a simplified, visually-based experimental methodology appropriate for this population. We show that choices in a laboratory public goods game predict giving in real donation experiments, as well as self-reported donations and volunteering outside the lab. At the same time, choices vary systematically by individual characteristics and decision context. Thus, our results provide evidence both for an underlying stable social preference and for the role of context in influencing the expression of that preference.

**JEL Classification:** H41, C93, D01, Z13

## 1. Introduction

Economists model individuals as utility-maximizers, under a maintained assumption of stable preferences. Recently, researchers have challenged this assumption in the domain of social preferences, arguing that social preferences may be contingent on the context in which they are expressed. This argument echoes an older claim made by psychologists that preferences are *constructed* from details of the situation (e.g., Tversky and Kahneman 1981; Payne, Bettman, and Johnson 1993). We contribute to this discussion by examining the stability of social preferences, in particular the preference to contribute to public goods, across contexts.

The debate over preference stability is by no means new. Stigler and Becker (1977) lay out the argument for stable preferences, the notion that tastes do not “change capriciously” (p. 76).

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Plott (1996) contrasts the constructed preference viewpoint as “The construction [of preferences] depends upon the mode in which a response is called. Task and context are thought to influence the construction and, as a result, preferences are thought to be labile if, indeed, they can be said to exist at all” (p. 227; see also Lichtenstein and Slovic 2006).

Two intermediate cases have been proposed. Plott (1996) argues that preferences are stable but unknown to the individual, and are *discovered* through repetition and learning. A related concept is suggested by Hoeffler and Ariely (1999), who argue that individuals construct preferences when they are faced with a new type of decision and then these preferences stabilize.

The stability of social preferences across decision environments has been explored in several prior studies. Karlan (2005) shows stability in trustworthiness across contexts: Behaviors in laboratory trust games are good predictors of loan default in Peru. Benz and Meier (2008) show stability in charitable behavior across contexts: Donations in a modified dictator game (where the recipient is a charity rather than a person, see, e.g., Eckel and Grossman 1996) significantly predict donations to the university’s social funds. Carpenter and Seki (2006) show that cooperative preferences, measured with a public goods game, relate to labor productivity among Japanese fishermen. Laury and Taylor (2008) find mixed evidence for stability of cooperative preferences between lab provision of public goods and one particular charitable organization, Trees Atlanta, which plants shade trees in urban areas. Social preferences are exhibited by subjects in a lab setting but not in a market setting in List (2006).<sup>1</sup>

We examine the stability of social preferences in the context of voluntary contributions to provide public goods. Previous research has identified multiple motivations for voluntary contributions to public goods, including altruism (Becker 1974), warm glow (Andreoni 1989, 1990), reciprocity (Falk and Fischbacher 2006), and fairness (Fehr and Schmidt 1999; Bolton and Ockenfels 2000). Our article does not distinguish between these motivations but instead asks whether the exhibited social preferences are stable across domains. We compare revealed preferences for contributions in the lab across several different decision contexts, as well as collecting data on activities outside the lab. Our research thus enables us to compare lab-based decisions with related self-reported behavior.

We examine this question using an unusual population of particular interest: a culturally and ethnically distinct low-income, urban neighborhood in Dallas, Texas, rather than the traditional convenience sample of undergraduates. We first measure the preference for cooperation using a linear voluntary contributions mechanism (VCM) in a small-group lab setting (albeit with a field population). Next, we compare choices in the VCM with behavior in a different context, also in the lab: the decision to contribute to local charitable organizations. We find that VCM behavior predicts giving in a series of donations experiments where subjects are given the opportunity to contribute to a variety of local charitable causes. Finally, we compare VCM giving with self-reported charitable and volunteering activities and find a similar

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<sup>1</sup> In addition to the stability of social preferences, other studies have focused on the stability of time and risk preferences. For example, Ashraf, Karlan, and Wesley (2006) find that individuals who are hyperbolic discounters have a higher demand for savings commitment devices, and Meier and Sprenger (2010) show that individuals who are present-biased have higher credit card balances. Eckel, Johnson, and Montmarquette (2005) compare short-term (2–28 days) and long-term (7 years) investment decisions using a population of low-income Canadians and find that, while short-term elicited discount rates are higher in magnitude than their long-term counterparts, the short-term decisions reliably predict the long-term decisions. Additional studies include Slovic (1964), MacCrimmon and Wehrung (1985), Eckel et al. (2007), Andersen et al. (2008), and Dave et al. (2010).

correlation. We conclude that at least some portion of social preferences are stable and can thus be safely modeled, estimated, and used to predict related decisions of individuals across contexts.

This study has several novel features compared with previous studies. First, we examine prosocial behavior and the stability of that behavior with a new population. We further make a methodological contribution by describing an experimental implementation for use in this population. Second, we demonstrate that the poor give, and that the correlation between behavior in the experimental revealed preference games and actual donations behavior exists for them (and not just for university students). Finally, unlike previous studies, we examine a variety of charitable behaviors, not just one, which allows us to examine the stability of social preferences across these multiple decision environments. This design allows us to identify not only the stability of preferences but also the context-specificity of those preferences.

The results generally support the stability of social preferences. Preferences for contributing to a public good are relatively stable and robust across decision environments. Note, we are not claiming that all preferences are stable, or that context is irrelevant in predicting individual decisions. In our data, choices are neither identical nor perfectly correlated across contexts, indicating that context also plays a role in these decisions. Indeed, many preferences (including social preferences) require information about the context in order to be expressed as actions. For example, if an individual has a preference for reciprocity, then his actions will vary depending on the actions (prior or anticipated) of his counterpart (the context). Similarly, if an individual prefers to choose the second-largest piece of a cake, her particular choice will vary based on the choice set provided (Sen 1993). Understanding how preferences are affected by elements of the relevant contexts is critical in understanding when it is possible to use actions in one domain to predict actions in another, and when it is not.

Understanding the stability of preferences across multiple domains also has important policy implications. Stability would indicate that when preferences are measured in one domain, then resulting insights can be applied to different but related areas. It would also support the use of appropriately designed experiments to create a test-bed for economic policies (e.g., Plott 1994).

Note that in a companion piece (de Oliveira, Croson, and Eckel 2011) we examine the possibility of an underlying, latent preference for giving by examining the correlations between choices made in the VCM and donations experiments. In addition to discussing the field methodology in detail, in this piece we extend our previous work by rigorously examining the stability of this preference for generosity across multiple domains, extending the analysis to giving outside the lab, and investigating the role that context plays in these giving decisions.

The remainder of the article is organized as follows. In section 2 we discuss the process and considerations involved in designing experiments for low-income populations. Section 3 then addresses the implementation of this design. In section 4 we discuss the subject pool and results from each task independently, and sections 5 and 6 present the relationships between them. Section 7 concludes.

## **2. Designing Experiments for Low-Income Populations**

In designing experiments for low-income and low-literacy populations, a number of factors need to be addressed that do not necessarily arise when conducting experiments with

university undergraduates. In this section, we describe the experimental procedures we implemented and how they might be generalized for other experimental implementations.

Project design, recruiting, and set-up require a substantial investment of time with the local leaders to build legitimacy and trust. Community leaders, once on board with the project, provide a great source of inside information about the community and what they perceive as the community's problems. They are also particularly helpful in pre-testing experimental designs, identifying effective locations for recruiting, and running sessions (which needed to be on multiple bus routes to allow for easy access by the subjects), as well as identifying local assistants (which helped increase legitimacy when running the sessions). Additionally, they provide important guidance about parameters: The show-up fee of \$20 was set by asking community leaders to suggest an amount that would encourage individuals to participate and compensate them for their travel time and expenses (like bus fare) without exerting undue influence (to comply with human subjects constraints).

Subjects were recruited via flyers distributed at homes and local businesses. The flyers, as shown in Figure 1, described key aspects of the experiment and included a phone number to call to register.<sup>2</sup> Participants called the number, registered for a session, and arrived at the site.

The experimental materials required decision tasks and forms and instructions that were explicitly designed for a low-literacy population, with the games presented in pictorial form with minimal text.<sup>3</sup> These were contained in a response booklet containing a pictorial instructions page, an example page, and a decision form for each of the experimental games. Another key consideration for the field implementation involved the determination of appropriate stakes. Stakes were set so that subjects would earn an additional \$60 in expectation, or approximately one and a half days' wages at a minimum-wage job.<sup>4</sup> Further, subjects were paid for one of their decisions, rather than paying for all at lower stakes.

Experimental games used as controls in the following analysis included measures of risk, patience, and a public goods game, the linear voluntary contribution mechanism (VCM). The presentation of the risk measure has evolved from the original tabular version of Binswanger (1980) and Eckel and Grossman (2008) to a pictorial presentation with circles for each gamble used for field implementations, as described in Eckel et al. (2011). In this task, participants are presented with six possible gamble choices, and they select the one they like best. Gambles 1–5 increase in risk and return up to an expected-value maximizing point, and gamble 6, which has the same expected value as gamble 5, increases the variance. For this study, the implemented gamble choices are 1 = \$80/\$80, 2 = \$60/\$120, 3 = \$40/\$160, 4 = \$20/\$200, 5 = \$0/\$240, 6 = -\$20/\$260. For the current study, we present pictures of the dollar amounts for each of the possible outcomes as well as the dollar figures.

The patience measure has evolved from a sequence of studies that use a series of choices between smaller-and-sooner (SS) and larger-and-later (LL) payoffs. These began in either hypothetical (Kurz, Spiegelman, and West 1973, as described in Thaler and Shefrin 1981) or tabular (Coller and Williams 1999) form. They were represented using a calendar to show

<sup>2</sup> As a word of caution: We strongly recommend using disposable cell phones rather than a lab or office phone number for this type of field work. The lab continued to get registration calls for this study a year after it ended.

<sup>3</sup> According to the 2000 Census, only 53.6% of the population in the community graduated high school.

<sup>4</sup> At the time, minimum wage was \$5.15 per hour. Including the show-up fee, our stakes were almost two days work at minimum wage.

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# for your thoughts!

## Fair Park Residents...

### We Want to Know What You Think!

- Participate in a UNIVERSITY OF TEXAS AT DALLAS study.
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**(972) 883 - 4880**

This study uses financial incentives to simulate real life decisions.

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 Call before June 4<sup>th</sup>

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 UTD STUDY CALL (972) 883-4880

Figure 1. Recruiting Poster

payment dates (Eckel, Johnson, and Montmarquette 2005, In press) and in visual form, with dollar bill representations, as early as 2002 (Johnson, Montmarquette, and Eckel 2003).<sup>5</sup> For this study, we implemented a set of 10 separate choices between SS and LL options. Each decision involves a choice between a SS option of \$60 tomorrow, and an LL option that varies

<sup>5</sup> This innovation is due to Cathleen Johnson.

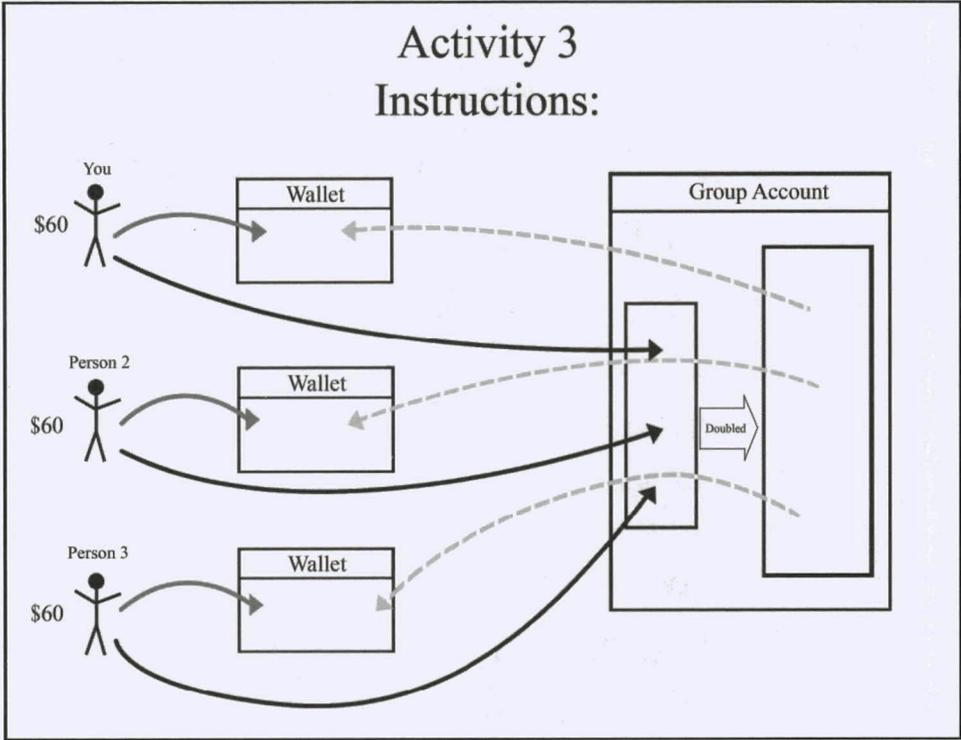


Figure 2. VCM Instructions Page

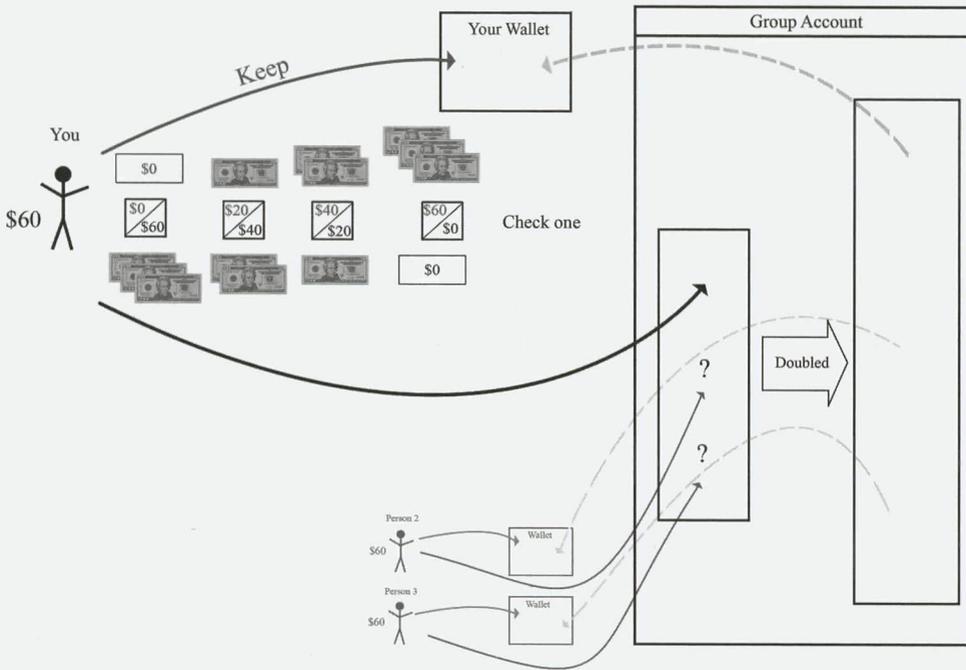
between \$61 and \$68 in one month and between \$65 and \$100 in five months.<sup>6</sup> Both risk and time preferences are included as controls in our analysis.

The VCM representation is a new one, specifically designed for this population. The instructions are shown in Figure 2, and the decision form shown in Figure 3. These figures represent a VCM with three players, and a marginal per capita return (MPCR) of 0.66. As with the other experimental games, all instructions were presented verbally. Each individual had a \$60 endowment, and we described individuals deciding how much they wanted to “put in their wallet” and how much they wanted to “put in the group account,” rather than the more abstract “allocate” language often used in instructions with undergraduate students. This was done to minimize confusion among the subjects and had the added advantage of creating parallelism between this and the donation experiments, described below. Money in the individual account (the wallet) was kept by the individual. Money in the group account was doubled and then divided equally among the three members of the group, regardless of their decisions.

In order to simplify the decision, participants were given four options. They could choose to keep all \$60, keep \$40 and donate \$20, keep \$20 and donate \$40, or donate all \$60. When the choice was described, a circle was drawn around each option to visually clarify how the choices were read. We intentionally excluded the option to give half of the endowment for two reasons. First, we wanted to move respondents away from the focal 50/50 split to ensure variability in

<sup>6</sup> These involve annual simple interest rates of 20–160%. These are high to reflect the rates experienced by individuals in the communities.

# EXAMPLE



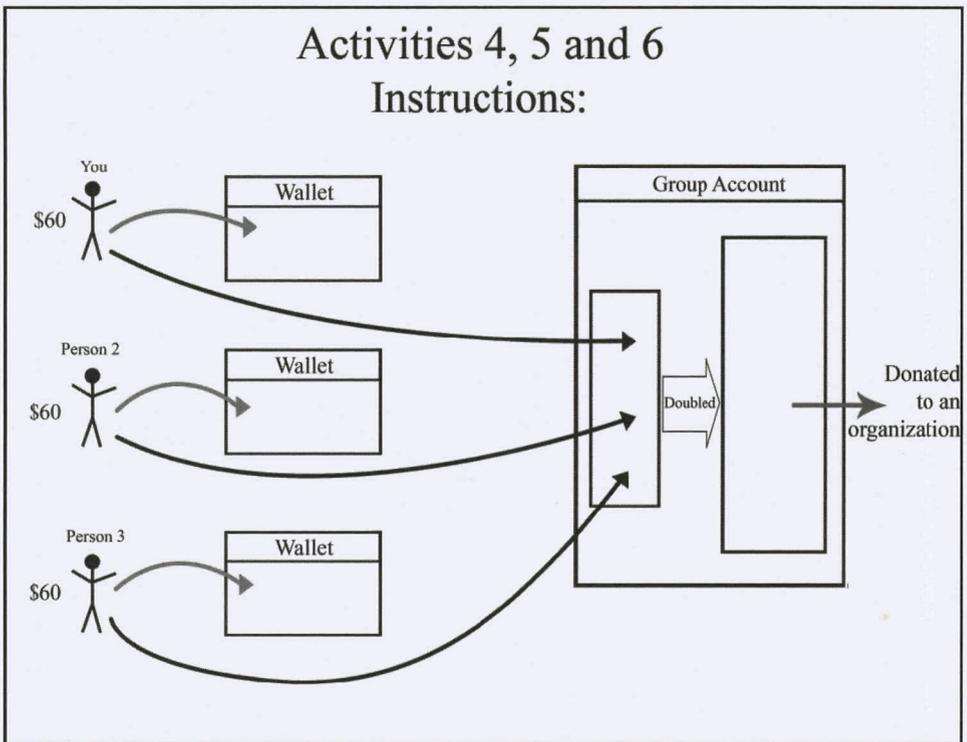
Do not turn page until instructed.

Figure 3. VCM Sample Decision Form

the data. Second, since we displayed everything in a visual manner, this design choice enabled us to depict all the choices pictorially using \$20 bills. We use decisions in the VCM to elicit social preferences and to correlate with our dependent measures of interest.

Instructions were presented personally. During the session, the experimenter was at the front of the room with laminated instruction posters with images from the booklets. The instructions poster looked like Figure 2, except that no arrows were drawn in yet. Dry-erase markers were used to draw on the posters to explain and illustrate possible decisions. As the instructions were read aloud, following the script in Appendix 1, the arrows were drawn in as each element was described. A series of examples (Nash, social optimal, and an intermediate case where each participant chose a different amount and the high contributors earned the least) was then described, and participants were asked to indicate how much an individual would earn in each instance. Subjects follow along, working in their booklets. Anecdotally, we found that the participants had no difficulty calculating potential earnings.

Once the instructions had been described, subjects were shown the sample decision form, displayed in Figure 3. This form keeps all of the elements of the instruction form, but we “shrunk down” the representation of the other players to highlight that the participant had no control over the decisions of other players. Once all participant questions had been answered, subjects turned the page to their decision form, indicated their choice, and closed their response booklet. No feedback occurred between any of the tasks.



**Figure 4.** Donations Game Instructions Page

The experimental dependent variable is the amount that individuals contribute in a set of three charitable decisions targeting community organizations that provide local public goods. Figures 4 and 5 show the pictorial representation of the instructions and the decision form for the contribution decisions. As with the VCM, subjects are arranged in groups of three to keep the visualization manageable.<sup>7</sup>

As before, the arrows on the instructions page show the money initially allocated to the subjects, which they can then move into their wallet and/or into a group account. When subjects are presented with the instructions form (but before the instructions begin), they are explicitly directed to notice the difference in the decision forms: “You are still making a decision about how much you want to put in your wallet and how much you want to put in the group account. But now, instead of the doubled money being divided and split evenly between all three people in the group, it is doubled and donated to a local organization.” Subjects are then asked to pull out of their response booklets a loose page, which has the descriptions of each of the three organizations on it, in the order they will face their decisions. We fully blocked the order of the real charities. The blocking order did not significantly impact average session contributions to the VCM or any of the donations experiments (i.e., sessions with order ABC, ACB, BAC, BCA, CAB, CBA). The following are from the Pearson’s chi-square contingency table test ( $n = 190$ ,  $\chi^2[15]$ ) of blocking order and average individual contributions: VCM  $p =$

<sup>7</sup> Notice that the decision forms look similar to the VCM. This was done to give the social preference measure its best possible shot at finding a relationship. We will additionally examine real-world contributions, which will provide a more stringent test of the relationship between experimentally-measured social preferences and donations behavior.

Activities 4, 5 and 6

EXAMPLE:

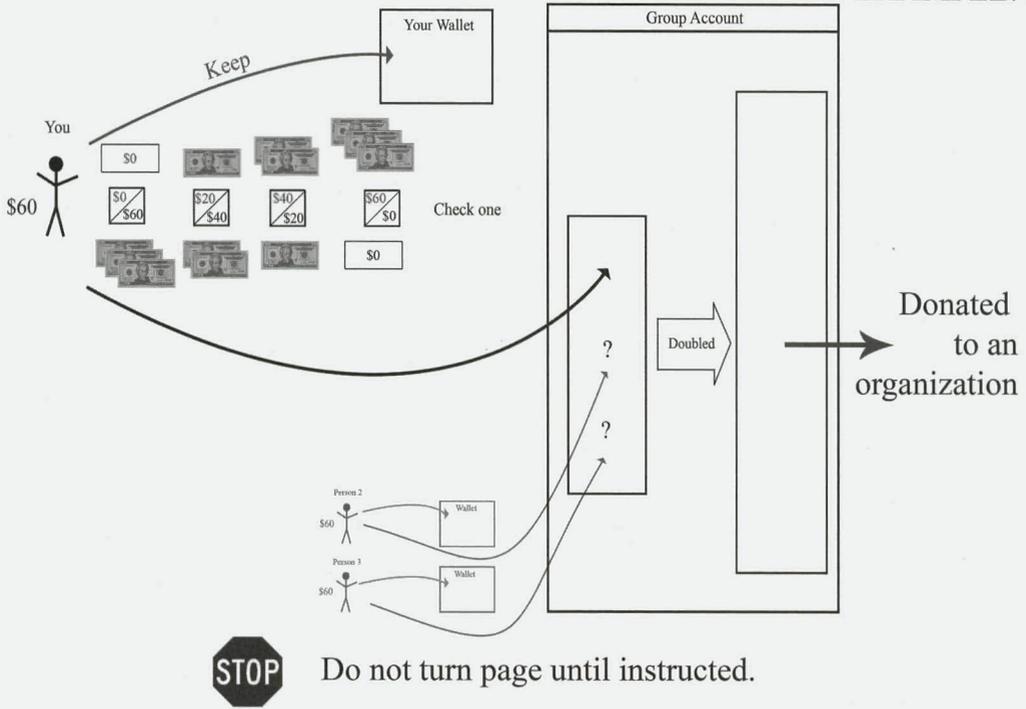


Figure 5. Donations Game Sample Decision Form

0.299, Health  $p = 0.739$ , Children’s Education  $p = 0.838$ , Job Training  $p = 0.909$ . Similar results hold considering pairwise tests.

The language used is provided in Appendix 1. The names and descriptions for all three are read aloud, as shown in Table 1. Subjects then go through a series of examples, including one where there are zero contributions, one with full contributions, and an intermediate case where every person does something different. The decision form was then described, in a similar manner as above.

We intentionally chose organizations that are well-respected and stable in the communities, based on multiple community leader recommendations. Since all of the contributions are anonymous, there are no reputational concerns regarding eligibility or quality of service that subjects might receive based on their decisions.

Beliefs of others’ decisions were elicited (without incentives) at the end of the experimental activity booklet. For each of the activities, individuals were asked to state how much of the endowment they thought each of the other two individuals in their group contributed to the group account.

The survey dependent variable comes from two questions, numbers 7 and 8, in a somewhat lengthy 54-question post-experiment survey. The first asked subjects to “please list any nonprofit organizations to which you have contributed in the past year (include church-related, educational, environmental, social services, international/poverty, and others).” The second asked for a list of organizations where they had volunteered. We asked subjects to list organizations (rather than simply indicate whether they had contributed) because listing the

**Table 1.** Descriptions of the Charitable Organizations, as Provided to the Subjects

Organization	Description
Health	The [charity name] clinic provides medical and dental care to residents of Fair Park. The clinic provides patient access to health care and helps to eliminate racial disparities in health care.
Children's education	The [charity name] provides the children of [neighborhood] with educational opportunities. The computer lab includes activities to teach reading and math, spelling, and computer skills.
Job training	The [charity name] supports the growth of new and small businesses in Fair Park. The [charity name] teaches students how to start and run a small business.

organizations is more costly in terms of effort than checking a yes/no response box. Second, listing organizations may impose a higher psychic cost of self-serving presentation bias. Finally, we asked about contributions and volunteering in general rather than dollar amounts because we did not believe that we would elicit accurate amounts. We will test the stability of social preferences by examining the relationship between individuals' contributions in the VCM task with their contributions to the three charitable organizations and the self-reported volunteering and donation behavior, controlling for time and risk preferences.

### 3. Implementation

Experimental sessions were run in June 2007, in the Fair Park neighborhood of Dallas, Texas. Results are based on 190 participants who were recruited via flyers that were distributed to homes, apartments, and local businesses, as detailed above. Upon arrival at the experimental site, subjects were asked to read and sign a consent form and were paid the \$20 show-up fee in cash. Participants worked through a response booklet containing a number of incentivized tasks: a risk-preference elicitation (Eckel and Grossman 2008), a time-preference elicitation (similar to Eckel, Johnson, and Montmarquette 2005), a laboratory public goods game (VCM), and three versions of a donation game that were developed specifically for this population. We collected responses for three donations experiments: health, children's education, and job training.

Once the activity booklet (45 minutes) was completed, subjects were given a 10-minute snack break. When the participants returned, they completed a social network activity (15 minutes) and a detailed post-experimental survey (times varied by individual, estimated average 45 minutes) designed to collect information on demographics, identity, housing, financial sophistication, and financial donations to nonprofits, as well as volunteer work. This article focuses on the results for the linear VCM, the donation experiments, self-reported donations/volunteering, and the relationship among them.

Experimental sessions lasted on average two hours, and participants were paid a \$20 show-up fee plus their earnings from the experiment. The median per capita income in this neighborhood is approximately \$10,700, and median household income is approximately \$19,600 (Martin et al. 2006). Note that in the VCM, if everyone played the dominant strategy, earnings would be  $\$60 + \$20 = \$80$ . Based on a 40-hour work week, this is equal to nearly two

days' wages (15.5 hours).<sup>8</sup> If everyone played the social optimum, earnings would be  $\$120 + \$20 = \$140$ , more than three days' wages (27 hours). Thus we believe that the stakes were large enough to ensure that participants thought carefully about the problems. Average earnings were  $\$79$  ( $\$108$  if you include payments to the charities), with a minimum of  $\$20$  (the show-up fee) and a maximum of  $\$280$ .

At the end of the session, one task was chosen at random for real payment. The participants did not receive any feedback between the experimental games. In fact, they only received feedback about the game chosen randomly for payment. This was provided at the very end of the session, in private, when individuals were paid based on their earnings.

#### 4. Subject Pool and Aggregate Results

In this section, we describe the sample and aggregate results from each of the main experimental and survey measures independently: VCM, donations experiments, and self-reported donations of time and/or money. Sections 5 and 6 describe the relationship between them and thus provide the test of stability of preferences.

Most previous experimental research on cooperation has focused on a convenience sample of university undergraduates (e.g., the articles reviewed in Ledyard 1995) or samples from other, mostly developing, countries (e.g., Henrich et al. 2001, 2004; Carpenter, Daniere, and Takahashi 2004). We begin by extending the experimental literature to a new, policy-relevant population sample; participants from a low-income, predominantly African-American urban neighborhood.

The sample and neighborhood characteristics are described in Table 2. These participants are, of course, quite different from the typical student sample; they are older, tend to have children, and are usually the main wage-earner in their households. The sample is almost entirely African American, with low levels of income and other financial assets. Note that we did not attempt a representative sample of the neighborhood, but rather relied on volunteers who responded to the distributed flyers. The resulting sample contains a larger representation of women and African Americans, is less likely to be married, and is somewhat more educated than the average for the overall neighborhood. In addition, over 60% were unemployed in the last year, and half are the primary income earner for their household.

Table 3 shows the distribution of contributions to the group account for the VCM and donations experiments. We see a substantial level of cooperation in the VCM, with 70% of subjects giving a positive amount. Note that the mean contribution is 41.1% of the endowment, which is within the normal range of contributions for prior studies of 40% to 60% (Ledyard 1995), giving us confidence that these results are comparable to other samples.

For the donations experiments, we see a reduction in donations to the group account as compared with the VCM, with 56–63% of subjects giving. Individuals contribute on average 30.4% of their endowment to the health charity, 31.1% to the children's education charity, and 27.2% to the job training organization. However, this shift is not as strong as might be expected given the differences in the MPCR (0.66 for the VCM, and near zero for the charities).

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<sup>8</sup> For a 40-hour per week, 52 weeks a year job, the per capita income of  $\$10,700$  is equivalent to  $\$5.15$  an hour.

**Table 2.** Description of the Sample

Demographic	Neighborhood <sup>a</sup>	Sample			
		%	Min	Max	Average
Female	49%	61%			
Ethnicity	76% African American 20% Hispanic 4% Other	98% African American 2% Other			
Marital status	39% Single, never married 34% Married 13% Divorced 12% Widow/er	57% Single, never married 16% Married 21% Divorced 5% Widow/er			
Highest education achieved	50% high school dropout 28% finished high school 15% some college 7% college, or higher	24% high school dropout 34% finished high school 32% some college 10% college, or higher			
Employment status <sup>b</sup>	46% in the labor force (employed or unemployed)	22% full-time, permanent job 76% part-time, temporary job, or looking for work			
Unemployed last year?	—	61%			
Chief wage earner?	—	52%			
Home owners	33.30%	15%			
Age, in years	—		18	64	40.1
Years in neighborhood	—		0	62	17.7
Children at home	—		0	7	1.25

*n* = 190. Some percentages may not sum to one due to rounding or missing observations.

<sup>a</sup> Source: Data taken from the Analyze Dallas website, 2004: <http://www.serpanalytics.com/site/analyzedallas.org>

<sup>b</sup> Percentages do not sum to one because categories are not mutually exclusive.

Since the donations experiment protocol has not been tested with other populations, we cannot directly compare behavior among individuals in this population with other studies. The closest studies are the modified dictator experiments where the recipient is a charity. The first study to do this was Eckel and Grossman (1996); in their study individuals gave on average 30.1% of their \$10 endowment.<sup>9</sup> This is similar to the level of giving in our sample, although we have a larger endowment and a doubling of donations. In a previous study of giving to hurricane-relief organizations, Eckel, Grossman, and Milano (2007) include a treatment with a \$50 endowment and a 100% match (doubling of donations). They find that student subjects send on average 46.7% of their endowment—substantially more than the current sample. However, given the income constraints in this sample, contributions are

<sup>9</sup> Note that Eckel and Grossman (1996) find that contributions are substantially higher to the charity than in the lab dictator game, where we find higher contributions to the VCM than to the charities. This difference is likely to result from the difference in MPCR for the VCM (0.66) and donations experiments (~0.00) used in the present study.

**Table 3.** Amount Sent to the Group Account, VCM and Donations Experiments ( $n = 190$ )

	VCM	Health	Children's Education	Job Training
Mean amount, \$	24.84	18.21	18.63	16.32
(Standard deviation)	(20.82)	(18.26)	(18.64)	(17.40)
Percentage sending:				
\$0	30.00	38.95	39.47	44.21
\$20	30.53	38.42	35.26	34.21
\$40	24.74	15.26	17.89	17.37
\$60	14.74	7.37	7.37	4.21

substantially higher than one might expect and remain significantly higher than the Nash contribution of zero.

A significantly higher proportion of individuals choose to contribute zero in the donations experiments than to the VCM (using a one-tail test in comparison to the VCM: health,  $p = 0.033$ ; children's education,  $p = 0.026$ ; job training,  $p = 0.002$ ). Average contributions are significantly lower in the donations experiments (one- or two-tailed  $t$ -test of means, all  $p < 0.001$ ). Among the charitable organizations, average contributions to health and children's education are not significantly different from each other, but mean contributions to both are higher than to job training (all  $p < 0.05$ ). There are, however, no significant differences among the charities in the proportion of subjects contributing zero. So, while there is less giving in the donations experiments than in the VCM, it is still substantially greater than zero. Further, the observed level of giving does not vary with demographic characteristics.

At the aggregate level (without other controls), we find no differences in contributions for any of the donations experiments by many of the contextual factors typically considered by economists, including gender, home ownership, employment status (unemployed in the last year, temporary work, part-time, full-time), highest education achieved, age, marital status, number of children, or the number of years an individual has lived in the neighborhood. We also find no differences in the mean contribution to the charities by whether or not the individuals needed assistance with written materials, or the number of people they recognize, know by name, or consider friends in the session.<sup>10</sup>

Self-reported charitable activity is shown in Table 4. This table reports the number of subjects who donated or volunteered, for both religious and non-religious organizations. Recall that subjects were asked to list all the organizations to which they donated money or time. These were then investigated and coded as a church, a religious-affiliated organization, or a non-religious organization. A number of subjects (15.9%) also listed gifts to individuals: These are excluded from the analysis. Note the numbers in the tables do not add to 100% because the categories are not exclusive. For example, looking at the first row, 28.9% of subjects report giving money to a church, and 20.5% report volunteering for a church. In total, 34.7% of subjects reported donating, volunteering, or both.

In total, 72.6% of subjects donate time or money to at least one charitable organization: 46.8% donate to a church and/or religious organization, and 50.5% donate to at least one non-religious organization. We find that home owners ( $t$ -test,  $p = 0.002$ ), those employed full-time

<sup>10</sup> All  $p$ -values greater than 0.20, except years in neighborhood (job training only,  $p = 0.156$ ), number of children (health = 0.142, education = 0.135).

**Table 4.** Percent of Subjects Giving to at Least One Organization (No Categories Are Mutually Exclusive)

	Donate	Volunteer	Total
Religious			
Church	28.9	20.5	34.7
Organizations	16.3	10.5	20.5
Total	40.0	28.9	46.8
Nonreligious	38.9	36.8	50.5
Total	64.7	58.4	72.6

in a permanent job ( $t$ -test,  $p = 0.04$ ), and those who have at least some college are more likely to report contributing ( $t$ -test,  $p = 0.02$ ). These variables may proxy for income (we have no direct measure of income). We further find no statistically significant differences by gender, age, number of children, or years lived in the neighborhood. Thus individual demographic characteristics seem to play a more substantial role in the self-reported charitable contributions than in the donations experiments. Particularly, people who are more stable and attached to the community (home owners, permanently employed, better educated) are more likely to report that they contribute time and/or money to charitable causes in their everyday lives. Note that individuals frequently contribute both time and money. There is a raw correlation of 0.54 between those who donate time and those who donate money.

Breaking apart these donations into categories, we see that 34.7% of the subjects donate money or time to their church, 20.5% to religious organizations, and 50.5% to non-religious organizations. The correlation between these activities is rather low (ranging from 0.02 to 0.27). However, individuals do tend to give both time and money to the same type of organization (with correlations ranging from 0.36 to 0.49). Further detailed analysis by type of organization can be found in the regression analysis below.

## 5. Stability of Preferences: Donations Experiments

We now turn to an examination of the relationship between the choices made in the VCM, a revealed social preference for cooperation, and choices made in the donations experiments. We treat behavior in the VCM as an explanatory variable, with donations as the dependent variable. Recall that the two tasks are presented in a similar manner to the subjects. In both cases subjects are in groups of three, and contributions are doubled by the experimenter. The difference is that, in the donations experiments, the multiplied contributions to the group account go to a charity instead of being divided among the group members.<sup>11</sup> If a preference for contributing to public goods as measured by the VCM is a good predictor of donations to local public goods, then we should see large, statistically significant coefficients in these regressions. Correlations between giving in the VCM and giving to the charities are 0.49 for health, 0.43 for children's education, and 0.49 for job training.<sup>12</sup>

<sup>11</sup> Because of the common representation, subjects may try to exhibit consistent behavior across tasks. We find that only 38.4% of subjects make identical choices (half of which, or 49.3%, are subjects choosing to send zero in all cases), suggesting that results are not completely driven by a desire to appear consistent to the experimenter.

<sup>12</sup> Appendix 2 presents a cross-tabulation of giving of each of our measures for reference.

In addition to cooperative or social preferences (as measured by VCM behavior), other factors may affect the decision to contribute to charitable organizations. For example, we hypothesize that preferences for time and risk will also be related to the decision to give. Contributions to local public goods may be viewed as an investment in the community. Individuals could use the money today, but if they contribute to the public good it will help them (and other people in the neighborhood) in the future. If this is the case, then patient people will be more willing to contribute, and should contribute more on average, to the public good. This logic has been confirmed for the case of common pool resources by Fehr and Leibbrandt (2008), who show that fishermen who use nets that release smaller fish also behave more patiently in an experimental task.

However, the probability that this investment in the public good will translate into future services is not equal to one; that is, a particular individual might never use the organizations' services. If this is the case, then investment in the public good is a risky decision (paying now for something that may not generate any later benefit), and individuals who are more risk-averse will be less willing to contribute (and will contribute less) to the public goods. We thus include measures of risk and time preference as covariates in the analysis. This is similar to Eckel et al. (2007), who, in a field experiment with similar time and risk-preference measures, found that risk tolerance and patience were positively related to an individual's own human capital investment.

In addition to preferences for risk and time, it is reasonable to assume that factors that increase an individual's value for the public good (such as needing a job or having children) will increase the amount that they are willing to contribute to the public good. Previous studies of volunteerism often find this type of demographic variation in the willingness and amount of contributions to charitable causes (e.g., Freeman 1997). These measures are thus also included as covariates. Other factors that could impact the amount and willingness to contribute to the charitable causes are how much individuals think the neighborhood needs an increase in that local public good and how much they trust that type of organization.

Another set of variables that can potentially impact the amount that individuals are willing to contribute to the local public good: beliefs about other people's donations and perceptions about their neighbors. If contributions are driven by a preference to donate an amount close to what they believe others are donating, either because of a desire to conform to a social norm that transforms payoffs as in Rabin (1993) or because of a desire to "match" or reciprocate giving by others as in Croson (2007) or because of inequality aversion (Fehr and Schmidt 1999; Bolton and Ockenfels 2000; Ashley, Ball, and Eckel 2010), then we would expect a positive relationship between these measures and giving. On the other hand, if individuals are purely selfish or give for warm-glow reasons (Andreoni 1989, 1990), the beliefs should have no effect, while if individuals are altruistic (Becker 1974), the coefficient should be negative.<sup>13</sup>

In addition to collecting information about how much participants expect others to give to the organizations, we also collected information on their perceptions of other individuals in their neighborhood using modified World Values Survey questions for the fairness, helpfulness, and trustworthiness of their neighbors. If subjects care only about the level of the public good,

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<sup>13</sup> Replicating previous research, we find that individuals are, on average, optimistic about others' donations (this is true for both the mean and the mode, e.g., Croson 2007). On average, beliefs of how much others will contribute are significantly higher than the actual contributions of others (\$21.39 vs. \$18.21, *t*-test,  $p = 0.02$  for the health organization; \$21.07 vs. \$18.63, *t*-test,  $p = 0.08$  for the children's education organization; and \$20.32 vs. \$16.32, *t*-test,  $p = 0.004$  for the job training organization).

then these factors will not impact provision. Further, even if people only care about how much others will give, then these perceptions will not matter.<sup>14</sup> Only if the participants place some value on the deservingness of the recipients of their donations will perceptions impact provision. Since donations provide local, neighborhood-level public goods, we expect that when the subjects perceive that individuals in their neighborhood are more fair, helpful, and trustworthy that they will donate more to the local public goods.

We thus describe the donation decision as

$$\text{Donation} = f(\text{VCM contribution, risk preferences, time preferences, need for the public good, demographics, beliefs, perceptions of neighbors, random error}) \quad (1)$$

Recall that subjects have the choice of donating \$0, \$20, \$40, or \$60. Since the choices of donations are discrete, we estimate  $f$  using an ordered probit regression. In Table 5, we present results from two different approaches to the analysis. First, we estimate three equations, one for each organization, using seemingly unrelated regression (SUR). We jointly estimate three ordered probit equations, in order to generate robust standard errors, and cluster on the individual, since each individual is making three decisions. Second, we estimate a single equation, pooling all three decisions. For the pooled model we present the results of a random effects ordered probit. The interpretation of these models differs slightly. For the seemingly unrelated model, the correlation between the decisions is interpreted as coming from the similarity of the decisions, whereas for the random effects model, the correlation is coming from the fact that the same person is making the three decisions.

Full descriptions of all of the variables, along with their descriptive statistics, are given in Appendix 3. Table 5 provides a comparison of results across the three local public goods organizations as well as the pooled model; Appendix 4 provides a table of marginal effects for reference. The following are included as controls: individual demographic characteristics, the perception of the need for the service that the organization provides in the neighborhood, trust in providers of this type of service, proxies for valuation of the service, experience with crime, and location in our target area.<sup>15</sup> Individual characteristics include gender, education, age, employed, number of children in the household, and frequent church attendance, defined as attending religious services once or more per week. The only consistently significant variable is that individuals who frequently attend religious services contribute less to the charities in all cases. This is consistent with the idea that the more religious participants “already gave” through their churches, or that they follow a tithing rule of contributing a fraction, say 10%, of all earnings, significantly below our lowest giving option. The other variables are rarely significant in the analysis, and dropping them does not alter the results, though the level of significance may change slightly.

In all three of the individual regressions, as well as the pooled data, the VCM choice is positively and significantly related to donations behavior, revealing the stability of cooperative

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<sup>14</sup> We call these perceptions rather than beliefs because we are not conforming to the standard definition of beliefs, which generally requires either an expressed amount or probability.

<sup>15</sup> We intended to target a specific zip code in South Dallas. However, since our flyers were posted at local businesses, we have some subjects in our sample who lived outside this target. We include a dummy variable to control for the possibility that they are less affected by issues in the community than those who live there. We find no significant differences, which is perhaps unsurprising since the individuals would have to have some sort of presence in the community in order to hear about the study.

preferences in these domains. This is true even controlling for individual beliefs about how much others will contribute to the organizations. Using separate ordinary least squares (OLS) regressions for purposes of interpretation (available upon request) indicates that giving a dollar more in the VCM increases giving to the organizations by approximately \$0.27.<sup>16</sup> Recall that for an ordered probit, there are four separate marginal effects (shown in Appendix 4), one for the likelihood of giving \$0, \$20, \$40, and \$60, respectively. We see that giving a higher amount to the group account in the VCM is negatively related with the probability of giving zero and positively related with the probability of giving each of the positive amounts to the charities.

We find little support for the hypothesized relationship between donations and risk preferences: It is only significant for the health charity, which might be the most closely related to personal risk of the three organizations. However, we do observe that individuals who are more patient contribute more to the organization in all cases. This confirms the results in Fehr and Leibbrandt (2008) to the case of public goods and in Eckel et al. (2007) for own human capital investment. We argue that subjects view donations to these organizations as an investment in their neighborhood—and subjects who are more patient are more willing to invest.

As expected, beliefs about the contributions of others are positively and significantly related to behavior. Further, we see that individuals contribute more to the local charities when they perceive their neighbors as being more fair.

A second way to address the issue of the stability of cooperative preferences across contexts is to look at the number of organizations to which a subject donates (0 to 3) as a function of VCM giving. Table 6 provides two specifications of this model. The first column uses the ordinal VCM data, just as in the previous specification. The second column presents a dummy variable equal to one if the subject made a positive contribution to the VCM's group account. We see that in both cases, the contribution to the VCM group account is positively and highly significantly related to the number of organizations to which a subject donates, providing further confirmation of the stability of social preferences. People who contribute more to the VCM not only donate more to the local public goods, but they also donate to more organizations.

Once again, we see that beliefs and patience are positively related to the contribution decision, whereas risk aversion is not statistically significant. In addition, we see that individuals who view others in their neighborhood as being fair contribute more frequently.

## 6. Stability of Preferences: Self-Reported Local Public Good Provision

In this analysis, we examine the correlation between contributions to the VCM and self-reported provision of public goods—the decision to contribute money and/or time to religious and non-religious charitable causes outside of the laboratory environment. The relationship between the VCM and the decision to contribute outside of the lab provides a further test of the stability of cooperative preferences.

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<sup>16</sup> Results from OLS regressions where the charitable donation, VCM donation, and beliefs have been monetized. All other variables remain the same. Coefficients are 0.282 ( $p < 0.001$ ) for health, 0.275 for children's education ( $p < 0.001$ ), 0.269 for job training ( $p < 0.001$ ), and 0.288 for the pooled model ( $p < 0.001$ ).

**Table 5.** Ordered Probit for the Donations Experiments<sup>a</sup>

Variable	SUR, Individual Clusters			
	Health	Children's Education	Job Training	Random Effects Pooled
Ordinal VCM	0.475*** (0.111)	0.453*** (0.110)	0.507*** (0.106)	1.191*** (0.199)
Ordinal average beliefs by organization	0.572*** (0.148)	0.478*** (0.124)	0.665*** (0.137)	0.753*** (0.159)
Risk	0.164* (0.074)	0.093 (0.070)	0.072 (0.085)	0.276* (0.123)
Time	0.112* (0.050)	0.148*** (0.045)	0.159*** (0.046)	0.420*** (0.095)
Helpful	-0.373† (0.198)	-0.185 (0.173)	0.025 (0.173)	-0.0223 (0.239)
Fair	0.310† (0.176)	0.392* (0.184)	0.517** (0.179)	1.182*** (0.305)
Trustworthy	0.100 (0.155)	0.086 (0.156)	-0.167 (0.152)	-0.134 (0.233)
Crime experience	-0.083 (0.117)	0.101 (0.122)	0.114 (0.127)	0.063 (0.168)
Female	0.232 (0.198)	0.245 (0.202)	0.148 (0.213)	0.372 (0.311)
ln (age)	-0.474 (0.331)	-0.377 (0.301)	-0.408 (0.311)	-0.800 (0.510)
No. kids in HH	-0.059 (0.099)	-0.181† (0.103)	-0.114 (0.108)	-0.323*** (0.096)
HS grad	-0.130 (0.229)	-0.057 (0.257)	0.162 (0.247)	0.260 (0.409)
College	-0.081 (0.233)	-0.052 (0.259)	0.409† (0.248)	0.587 (0.378)
Employed	-0.048 (0.216)	0.155 (0.210)	0.110 (0.222)	0.169 (0.367)
Religious	-0.667** (0.219)	-0.410* (0.193)	-0.720*** (0.192)	-1.411 (0.350)
Need health	-0.127 (0.146)	—	—	-0.424† (0.255)
Trust health	0.035 (0.122)	—	—	-0.016 (0.213)
Need schools	—	0.086 (0.155)	—	0.206 (0.303)
Trust schools	—	0.121 (0.136)	—	0.111 (0.230)
Need businesses	—	—	-0.054 (0.150)	0.202 (0.221)
Need job training	—	—	0.339† (0.177)	0.203 (0.345)
Trust job training	—	—	0.022 (0.147)	0.030 (0.208)
Outside target zip code	-0.174 (0.243)	-0.340 (0.248)	-0.159 (0.251)	-0.599† (0.362)
Children's education	—	—	—	-0.2479 (1.529)

Table 5. Continued

Variable	SUR, Individual Clusters			
	Health	Children's Education	Job Training	Random Effects Pooled
Job training	—	—	—	-3.332† (1.713)
Log likelihood	-146.11	-155.92	-136.79	-360.51
Pseudo $R^2$	0.2519	0.2220	0.2840	—
Observations	163	163	163	489
Rho	—	—	—	0.82
$\chi^2$ (Probability > $\chi^2$ )	98.38 (0.00)	89.00 (0.00)	108.52 (0.00)	104.98 (0.00)

<sup>a</sup> Dependent variable: contribution to the charity 0 = \$0, 1 = \$20, 2 = \$40, 3 = \$60. Standard errors are in parentheses. Coefficients are shown. Since we have an ordered probit, there are four separate marginal effects for each of the three charities: These are reported in Appendix 4. Model diagnostics for the SUR regressions come from separate regressions before clustering on the individual (489 observations with 163 clusters).

† $p \leq 0.10$ .

\* $p \leq 0.05$ .

\*\* $p \leq 0.01$ .

\*\*\* $p \leq 0.001$ .

The dependent variable for this analysis is equal to one if the subject donates time and/or money to charitable causes.<sup>17</sup> Since our interest is in cooperative behavior in general, we pool self-reported donations of time and money into a single measure.<sup>18</sup> We argue that money and time are substitutes: Some people who would donate money may volunteer their time instead if they have particularly low income, and thus either type of activity is a signal of cooperative preferences. To reverse the argument, those who never give are different from those who give of either time or money or both.

Table 7 reports probit regressions. We include variables for individual-level preferences (behavior in the VCM, risk and time preferences), individual characteristics (demographics), and neighborhood context variables that assess perceptions of neighbors and experience. Model 1 contains all causes and analyzes the decision to contribute time or money to any organization, including both religious and non-religious organizations. Models 2 and 3 include only religious and non-religious organizations, respectively.

Model 1 shows a significant positive relationship between the VCM and the decision to donate time or money. Giving in the VCM results in a 19.7% higher probability of donating time or money to some organization. This result corroborates the evidence in Carpenter and Myers (2010) that altruism is positively related to volunteerism. Among the perceptions variables, believing that neighbors are fair and experience with crime increase the likelihood of cooperative behavior. The other two perceptions variables (helpful and trustworthy) are insignificant.<sup>19</sup> In the demographic variables, women donate more than men, and education

<sup>17</sup> Freeman (1997) finds a strong positive relationship between charitable giving and volunteer work, while Menchik and Weisbrod (1987) show the impacts of price and income on volunteerism.

<sup>18</sup> Separate regressions for the decision to donate or volunteer indicate consistency in the directionality of the explanatory variables of interest; however they are not significant because of a lack of power in the model.

<sup>19</sup> We note that the impacts of perceptions of one's neighbors on self-reported cooperative activities are stronger than the impacts on donations to the local organizations. Recall that for the donations experiments we have direct information regarding the individuals' beliefs about others' contributions. We believe that the impact is stronger in the former case because these perceptions are providing information to individuals about the deservingness of their neighbors, as well as information regarding the likelihood they will contribute.

**Table 6.** Ordered Probit for the Donations Experiments: Positive Contributions to an Organization

Variable	Ordinal VCM	VCM > 0
VCM	0.423*** (0.109)	1.127*** (0.247)
Beliefs: no. orgs > 0	0.734*** (0.096)	0.717*** (0.098)
Risk	0.058 (0.084)	0.078 (0.084)
Time	0.164** (0.056)	0.162** (0.054)
Helpful	-0.059 (0.157)	-0.155 (0.162)
Fair	0.460* (0.230)	0.552* (0.233)
Trustworthy	0.046 (0.171)	-0.004 (0.172)
Crime experience	-0.100 (0.138)	-0.065 (0.140)
Female	0.050 (0.246)	0.000 (0.248)
ln (age)	-0.495 (0.385)	-0.309 (0.396)
No. kids in HH	-0.168* (0.086)	-0.136 (0.086)
HS graduate	-0.401 (0.305)	-0.367 (0.308)
College	-0.223 (0.286)	-0.141 (0.290)
Employed	0.065 (0.239)	-0.001 (0.242)
Religious	-0.455* (0.234)	-0.367 (0.241)
Outside target zip code	-0.210 (0.279)	-0.205 (0.281)
LnL	-128.90	-125.84
Pseudo $R^2$	0.3301	0.3460
$\chi^2$ (Prob. > $\chi^2$ )	127.02 (0.00)	133.16 (0.00)

Dependent variable: number of organizations (0-3) to which an individual contributes. Standard errors in parentheses, coefficients shown ( $n = 172$ ).

† $p \leq 0.10$ .

\* $p \leq 0.05$ .

\*\* $p \leq 0.01$ .

\*\*\* $p \leq 0.001$ .

(weakly) predicts giving, perhaps because of its tie to income. Finally, religiosity—attending religious services at least once per week—also predicts an increased likelihood of contributing.

Turning to models 2 and 3, which explore religious and non-religious giving separately, we see that while the sign of the coefficients is positive, the VCM is no longer significantly related to donating time or money. The VCM is an important factor in distinguishing givers from non-givers, but only when all types of giving are considered together. Individuals who contribute in the VCM may not be more likely to give to a particular type of organization, but they are more

**Table 7.** Probit of the Determinants of Donations/Volunteer Work<sup>a</sup>

Variable	All Causes	Religious	Non-religious
VCM > 0	0.197* (0.087)	0.126 (0.093)	0.042 (0.097)
Risk	-0.026 (0.025)	0.037 (0.033)	0.024 (0.032)
Time	0.010 (0.017)	0.014 (0.018)	0.035† (0.020)
Helpful	-0.086 (0.053)	-0.037 (0.066)	0.135* (0.067)
Fair	0.152* (0.062)	0.118 (0.083)	0.183* (0.084)
Trustworthy	0.071 (0.052)	0.050 (0.066)	0.013 (0.064)
Crime experience	0.107* (0.042)	0.106* (0.053)	0.129* (0.055)
Female	0.157* (0.080)	0.029 (0.093)	0.292*** (0.091)
ln (age)	0.133 (0.116)	0.232† (0.142)	0.131 (0.146)
No. kids in HH	0.017 (0.028)	0.035 (0.034)	0.040 (0.035)
HS graduate	0.000 (0.086)	-0.041 (0.116)	0.012 (0.117)
College	0.147† (0.080)	0.151 (0.109)	0.296** (0.105)
Employed	0.080 (0.079)	0.006 (0.092)	0.202* (0.090)
Religious	0.162* (0.069)	0.331*** (0.080)	0.049 (0.090)
Prob. (donate)	0.787	0.449	0.521
LnL	-80.54	-98.17	-97.39
Pseudo R <sup>2</sup>	0.1936	0.1726	0.1824
χ <sup>2</sup> (Prob. > χ <sup>2</sup> )	38.68 (0.00)	40.96 (0.00)	43.46 (0.00)

<sup>a</sup> Dependent variable = 1 if the subject donates time and/or money to charitable causes, 0 otherwise. Standard errors in parentheses, marginal effects shown ( $n = 172$ ).

† $p \leq 0.10$ .

\* $p \leq 0.05$ .

\*\* $p \leq 0.01$ .

\*\*\* $p \leq 0.001$ .

likely to be givers in general. A comparison of the models for religious and non-religious organizations reveals that time preference, neighborhood context, and demographics (gender, education, employment) play a larger role in determining non-religious giving, while religiosity is the strongest factor predicting giving to religious organizations. Only experience with crime has a similar, significant impact on both types of decisions.

Taken together these results illustrate both the stability of preferences and the importance of context in the decision to engage in altruistic activities. First, relationship between elicited giving preferences and actual giving in a variety of domains presents evidence for the stability of preferences. Second, the varying impact of demographics, religiosity, and personal experience presents evidence for the importance of context. It is notable that the component of context

that consists of the properties of the organizations themselves leads to differences in decisions, and these decisions are affected very differently by demographic and neighborhood context. Controlling for individual variation in demographics and preferences, neighborhood context—measured as perceptions about neighbors' fairness and helpfulness—plays a significant role in charitable activity, particularly for giving to non-religious organizations. The additional neighborhood context variable capturing experience or observation of crime has an especially robust effect on giving, affecting both religious and non-religious activities. We contend that this is because those who have experienced a crime are more sympathetic with those in need, having been a victim in need themselves.

## 7. Conclusion

We find that preferences for contributing to public goods are strongly related across decision contexts. The measure of cooperative preferences from the lab setting (VCM) significantly predicts the amount that individuals are willing to contribute to local charities in donations experiments, the number of charities they contribute to, and whether they report contributing time and/or money to local charitable causes in their day-to-day lives. Taken together, this evidence lends support to the argument that preferences for contributing to public goods are stable. Also, it provides additional support for an underlying, stable latent preference for giving (discussed in more detail in a companion article, de Oliveira, Croson, and Eckel 2011).

However, context clearly plays an important role in these decisions as well. In thinking about context and individual decision making, Ross and Nisbett (1991) contend that both the "person" and the "situation" combine to create the decision context and impact observed behavior in any particular instance. Applied to our setting, we have several variables that describe the "person" themselves: the VCM contribution (a measure of revealed preferences for cooperation), but also risk preference, patience, gender, age, and religiosity. We then include what could be considered two different types of "situation" variables. First, there is the person's current situation, including the person's current economic considerations as well as their personal history and experiences. The second set of "situation" variables is more closely related to what one would readily think of as the decision environment. Decision context variables include the organization type, the value an individual places on their services, perceptions of a target reference group, and (possibly) beliefs of others' giving.

We find evidence of a strong interaction effect between the "person" and the "situation." For example, although behavior in the VCM predicts other decisions, it does not perfectly explain the data. Importantly, the only major determinant of giving to religious causes is the personal characteristic of religiosity. For non-religious causes, both person- and situation-variables play a substantially stronger role. So, the decision situation of religious versus non-religious giving significantly and substantially interacts with both person and situational explanatory variables.

Further, beliefs about others' giving and perceptions of neighbors are also important factors in the decision to contribute, providing even more direct evidence that these features of the context affect the decision. Finally, although we have good explanatory power for cross-

sectional data, there is still substantial variation that we are not able to explain, leaving room for other factors, such as unmeasured variation in context, to affect decisions.

The results support the idea that preferences are stable but decisions are context-dependent. For example, individuals may have a stable but context-specific preference (e.g., to “do the right thing”). Even though the preference is stable, observed behavior may vary by context (measured and unmeasured) because an individual’s perception of the “right thing” would change. This perception may depend strongly on religiosity; for example, religious individuals may see the “right thing” as giving to church-related organizations, while those who are not religious may see an obligation to donate to secular causes. This suggests that even if preferences are stable, they may appear to be either constructed or discovered as individuals learn the contextual details.

Overall, however, the results provide support for the generalizability of preferences across at least a limited domain. This is good news for policymakers, who can elicit preferences in one domain and remain confident that they will at least partially predict preferences in another. More theoretically, the data also shed light upon (but do not resolve) the theoretical and philosophical debate about the stability of preferences.

## Appendix 1: Instructions and Decision Forms

### Instructions

[Have subjects complete the consent form before sitting down. They need to bring it into the room with them. As they come in, monitors check that they signed it. Distribute receipt forms for show-up fees. Take up forms and hand out \$20 show-up fee to each subject.]

Hi, thanks for coming to today’s study. [Introductions]

We will be doing some activities and a few surveys. Everything will take about three hours. There will be a break for snacks about half way through. From now until the end of the study, please don’t talk to anyone except me or one of the helpers. If you have a question, please raise your hand and one of us will come by to help you.

When you came in, you signed a consent form saying that you wanted to participate in this study and received your show-up fee. There is an extra copy for you on the desk. I need to remind you that participation is completely voluntary and you are completely free to leave at any time. We want you to stay, but if you decide to leave, you keep your \$20 show-up fee, but you won’t get the chance to earn more money. Does everyone want to stay?

You received a card with a number on it when you signed in. In the study we use this number for everything you do to protect your privacy. Your name will not go on any of the forms, just the number.

[Begin passing out the activities booklets, face down] Our helpers are passing out the first booklet, which has some activities in it. Don’t open it, yet. They are writing in the last two numbers, which should match the number on your card.

You are going to do six different activities where you can make additional money. Note the numbers one through six on the back of your booklet. I’ll explain how to do each one, and you’ll have a chance to ask questions.

In each activity, you will have decisions to make. For each activity, the actual decision you make is up to you. There is no right or wrong answer, but your answers will determine how much you earn. Don’t try to figure out what we want you to do. We genuinely want to know what you think, and anything you do is fine. We just want you to pick the choices you like best.

After we do all the activities, one of them will be chosen randomly for payment. You will be paid in cash. There are envelopes in this box [show clear box with the envelopes]. Each envelope contains a card with an activity number written on it. At the end of today’s study, we will pull out one of the envelopes, open it, and the activity in the envelope is the one that everyone will be paid for. How much money you make will depend on the decisions you make for the activity, what other people decide to do, and chance. Since we don’t know which one of the activities will be picked, your best strategy is to make *each* decision as if it were the one you will be paid for.

After the activities in the booklet are done, we will take a short break with drinks and snacks. After the break, you’ll come back in here and fill out a couple of surveys. Then we will determine the payment. Who has questions at this point?

Please open your booklets to the first page; it says activity 1 on it. [Activities 1 and 2 measure risk and time preferences, instructions are available upon request.]

*Activity 3*

Please open your booklet to the page that says activity 3. Did everyone find this page? OK, please turn the page. You will see a picture explaining the activity. Let's walk through it together.

[At the front of the room is a laminated poster with the image shown in Figure 2 in the article, without arrows filled in. As the experimenter explains the game, she draws on the poster with erasable markers to illustrate.]

In this activity you will be put into groups of three (yourself plus two others from this study). Each person will be given \$60, and you can decide how much you want to put in your wallet and how much you want to put into a group account. Every dollar put in the group account will be doubled and then divided evenly among the three group members.

Let's look at how this works. Here is a group of three people, you and two others. You are given \$60 [point to the \$60], and you can decide if you want to put it into your wallet [draw arrow to the wallet] or put it into the group account [draw arrow to the group account].

At the same time you are making your choice, the other two members of your group will make their choices [draw arrows for both of the other players].

Once the money is in the group account, it is doubled [follow the arrow] and then split evenly between all the group members [draw these arrows].

If this activity is the one chosen for payment, we will take all of the booklets in this study and match you into groups of three. You will not know who is in your group, and no one will know what you chose to do. You will earn the amount you choose to keep, plus your share of what was put into the group account and then doubled.

Let's look at some examples [write these on the posters].

Suppose everyone puts \$60 in the group account [write in as you go through the example]. How much did they put in their wallet? \$0. So, if each person put in \$60, then there is \$180 in the group account. Then, the total donations are doubled to \$360 ( $\$180 \times 2 = \$360$ ). If we split this evenly, then there is \$120 each [Write on the arrow]. Let's look at *you*. How much do you earn? You earn what was in your wallet, \$0, + what was split evenly, \$120, which is... = \$120. Does this make sense? Let's look at another example.

Suppose everyone puts \$60 in their wallets [write in]. So, how much did they put in the group account? \$0. Then there is nothing to double or split [write in zeros]. So how much does everyone earn? [ask them to answer] \$60. That's correct. Does everyone understand why?

Let's look at one more example. This last one is a little complicated, so please stop me if it is confusing in any way.

Suppose one person puts \$60 in the group account, one person puts \$20 in the group account, and the third person puts \$60 in their wallet. What is the total amount in the group account? We have  $\$60 + \$20 + \$0 = \$80$ . This gets doubled to \$160 ( $\$80 \times 2 = \$160$ ). If we split this between all three people, each person gets \$53.33. To be easier, I am just going to write \$53.

So, each person earns what they kept in their wallet, plus \$53 ( $\$160/3 = \$53$ ). Let's look at each person, the person who put \$60 earns  $\$0 + \$53 = \$53$ ; the person who put \$20 earns  $\$40 + \$53 = \$93$ ; the person who put \$0 earns  $\$60 + \$53 = \$113$ .

Notice that since the amount put in the group account doubles, the group as a whole earns more when everyone puts money in the group account. However, each person earns more when they do not put money in the group account. Remember our first example? Everyone put all \$60 into the group account, and they all made \$120 each. But in this last example, the person who put in all \$60 only made \$53.

If this is the activity picked for payment, then your earnings for this activity will depend on how much money you decide to put in your wallet and how much to put into the group account; and how much money the other group members put into the group account.

Are there any questions?

Now turn the page. [Turn the posters to the decision form, shown as Figure 3 in the article.] This is a practice page, and you can mark it up any way you want. You will make the decision on the next page. The decision form is a little complicated, so let me show you how you mark your choice.

You have four options. You can decide to do any of the following:

- (i) Put \$60 in the group account and keep \$0 in your wallet. If you want to make this choice, you put a checkmark here [mark on poster].
- (ii) Put \$40 in the group account and keep \$20 in your wallet. If you want to make this choice, you put a checkmark here [mark on poster].
- (iii) Put \$20 in the group account and keep \$40 in your wallet. If you want to make this choice, you put a checkmark here [mark on poster].
- (iv) Put \$0 in the group account and keep \$60 in your wallet. If you want to make this choice, you put a checkmark here [mark on poster].

Are there any questions?

Remember, the actual decision you make is up to you. There is no right or wrong answer. Just choose the one you like best. Please turn the page and make your decision now. When you are finished please close your booklet. [Assist

individuals who seem to need help. Stick to the scripted instructions, repeating as necessary. After all booklets are closed continue to activity 4].

#### Activities 4, 5, and 6

Please open your activity booklet to the page that says "Instructions, Activities 4, 5, and 6." Right before this page is a loose sheet of paper. Just set it to the side, and we will come back to it in just a second. Did everyone find this page? Please turn the page.

You will see a picture explaining the next couple of activities. Let's walk through it together. [At the front of the room is a laminated poster of Figure 4 in the article, without arrows. The decision booklet contains an image of Figure 4.]

In these activities you will be put into groups of three (yourself plus two others from this study). As before, each person will be given \$60, and you can decide how much you want to put in your wallet and how much you want to put into a group account. This part is different: Every dollar put in the group account will be doubled and then donated to an organization that helps Fair Park residents. Let's look at the organizations on the loose sheet of paper.

Description of the Organizations [order depends on session]

[Name of Children's Education Charity]

The [charity name] provides the children of [neighborhood] with educational opportunities. The computer lab includes activities to teach reading and math, spelling, and computer skills.

[Name of Job Training Charity]

The [charity name] supports the growth of new and small businesses in Fair Park. The [charity name] teaches students how to start and run a small business.

[Name of Health Charity]

The [charity name] clinic provides medical and dental care to residents of Fair Park. The clinic provides patient access to health care and helps to eliminate racial disparities in health care.

You will make one decision for each of these three separate organizations. There is also a description of the organization on your decision form. These are three separate organizations, and you cannot transfer money from one organization to the other.

Let's look at how this works. Here is a group of three people, you and two others. You are given \$60 [point to the \$60], and you can decide if you want to put it into your wallet [draw arrow to the wallet] or put it into the group account [draw arrow to the group account].

At the same time you are making your choice, the other two members of your group will make their choices [draw arrows for both of the other players].

Once the money is in the group account, it is doubled [follow the arrow] and donated to the organization [draw this arrow].

If this activity is the one chosen for payment, we will take all of the booklets in this study, and randomly match you into groups of three. You will not know who is in your group, and no one will know what you chose to do. You will earn the amount you choose to keep. The organization will earn the amount that was put into the group and then doubled.

Let's look at some examples [write these on the posters].

- (i) Suppose everyone puts \$60 in the group account. This means that \$180 is in the group account. Then, the total donations are doubled to \$360 ( $\$180 \times 2 = \$360$ ). This means that \$360 gets donated to the organization [draw the arrow]. So, everyone earns what was in their wallet, \$0, and the organization earns what was put into the group account and then doubled (\$360). Does this make sense? Let's look at another example.
- (ii) Suppose everyone puts \$0 in the group account. Then there is nothing to double or split [write in zeros]. So how much does everyone earn? \$60. That's correct. How much does the organization receive? \$0. Does everyone understand why? All right, Let's look at one more example.
- (iii) Suppose one person puts \$60 in the group account, one person puts \$20 in the group account, and the third person puts \$60 in their wallet. What is the total amount in the group account? We have  $\$60 + \$20 + \$0 = \$80$ . This gets doubled to \$160 ( $\$80 \times 2 = \$160$ ).

Each person earns what they kept in their wallet.

- (i) The person who put \$60 in the group account earns \$0.
- (ii) The person who put \$20 in the group account earns \$40.
- (iii) The person who put \$0 in the group account earns \$60.
- (iv) The organization receives \$160.

Notice that since the amount doubles, the organization earns more when everyone puts money in the group account. However, each person earns more when they do not put money in the group account.

Remember our first example? Everyone put all \$60 into the group account, and they all made \$0 each, and the organization made \$360. But in this last example, the person who put in all \$60 made \$0 and the organization received \$160.

If this is the activity chosen for payment, then your earnings for this activity will be determined by

- (i) How much money you decide to put in your wallet and how much to put into the group account.
- (ii) Money sent to the group account will be donated to an organization that provides one of the following services for Fair Park residents: healthcare, children's education, or job training.
- (iii) The organization earns the amount donated to the group account, including the amount doubled.

If you want, you can wait until everyone is paid and watch us write the check for the organization. You can even go with us to the mailbox if you like. Are there any questions?

Now turn the page. [Turn the posters to the decision form, shown in Figure 5 in the article.] Let me show you how you mark your choice.

As before, you have four options. You can decide to [ask participants to provide some answers]

- (i) Put \$60 in the group account and keep \$0 in your wallet. If you want to make this choice, you put a checkmark here [mark on poster].
- (ii) Put \$40 in the group account and keep \$20 in your wallet. If you want to make this choice, you put a checkmark here [mark on poster].
- (iii) Put \$20 in the group account and keep \$40 in your wallet. If you want to make this choice, you put a checkmark here [mark on poster].
- (iv) Put \$0 in the group account and keep \$60 in your wallet. If you want to make this choice, you put a checkmark here [mark on poster].

Are there any questions?

Remember, the actual decision you make is up to you. There is no right or wrong answer. Just choose the one you like best. You will place a checkmark in the box next to your choice. Raise your hand if you have a question, and one of our monitors will come to help you. Before you make your decisions, I need to read out loud the descriptions of the organizations. The three organizations are the following: [Read the insert out loud].

Please turn the page to activity 4. You can now make your decision for activities 4, 5, and 6.

When you are finished with activity 6, there are a couple of short questions about what you did in activities 3–6. If you have any questions, please raise your hand and one of our monitors will come by to help you. When you are done with everything, please close your booklet. [Assist individuals who seem to need help. Stick to the scripted instructions, repeating as necessary. After all booklets are closed continue to Belief Elicitation].

## Appendix 2. Changes in Contributions Over Charities, Percentage of Subjects, $n = 190$

	Amount	VCM			
		0 ( $N = 57$ )	20 ( $N = 58$ )	40 ( $N = 47$ )	60 ( $N = 28$ )
Health	0	70.2	32.7	14.9	28.6
	20	24.5	62.1	34.0	25.0
	40	5.3	5.2	31.9	28.6
	60	0	0	19.2	17.8
	Total %	100	100	100	100
Children's education	0	75.4	27.6	12.8	35.7
	20	17.5	62.1	27.7	28.6
	40	5.3	8.6	42.5	21.4
	60	1.8	1.7	17.0	14.3
	Total %	100	100	100	100
Job training	0	82.5	39.7	10.6	32.1
	20	14.0	51.7	36.2	35.7
	40	3.5	8.6	40.4	25.0
	60	0	0	12.8	7.2
	Total %	100	100	100	100
Donate or volunteer	No	35.1	19.0	31.9	21.4
	Yes	64.9	81.0	68.1	78.6
	Total %	100	100	100	100

Appendix 3. Variable Descriptions<sup>a</sup>

Variable	Mean	Standard Deviation	Min	Max	Description, <i>n</i> = 172
Ordinal VCM	1.23	1.03	0	3	Contribution to the group account in the VCM, 0 = \$0, 1 = \$20, 2 = \$40, 3 = \$60
VCM > 0	0.70	0.46	0	1	Dummy variable = 1 if VCM contribution is greater than zero, 0 otherwise
Health	0.90	0.91	0	3	Contribution to the group account for the health clinic, 0 = \$0, 1 = \$20, 2 = \$40, 3 = \$60
Children's ed.	0.92	0.93	0	3	Contribution to the group account for the children's education provider, 0 = \$0, 1 = \$20, 2 = \$40, 3 = \$60
Job training	0.81	0.88	0	3	Contribution to the group account for the job training organization, 0 = \$0, 1 = \$20, 2 = \$40, 3 = \$60
No. organizations > 0	1.76	1.37	0	3	The number of organizations where the subject made a non-zero contribution in the donations experiments
Donate/volunteer	0.73	0.44	0	1	Dummy variable = 1 if the subject self-reports donating either time or money outside the lab. See Table 5 for sub-categories.
Ordinal average beliefs*	1.01	0.92	0	3	Average of the answer to the question: "How much money do you think the other two people donated to [charity]?" 0 = \$0, 3 = \$60
Beliefs: no. organizations > 0	2.12		0	3	Belief about the number of organizations where the other subjects made a non-zero contribution in the donations experiments
Risk	2.08	1.35	1	6	Gamble choice: 1 = \$80/\$80, 2 = \$60/\$120, 3 = \$40/\$160, 4 = \$20/\$200, 5 = \$0/\$240, 6 = -\$20/\$260
Time	1.35	2.40	0	10	Total number of patient choices, out of a total of 10 possible
Helpful	2.99	0.72	1	4	The perception about how helpful people in the neighborhood are 1 = very unhelpful, 4 = very helpful <sup>b</sup>
Fair	2.84	0.62	1	4	The perception about how fair people in the neighborhood are 1 = very unfair, 4 = very fair <sup>b</sup>
Trustworthy	2.58	0.80	1	4	The perception about how trustworthy people in the neighborhood are 1 = very untrustworthy, 4 = very trustworthy <sup>b</sup>
Crime experience	0.95	0.85	0	2	Sum of two crime-experience questions: "Have you ever been [witnessed someone else being] assaulted, robbed, or involved in any [another] violent incident." = 0 if no, = 1 if yes to one question, = 2 if yes to both questions
Female	0.60	0.49	0	1	Dummy variable = 1 if the subject is female, 0 otherwise
ln (age)	3.63	0.34	2.89	4.16	Natural log of the subject's age
No. kids in HH	1.20	1.30	0	5	Number of dependents under 18 living in the household
HS grad	0.37	0.48	0	1	Dummy variable = 1 if the subject graduated high school, 0 otherwise
College	0.41	0.49	0	1	Dummy variable = 1 if the subject attended some college or is a college graduate, 0 otherwise
Employed	0.65	0.48	0	1	Dummy variable = 1 if the subject is currently working, 0 otherwise
Religious	0.49	0.50	0	1	Dummy variable = 1 if the subject attends religious services once or more per week
Need health*	3.35	0.71	1	4	"How much does [your neighborhood] need the following services?" 1 = no need, 2 = a little, 3 = a lot, 4 = urgently (fire, medical, or other emergency)
Need schools*	3.51	0.61	1	4	Educational services, childcare, after-school programs (average of three responses)
Need businesses*	3.37	0.80	1	4	Businesses (banks, grocery stores, etc.)
Need job training*	3.67	0.61	1	4	Job training
Trust health*	3.18	0.68	1	4	"How much do you trust the various organizations?" 1 = not at all, 2 = not very much, 3 = somewhat, 4 = completely (hospitals or health clinics)

**Appendix 3. Continued**

Variable	Mean	Standard Deviation	Min	Max	Description, <i>n</i> = 172
Trust schools*	3.10	0.66	1	4	Schools for preschool children (age <5), elementary schools (ages 6–12), schools for teenagers (ages 13–18) (average of three responses)
Trust job training*	3.15	0.73	1	4	Work training organizations
Outside target zip code	0.21	0.41	0	1	Dummy variable = 1 if the subject's reported address is outside the target zip code, 0 otherwise

<sup>a</sup> *n* = 172 except as indicated by an asterisk, where *n* = 163. Beliefs variable has 489 observations (163 individuals with 3 beliefs each).

<sup>b</sup> Source: Modified, World Values Survey.

**Appendix 4. Marginal Effects for Each Charity, Accompanying Table 3 (Separate Regressions)<sup>a</sup>**

Variable	0	1	2	3
<b>Health</b>				
Ordinal VCM	-0.175*** (0.04)	0.076** (0.03)	0.082*** (0.02)	0.016* (0.01)
Ordinal average beliefs by organization	-0.211*** (0.04)	0.092** (0.03)	0.099*** (0.03)	0.020* (0.01)
Risk	-0.060* (0.027)	0.026† (0.01)	0.028* (0.01)	0.006† (0.003)
Time	-0.041** (0.02)	0.018* (0.01)	0.019* (0.01)	0.004† (0.002)
Helpful	0.137* (0.06)	-0.060* (0.03)	-0.065* (0.03)	-0.013† (0.01)
Fair	-0.114† (0.07)	0.050 (0.03)	0.054 (0.03)	0.011 (0.01)
Trustworthy	-0.037 (0.05)	0.016 (0.02)	0.017 (0.03)	0.003 (0.01)
Crime experience	0.031 (0.04)	-0.013 (0.02)	-0.014 (0.02)	-0.002 (0.004)
Predicated probability	0.343	0.529	0.113	0.013
<b>Children's education</b>				
Ordinal VCM	-0.167*** (0.04)	0.056* (0.02)	0.089*** (0.02)	0.022* (0.01)
Ordinal average beliefs by organization	-0.176*** (0.04)	0.059* (0.02)	0.094*** (0.02)	0.023* (0.01)
Risk	-0.034 (0.03)	0.011 (0.01)	0.018 (0.01)	0.005 (0.003)
Time	-0.055*** (0.02)	0.018* (0.01)	0.029** (0.01)	0.007* (0.003)
Helpful	0.068 (0.06)	-0.023 (0.02)	-0.037 (0.03)	-0.009 (0.01)
Fair	-0.144* (0.07)	0.049† (0.03)	0.077 (0.03)	0.019† (0.01)
Trustworthy	-0.032 (0.05)	0.011 (0.02)	0.017 (0.03)	0.004 (0.01)
Crime experience	-0.037 (0.04)	0.012 (0.01)	0.020 (0.02)	0.004 (0.01)
Predicted probability	0.345	0.492	0.142	0.020
<b>Job training</b>				
Ordinal VCM	-0.198*** (0.04)	0.109*** (0.03)	0.080*** (0.02)	0.009† (0.005)
Ordinal average beliefs by organization	-0.260*** (0.048)	0.143*** (0.04)	0.105*** (0.02)	0.012† (0.01)
Risk	-0.028 (0.03)	0.015 (0.02)	0.011 (0.01)	0.001 (0.001)

## Appendix 4. Continued

Variable	0	1	2	3
Time	-0.062*** (0.02)	0.034** (0.01)	0.025** (0.01)	0.003† (0.002)
Helpful	-0.01 (0.06)	0.005 (0.04)	0.003 (0.03)	0.000 (0.00)
Fair	-0.202** (0.08)	0.111* (0.05)	0.081* (0.03)	0.009 (0.01)
Trustworthy	0.065 (0.06)	-0.036 (0.03)	-0.026 (0.02)	-0.003 (0.003)
Crime experience	-0.044 (0.05)	-0.036 (0.03)	0.018 (0.02)	0.002 (0.002)
Predicted probability	0.417	0.482	0.093	0.006

<sup>a</sup> Marginal effects are from the separate charity regressions, before adjusting for the SUR error structure. Standard errors are in parentheses, and all controls from Table 2 included with estimates suppressed. Predicted probabilities may not sum to one as a result of rounding.

† $p \leq 0.10$ .

\* $p \leq 0.05$ .

\*\* $p \leq 0.01$ .

\*\*\* $p \leq 0.001$ .

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