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## Are Survey measures of Trust Correlated with Experimental Trust? Empirical Evidence from Cameroon

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## ABSTRACT

We analyze the correlation between survey-based measures of trust and behavior in the Trust Game in two villages in Cameroon. Some participants play the Trust Game with people from their own village, and others with people from a neighboring village. The survey that the participants complete includes questions about trust and social distance that reflect the experimental treatment. Some measures of survey-based trust are correlated with experimental trust, but the level of correlation is not uniform.

Key words: Trust Game, social capital, surveys

JEL codes: Z13, C93, O12

## 1. INTRODUCTION

Measures of trust are typically based on either surveys or experiments. In surveys, the most common question is, “Generally speaking, would you say that most people can be trusted or that you can’t be too careful in dealing with people?” Experimental trust is usually measured using the Trust Game.

Beginning with Glaeser *et al.* (2000), a few studies have analyzed the correlation between survey responses and behavior in the Trust Game. In the Trust Game, participants are divided into two groups: Senders and Recipients. Each Sender is anonymously paired with a Recipient. Senders are given a sum of money, and must decide how much to send to the Recipient. The amount sent is tripled by the experimenter, and the Recipient must then decide how much to return to the Sender. The amount sent is interpreted as a measure of trust in the Recipient, and the amount returned as a measure of trustworthiness.

Most studies find no significant correlation between survey-based and experimental trust. This is not surprising, because in most studies the survey asks about trust in “most people”, but Trust Game participants are seldom paired with a correspondingly amorphous partner. Participants are usually drawn from a relatively homogenous group, such as students from the same university (Glaeser *et al.*, 2000; Holm and Danielson, 2005; Ashraf *et al.*, 2006), members of the same church congregation (Danielson and Holm, 2007), fellow villagers (Barr, 2003; Schechter, 2007) or people from the same savings scheme (Karlan, 2005).

We analyze the correlation between survey trust and Trust Game behavior in two villages in rural Cameroon. Half the sample played the Trust Game with people from their own village; the remainder played with someone from a neighboring village. Our survey included a number of

questions about trust, including a generalized trust question, but we also asked about trust in fellow villagers and in those from the neighboring village. Ours is the first study we know of to analyze the correlation between experimental trust and such closely matched survey questions.

## 2. RESEARCH METHODOLOGY

The experiments and survey were administered in November 2008 in two South West Province villages (henceforth “Village 1” and “Village 2”). We recruited 140 people in each village. Table 1 reports summary demographic statistics for the sample. All participants had visited the other village at least once, but 85% rarely went there.

[Table 1 here]

The amount sent in the Trust Game may depend not only on pure trust, but also on altruism or the extent of risk aversion. To control for this, the Senders in the Trust Game also played a Triple Dictator Game and a Risk Game. The Triple Dictator Game is identical to the Trust Game, but the Recipient cannot return any money to the Sender. In the Risk Game (Schechter, 2007), each Sender is given the option of investing all, some or none of an initial endowment in a hypothetical project with a payoff determined by the roll of a die.

In the survey, participants heard several statements about trust. In each case, they indicated the extent of their agreement on a 1-5 scale (1 for strong disagreement through 5 for strong agreement). The first three statements elicited responses about whether one could trust fellow villagers, people from the other study village, and people in general (i.e., generalized trust). Two further statements employed a practical example to put trust in a specific context, the participants

indicating how likely they would be to lend a bicycle to a fellow villager or to someone from the neighboring village.

Participants completed the experiments and survey in their own village. They knew whether their anonymous partner was from their own village or from the other village, which was named. Each Sender was paired either with fellow villagers for both Trust and Triple Dictator games, or with people from the other village. The field work began with Senders in Village 1. The experimenter explained the rules of the Trust, Dictator and Risk Games, and said that all payouts would be made in seven days' time. The initial endowment for each game was 800 CFA francs (about \$2, or half a day's wage for most villagers). Transfers could be made in 100 CFA franc units. Each Sender met privately with the experimenter and told him their transfers for each game. The experimenter then rolled the die to determine the Risk Game payout, and the Senders were presented with the survey.

The field work then moved to Village 2, where Senders were treated in the same way. Next, the Village 2 Recipients (including those paired with Village 1 Senders) made their decisions. The experimenter then returned to Village 1, where the Recipients (including those paired with Village 2 Senders) made their decisions.

### 3. THE EXPERIMENTAL AND SURVEY RESULTS

The average amount sent by all Senders in the Trust Game was 69%. Senders paired with fellow villagers sent an average of 74%; those paired with someone from the neighboring village sending an average of 63%. More detail is provided in [REFERENCE SUPPRESSED], which focuses exclusively on the experimental results.

The survey results are summarized in Table 2. The extent of agreement with the statement that people can be trusted declines sharply as the radius of trust widens. For example, 60% of people strongly agreed that a fellow villager could be trusted with a bicycle, but only 22% strongly agreed that someone from the neighboring village could be trusted with one.

[Table 2 here]

Table 3 reports coefficients in regressions of the Trust Game transfer (measured as a percentage of the initial endowment) on the Triple Dictator Game transfer, the Risk Game investment, and one of the survey responses. There are six regression equations, two for the response on generalized trust, and one for each of the other responses. Each survey response is measured by a set of four dummy variables corresponding to choices 2-5; the omitted category was choice 1, strong disagreement (the least amount of trust). In some cases, there are very few choices of 2 or 3, and the corresponding dummies are dropped because they are collinear with the other regressors. Also included in the regression, but not reported in the table, are a number of demographic characteristics from Table 1. In the regressions including survey responses about trust in fellow villagers, the sample is those Senders playing with a Recipient from the same village. In the regressions including survey responses about trust in people from the other village, the sample is those Senders playing with a Recipient from the other village. In the regressions including the survey response about trust in people in general, there are two separate regressions, one for Senders paired with someone from the same village, and one for Senders paired with someone from the other village. Because the dependent variable is both left- and right-censored, and takes discrete values, the results are based on a censored interval regression (Long and

Freese, 2006). Broadly speaking, these coefficients can be interpreted in the same way as OLS coefficients.

[Table 3 here]

Column 1 presents the regression including responses about trust in fellow villagers. The choice 5 dummy is statistically significant, and strong trust in fellow villagers is associated with a Trust Game transfer that is 17 percentage points higher, on average. There is also a significant positive coefficient on the Triple Dictator Game transfer, suggesting that Trust Game transfers are motivated partly by altruism. The amount of invested in the Risk Game is not significantly correlated with the percentage sent in the Trust Game, so attitudes to risk play no part in explaining Trust Game behavior. The column 1 results for the Triple Dictator and Risk Game coefficients also apply to the other regressions.

Column 2 presents the regression including responses about trust in people from the other village. All of the dummy variables for this survey question are statistically significant, with magnitudes increasing in the level of survey trust. Those expressing strong trust in people from the other village send 68 percentage points more, on average, than those expressing no trust.

Column 3 presents the regression including responses about trust in people in general. In column 3a (intra-village trust), there is one surprising effect – a significantly negative coefficient on the choice 2 dummy, implying that those expressing weak distrust send less than those expressing strong distrust. However, the coefficient on the choice 3 dummy insignificantly different from zero, and the coefficients on choice 4-5 dummies are significantly greater than zero. The column

3b results (inter-village trust) are more straightforward: all coefficients are positive and significant, and increasing with the level of stated trust.

Columns 4-5 present the regressions including the bicycle responses. In column 4 (lending a bicycle to a fellow villager), the choice dummies are all statistically insignificant, but in column 5 (inter-village lending), they are significant and have the anticipated sign and relative magnitudes. If we assume that the Trust Game is the more reliable measure of trust, this implies that generalized trust questions elicit more accurate responses than context-specific ones, at least when the radius of trust is small.

#### 4. CONCLUSION

The absence of a correlation between experimental and survey trust has often been cited as a reason for doubting the reliability of the latter. We find that some measures of survey trust are significantly correlated with experimental trust. This difference may be because we have matched the radius of trust in the survey with the radius of trust in the experiment. Our most clear-cut result is a significant positive correlation between experimental trust in someone who is relatively distant and survey trust in people who are equally distant. The results are more mixed when the radius of trust in the survey question is not so closely matched, and also – in some cases – when the survey puts trust in a specific practical context. We tentatively conclude that if you want to know how much trust someone has in people from a certain group, it is best simply to ask if she trusts people from that group. Testing this hypothesis in settings other than rural Cameroon is a useful avenue for future research.

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**Table 1: Summary statistics**

	mean	s.d.	range
Male (percent)	51.8		
Age (years)	40.6	9.3	[23, 67]
Never married (percent)	5.7		
Married (percent)	87.5		
Divorced (percent)	3.2		
Widow/widower (percent)	3.6		
Household size	5.3	2.1	[1, 14]
Number of children	3.5	2.2	[0, 21]
Years lived in the village	34.5	12.4	[6, 66]
Lived in an urban area (percent)	19.6		
ROSCA membership (percent)	45.0		
Annual income (10,000 CFA francs)	66.0	42.3	[7.5, 200]
Education (percent)	67.1		
Number of friends / relatives in other village	0.3	1.0	[0, 10]
Lived in the other village (percent)	4.3		
Parents divorced (percent)	3.2		
Victim of crime (percent)	2.1		
How often people visited the other village:			
Very often (percent)	1.1		
Often (percent)	14.3		
Rarely (percent)	84.6		
Never (percent)	0.0		

**Table 2: Responses to survey questions**

<i>Trust in...</i>	Fellow villagers (%)	People from another village (%)	People in general (%)	Fellow villagers ~ bicycle (%)	People from another village ~ bicycle (%)
Strongly disagree	0.0	0.4	6.8	0.0	0.0
Disagree	0.0	1.1	11.4	0.0	0.7
Neither agree nor disagree	6.8	22.1	47.1	1.8	13.2
Agree	49.3	48.6	31.8	38.2	64.3
Strongly agree	43.9	27.9	2.9	60.0	21.8
Observations	280	280	280	280	280

**Table 3: Regression coefficients for the percentage sent in the Trust Game**

	1	2	3a	3b	4	5
	survey = trust in fellow villagers	survey = trust in people from another village	survey = trust in people in general	survey = trust in people in general	survey = trust in fellow villagers ~ bicycle	survey = trust in people from another village ~ bicycle
<i>Recipient from...</i>	<i>same village</i>	<i>other village</i>	<i>same village</i>	<i>other village</i>	<i>same village</i>	<i>other village</i>
Survey dummy	(2)	41.5*** (5.62)	-11.5** (-2.55)	18.2*** (2.65)		
	(3)	43.2*** (5.14)	6.0 (1.34)	21.5*** (3.06)		47.9*** (6.88)
	(4)	3.08 (0.56)	57.7*** (7.51)	18.3*** (3.30)	34.7*** (4.81)	-18.7 (-1.54)
	(5)	16.8** (2.45)	67.9*** (9.66)	55.9*** (6.01)	53.0*** (3.01)	-12.8 (-1.13)
Triple Dictator Game transfer	0.86*** (5.78)	0.78*** (6.02)	0.88*** (6.57)	0.90*** (5.20)	0.96*** (5.13)	0.79*** (5.29)
Risk Game investment	0.06 (0.85)	0.16 (1.64)	-0.04 (-0.58)	0.09 (0.80)	0.04 (0.00)	0.20 (0.00)
ln( $\sigma$ )	2.58	2.62	2.41	2.72	2.64	2.60

Heteroskedasticity-robust t-ratios are in parentheses.

\*, \*\*, \*\*\* denote significance at the 10%, 5%, and 1% level, respectively.