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Survey Trust, Experimental Trust and ROSCA Membership in Rural Cameroon

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Abstract

We analyse new experimental and survey data from rural Cameroon, where the level of trust is much higher than is typical of Africa. We find the level of trust exhibited by individuals to be highly correlated with membership of Rotating Saving and Credit Associations. There is also a significant correlation between the degree of trust exhibited in the game and the degree of trust declared in response to survey questions. However, survey responses do not capture all of the systematic variation in experimental behaviour, and understate the importance of ROSCA membership in predicting trust.

Keywords – Africa, Cameroon, social capital, trust, economic experiments, ROSCAs

1. Introduction

Much of the existing empirical literature on social capital relies on survey-based measures of trust, and in particular on responses to the question, "Generally speaking, do you think most people can be trusted?" The fraction of the population responding in the affirmative to this generalised trust question is used to proxy a country's overall level of social capital. Such a measure has been used to explain international differences in income levels and rates of economic growth (Knack & Keefer, 1997; Zak & Knack, 2001; La Porta *et al*., 1997), environmental quality (Grafton & Knowles, 2004), health and education (La Porta *et al*., 1997) and levels of financial development (Guiso *et al*., 2004). Average levels of trust are found to be lower in LDCs, and particularly low in Africa. For example, in the 1999-2002 wave of the *World Values Survey* (www.worldvaluessurvey.org), 35.4% of participants in North America and Western Europe responded in the affirmative to the generalized trust question; the figure for the small number of African countries surveyed was 19.3%, and for the rest of the world 26.0%.

One advantage of the generalised trust question is that responses are reported for a wide variety of countries on a regular basis, facilitating international comparisons. However, it is unclear how well these responses capture an underlying propensity for trusting, co-operative behaviour. A more direct way to measure the propensity for trusting behaviour is through controlled experiments such as the Trust Game. Following Glaeser *et al*. (2000), several studies have examined the relationship between responses to trust questions and behaviour in the Trust Game.

We have conducted a Trust Game experiment and a trust survey in a village in rural Cameroon. As we will see, overall levels of trust – both experimental and survey trust – are higher in our village than has typically been found elsewhere in Africa. (Ours is the first study of trust in Cameroon, and the first study of experimental trust in West Africa.) One salient feature of our village, and of many other parts of rural Cameroon, is the high level of participation in Rotating Saving and Credit Associations (ROSCAs). Members of a ROSCA each contribute an agreed sum to a common fund at regular intervals, the fund being allocated to each member in turn, in order to facilitate lumpy expenditures. The successful operation of a ROSCA requires that those who are allocated the fund early in the round continue to make contributions later on. If those considering forming a ROSCA do not have much trust in other potential members, then ROSCAs are less likely to be formed in the first place and are more likely to fail.

In this paper we investigate the relationship between experimental trust, survey trust and ROSCA membership, conditional on other social and economic characteristics. We show that while levels of survey trust and experimental trust are positively correlated, the distribution of experimental trust (both the unconditional distribution and the distribution conditional on survey trust) is a function of ROSCA membership. However, not all of the survey questions reveal a significantly higher level of trust among ROSCA members, and in this sense the survey understates the extent to which ROSCA membership is associated with more trusting behaviour.

2. Literature Review

(a) *Experimental trust*

In the Trust Game (Berg *et al*., 1995), participants are divided into two groups: Senders and Recipients. Each Sender is paired with a Recipient, sometimes anonymously. A Sender is given a sum of money and must decide how much of this money, if any, to transfer to the Recipient. The amount of money transferred is tripled by the experimenter. The Recipient must then decide how much of the money, if any, to return to the Sender. The amount of money sent by Sender is interpreted as a measure of her trust in the Recipient (who may be anonymous), while the amount returned by the Recipient is interpreted as a measure of trustworthiness or reciprocity.

To what extent does the Trust Game measure trust and trustworthiness? Ashraf *et al*. (2006, p.193) define trust as a situation in which "one party, the trustor, makes himself vulnerable by taking a course of action that creates incentives for the other party, the trustee, to exploit him." Camerer (2003, p.85) argues that "[t]rust must be risky. Trustworthiness must also go against the Trustee's self-interest, to test whether people are willing to sacrifice moral obligation." A decision by the Sender to transfer money gives the Recipient an incentive to exploit her by keeping it all. Returning any money is contrary to the Recipient's self-interest. Therefore, the Trust Game does measure both trust and trustworthiness. Note also that the Trust Game is typically played as a one-shot game, not a repeated game. In a repeated game reputations can be built up, so the Sender is not necessarily making herself vulnerable to exploitation, and a repeated game would not measure trust so well (Barr, 2003, pp.617-8).

Table 1 summarises Trust Game results from LDCs, along with results from two seminal US studies, Berg *et al*. (1995) and Glaeser *et al*. (2000); this summary updates Cardenas & Carpenter (2008). The table shows the mean proportion of money sent and returned in each game, indicating whether the experiment was carried out on students or non-students and

whether the participants were anonymous to their partners. It also notes cases in which the authors tested the significance of the correlation between experimental and survey trust or between experimental trust and group membership. There is substantial variation in the mean proportion sent (30-83%) and returned (18-82%); the reasons for such variation are not well understood. However, the overall average proportion sent in the African studies in the table is 45%, compared with 57% in the other LDCs, which is consistent with Africa's relatively low levels of survey trust.

Table 1. Trust Game studies in developing countries and in the USA

Author (s)	Country	Survey	Students	Proportion Sent (%)	Proportion Returned (%)	Anonymous	Correlation with Survey Questions	Correlation with Group Memberships
Berg *et al.* (1995)	USA	No	Yes	52	46	Yes	Not Examined	Not Examined
Ashraf *et al.* (2006)	Russia South Africa	Yes Yes	Yes Yes	49 43	29 27	Yes Yes	The question about trust in strangers was positively correlated with the proportion returned but not correlated with the proportion sent.	Memberships of any organizations were insignificant in explaining either the proportion sent or the proportion returned.
Barr (2003)	Zimbabwe	No	No	43	43	Yes	Not Examined	Not Examined
Bouma *et al.* (2005)	India	Yes	No	49	33	Yes	Not Examined	Not Examined
Buchan & Croson (2004)	China	Yes	Yes	66	35	Yes	Not Examined	Not Examined
Buchan *et al.* (2006)	China South Korea	Yes Yes	Yes Yes	73 64	50 49	Yes Yes	Not Examined	Not Examined
Burns (2004)	South Africa	Yes	Yes	33	23	No	Not Examined	Not Examined
Carter & Castillo (2003)	South Africa	No	No	53	38	Yes	Not Examined	Memberships of any social groups were insignificant in explaining either the proportion sent or the proportion returned.
Castillo & Carter (2004)	Honduras	No	No	49	42	Yes	Not Examined	Not Examined
Danielson & Holm (2007)	Tanzania	Yes	No	56	46	Yes	Questions regarding attitudes to trust (including generalized trust) and past trusting behaviour (as measured by an index of three survey questions) do not predict the amount sent. Generalized trust and self-reported trustworthiness fail to predict the proportion returned. The trust index is significantly positively correlated with the proportion returned.	Not Examined
Ensminger (2000)	Kenya	No	No	44	18	Yes	Not Examined	Not Examined

Table 1 (continued)

Glaeser *et al.* (2000)	USA	Yes	Yes`	83	45	No	Questions about past trusting behaviour were positively correlated with the proportion sent. Many attitudinal trust questions (including the generalized trust question) were positively correlated with the proportion returned.	Not Examined
Greig & Bohnet (2005)	Kenya	Yes	No	30	82	Yes	Not Examined	Not Examined
Haile *et al.* (2004)	South Africa	Yes	Yes	55 45	28 29	Yes No	Positively correlated with the proportion returned but not correlated with the proportion sent.	Not Examined
Holm & Danielson (2005)	Tanzania	Yes	Yes	53	37	Yes	Attitudinal trust questions were insignificant in explaining either the proportion sent or the proportion returned. The question about past trusting behaviour was found to be negatively correlated with the proportion returned.	Not Examined
Johansson-Stenman *et al.* (2006)	Bangladesh	Yes	No	46	46	Yes	Generalized trust was positively correlated with the proportion returned but uncorrelated with the proportion sent. Questions about past trusting behaviour and past experience (victim of crime) were insignificant in explaining either the proportion sent or the proportion returned.	Memberships of any voluntary groups were insignificant in explaining the proportion sent and the proportion returned.
Karlan (2005)	Peru	Yes	No	46	43	No	Survey trust questions were positively correlated with the proportion returned but not with the proportion sent.	Whether the pair comes from the same lending group had an insignificant effect on either the proportion sent or the proportion returned. If the pair attends the same church was positively correlated with the proportion sent but not correlated with the proportion returned.
Lazzarini *et al.* (2004)	Brazil	Yes	Yes	56 86	34 49	Yes No	Trust questions (including WVS) were positively correlated with both the proportion sent and the proportion returned (anonymous sample).	Not Examined
Mosley & Verschoor (2005)	Uganda	Yes	No	49	33	Yes	Not Examined	Memberships of groups within the village (index of bonding social capital) were significantly positively correlated with both the

								proportion sent and the proportion returned.
Schechter (2007)	Paraguay	Yes	No	47	44	Yes	Not Examined	Not Examined

(b) *Survey trust*

Questions about trust normally take two forms: questions about attitude (asking whether people in general or certain groups of people can be trusted) and questions about past trusting behaviour (asking, for example, whether subjects have ever lent money to others, or intentionally left their doors unlocked). Some authors, for example Glaeser *et al*. (2000), who sample Harvard economics students, find that the proportion sent is significantly correlated with responses to behavioural questions but not with responses to attitudinal questions. Studies investigating such a correlation among developing country university students include Holm & Danielson (2005, Tanzania), Lazzarini *et al*. (2004, Brazil), Ashraf *et al*. (2006, South Africa) and Haile *et al*. (2004, South Africa). Only Lazzarini *et al*. find a positive correlation between the proportion sent and generalised trust, and then only when the players are anonymous to each other.

University students may not be representative of the wider population. However, results from the few studies using non-student samples in developing countries are similarly mixed. Johansson-Stenman *et al*. (2006) find a positive correlation of both the amount sent and the amount returned with responses to the generalised trust question among Bangladeshi household heads, but not with responses to behavioural trust questions. Karlan (2005), using subjects from a group-based lending scheme in Peru, finds no correlation of survey-based trust with the proportion sent, although there is a significant positive correlation with the proportion returned. Danielson & Holm (2007) find no correlation between the amount sent and responses to the generalised trust question, or other questions about attitudinal trust, for a sample drawn from a Tanzanian church congregation. However, they do find a positive correlation between an index of survey trust questions and the proportion returned. One possible reason for the absence of a correlation between the generalised trust question and the amount sent is that many surveys focus on questions about "most people", whereas the Trust Game is typically played between a much narrower, homogeneous group of people, such as household heads in a particular village.

A few studies have examined whether there is a correlation between membership of some kind of co-operative group and the amount sent or returned in the Trust Game. Ashraf *et al*. (2006), Carter & Castillo (2003) and Johansson-Stenman *et al*. (2006) find no evidence of any such correlation. However, Mosley and Verschoor (2005) do find a positive correlation among group members living in the same village. Only Karlan (2003) asks whether membership of *specific*

types of group affects experimental trust. Here, membership of the same church is correlated with experimental trust, but membership of the same group credit scheme is not.

Our paper adds to the literature by presenting survey and experimental results from Cameroonian villagers among whom there is a substantial amount of economic and demographic heterogeneity, some dimensions of which impact on experimental trust. Unlike most previous studies, our investigation into the relationship between experimental and survey trust pays attention to the radius of trust, with questions about trust in people with whom respondents interact regularly (for example, people in the same ROSCA) as well as questions about trust in people in general. Also, we are the first to explore whether ROSCA members are more trusting or trustworthy than non-members, and whether the amount of trust or trustworthiness increases with the duration of ROSCA membership.

3. Experimental Design

(a) *The village*

The Trust Game and the questionnaire were administered in a village in the South West Province of Cameroon. The village has a population of approximately 1000 inhabitants, and is ethnically homogenous: everyone belongs to the same ethnic group and speaks the same dialect. The main economic activity is agriculture; coffee and cocoa are the most important crops. Most people are illiterate. The closest neighbouring villages are about 5km away, and the nearest large town 40km away. The village has no post office or bank, and a high proportion of villagers belong to a ROSCA. The field work was carried out in January 2007 by one of the authors and three research assistants, all fluent in the local dialect but having no previous contact with the village.

17 ROSCAs operate in the village with a total of 426 members, representing more than half of the adult population. Around 60% of ROSCA members are female. Groups may consist of men only, women only or both men and women. ROSCA size ranges from 11 to 45 members, and the average age of a ROSCA is 8 years. The median contribution to a ROSCA is 1000 CFA francs per meeting, with meetings typically held every month or every two weeks. In addition to the rotating fund, some ROSCAs also run a savings and loan fund or an insurance fund as an optional extra. ROSCA membership in the village has been increasing slowly over time. ROSCA transactions do not require any written contract: all agreements are monitored and enforced

informally by members of the group. Default rates are very low; anyone who does default or fail to make a compulsory contribution is fined.

(b) *The experiment*

Following some initial correspondence, the village head introduced the experimenters at a feast attended by most of the villagers. Everyone who attended the feast was willing to take part in the project. Seven ROSCAs were selected at random from all those in the village, and from each of these ROSCAs 20 members were selected at random. The 20 individuals were split into two groups of ten. Another 60 non-ROSCA members were selected at random, and split into six groups of ten, giving us 20 groups of ten in total: ten Sender groups and ten Recipient groups. The experiments comprised ten rounds, each with one Sender group and one Recipient group. In six rounds, ROSCA Senders were paired with Recipients in the same ROSCA. In another two rounds, ROSCA Senders were paired with non-ROSCA recipients. In the final two rounds, both Senders and Recipients were non-ROSCA members. Each group was allocated randomly to a particular round.

Experimental sessions were conducted over six days in the village hall. At the beginning of every session, the experimenters provided information and instructions to the 20 participants both orally and in written form. The rules of the Trust Game were thoroughly explained, along with examples of how much money the players would receive under different scenarios. Participants were encouraged to ask questions for clarification, and their comprehension was tested with numerical examples. These tests indicated that participants did understand the rules of the game.

In every session, each individual Sender was randomly and anonymously paired with a Recipient. (The Sender knew the identity of the ten Recipients in the group, but not of his/her specific partner.) The two groups were kept in different rooms, and a research assistant was assigned to each room to ensure that participants did not discuss strategies. Each Sender was given ten 100-franc coins and called alone into another room, where an experimenter asked for the coins the player had chosen to transfer to the corresponding Recipient, telling the Sender to pocket any remaining money without showing anyone. 1000 francs is worth about two US dollars, or about half a day's wage for most villagers, and buys about 4kg of rice. The amount transferred was recorded. Having the participants reveal their decisions to the experimenter face-to-face does run the risk that the experimenter's presence may influence decisions. However, the experimenter is able to make sure each player understands the game. The same approach has been used by Barr (2003), Karlan (2005) and Schechter (2007).

When all the Senders had handed over the coins, the Recipients entered the room one at a time, to be given an envelope containing three times the amount of money the corresponding Sender had chosen to transfer. The Recipients were then asked to return to the experimenter as many coins as they wished for the corresponding Sender. This amount was recorded by the experimenter. The Recipients were asked to keep any money not returned in their pockets, so that no-one else would know how they had played the game.

The Recipients completed surveys while waiting for the Senders to make their transfers, and Senders completed identical surveys while the Recipients were making their transfer decisions. Since many villagers are illiterate, the questions were put orally. Participants typically spent about an hour taking part in the experiment and answering the survey questions.

(c) *The survey*

A copy of the survey appears in Appendix 1. The survey was designed in English, and then translated into the local dialect. The survey asks ten questions about peoples' attitudes towards trust and cooperation, one question about whether the participant has been the victim of crime in the previous five years, and a variety of questions about demographic and personal characteristics. For the first ten questions, subjects were read a statement about trust or cooperation and asked whether they agreed with the statement on an *A* to *E* scale, *A* indicating that they disagreed strongly and *E* that they agreed strongly. The first three questions asked whether the participant trusted people who live in the village, people who live in neighbouring villages and people in general. The third question is very similar to the standard generalised trust question; however, our respondents had five options, not just "Yes" or "No". A further question asked whether people in the same ROSCA (or for non-ROSCA respondents, another relevant social group such as a football team) could be trusted. These four questions enable us to measure the extent to which the radius of trust diminishes from trust in people with whom subjects interact regularly, through trust in other villagers, trust in people from other villages and trust in people in general.

Guinnane (2005) points out that the generalized trust question does not make clear how much trust subjects are being asked to place in others. This criticism applies to the questions above. The survey therefore includes six other questions about trust and reciprocity framed in the context of everyday practical examples familiar to the villagers. Responses to these questions can be used to test the robustness of our results with respect to the context in which questions are framed. We asked four questions related to trust in other villagers: whether the respondent would

lend a bicycle or hoe to a fellow ROSCA member or member of another relevant social group, whether the respondent would lend a bicycle or hoe to some other villager, whether the respondent would help neighbours to harvest crops, and whether they would expect such help to be reciprocated. We also asked a question relating to trustworthiness: whether the respondent could expect a neighbour to lend him/her a water bucket. Finally, to put generalised trust in a specific context, we asked whether the respondent would expect a wallet lost in the nearest town to be returned intact.

Our survey also includes questions about gender, age, income, occupation, educational attainment, marital status, number of children, whether the respondent lives alone, how long the respondent has lived in the village, whether the respondent has ever lived in an urban area, whether the respondent belongs to a ROSCA, and length of ROSCA membership.

4. Descriptive Statistics

(a) *Descriptive statistics from the experiment*

Summary statistics for the proportion of money sent are reported in Table 2. The average amount of money sent by all subjects represents 87% of the initial endowment, which is high relative to other studies in LDCs (but not relative to Glaeser *et al*., 2000); no-one chose to send less than 50%. The average proportion sent was higher for ROSCA members, who sent 92% when the recipient was a ROSCA member and 82% when the recipient was not a ROSCA member; non-ROSCA members sent an average of 75%. That mean transfers are higher when the Sender and Recipient are members of the same ROSCA is consistent with the view that trust will be higher between people who interact frequently with each other. The statistical significance of these differences is tested in the regressions discussed below.

Summary statistics for the proportion of money returned are reported in Table 3. The mean proportion returned across all subjects was 47%. This result is very similar to those of other studies: 45% in the USA (Glaeser *et al*., 2000), 46% in Bangladesh (Johansson-Stenman *et al*., 2006), 51% in Peru (Karlan, 2005), 43% in Zimbabwe (Barr, 2003) and 42% in South Africa (Carter & Castillo, 2003). ROSCA members in our study returned an average of 49%; non-ROSCA members returned 44% if the sender was a ROSCA member and 41% otherwise. ROSCA members tended to return more on average than non-ROSCA members, although this difference is smaller than the difference among Senders.

Table 2. Proportion sent

	All players	ROSCA Senders and Recipients	ROSCA Senders and non-ROSCA Recipients	Non-ROSCA Senders and Recipients
Mean	87%	92%	82%	75%
Standard Deviation	14.4%	9.4%	16.6%	16.4%
Mode	100%	100%	100%	60%
Minimum	50%	70%	50%	50%
Maximum	100%	100%	100%	100%
Number of observations	100	60	20	20

Table 3. Proportion returned

	All players	ROSCA Senders and Recipients	ROSCA Senders and non-ROSCA Recipients	Non-ROSCA Senders and Recipients
Mean	47%	49%	44%	41%
Standard Deviation	6.6%	5.2%	6.1%	7.1%
Mode	50%	50%	50%	44%
Minimum	27%	37%	33%	27%
Maximum	67%	67%	53%	50%
Number of observations	100	60	20	20

Table 4. Responses to non-context specific survey questions about trust

Response	Trust in fellow ROSCA/group members	Trust in fellow village members	Trust in people from neighbouring villages	Trust in people in general
Strongly disagree	0	2	10	32
Disagree	1	17	32	39
Neither agree nor disagree	3	0	3	8
Agree	36	73	90	92
Strongly agree	160	108	65	29
Observations	200	200	200	200

Table 5. Responses to context-specific survey questions about trust

Response	Would lend bicycle/hoe to fellow ROSCA members	Would lend bicycle/hoe to fellow village members	Would help neighbours at harvest	Would expect help from neighbours at harvest	Would expect neighbour to lend a bucket	Wallet lost in town would be returned intact
Strongly disagree	0	0	0	0	0	35
Disagree	2	0	0	0	0	52
Neither agree nor disagree	0	1	0	4	2	30
Agree	50	90	47	81	94	77
Strongly agree	148	109	143	115	104	6
Observations	200	200	200	200	200	200

(b) *Descriptive statistics from the survey*

Table 4 indicates the large extent to which the level of reported trust diminishes as the subject is asked about trust in members of the same ROSCA or group, then trust in fellow villagers, then trust in people from neighbouring villages, then trust in people in general. The number indicating strong agreement with the statement that people can be trusted declines sharply as the radius of trust expands and the number indicating strong disagreement increases. Nevertheless, over half of the respondents either agreed or strongly agreed that most people could be trusted. In only one case – trust in members of the same ROSCA or group – is the proportion of ROSCA respondents indicating strong agreement significantly higher than the corresponding proportion of non-ROSCA members. 129 out of the 140 ROSCA members indicated strong agreement in this case, compared with 31 out of the 60 non-ROSCA members.

Results for the context-specific questions about trust are summarized in Table 5. These results also indicate a decline in the level of trust as the radius of trust expands. Three quarters of the respondents strongly agreed that they would trust a fellow ROSCA or other group member enough to lend a bicycle or hoe, while just over half strongly agreed that they would trust any other village member enough to do so. Moreover, the proportion strongly agreeing that they would receive assistance from others in the village if they needed help at harvest, or if they needed to borrow a bucket, is much larger than the proportion strongly agreeing that a wallet lost in the nearest town would be returned intact. Nevertheless, virtually all respondents either agree or strongly agree that they would trust and be trusted by other villagers in different specific contexts. In only one case (the bucket question, which is about trustworthiness rather than trust) is the proportion of ROSCA respondents indicating strong agreement significantly higher than the corresponding proportion of non-ROSCA members. 81 out of the 140 ROSCA members indicated strong agreement in this case, compared with 23 out of the 60 non-ROSCA members.

5. Modeling Experimental Behaviour

(a) *ROSCA membership and experimental trust*

Our basic model, reported in Table 6, is designed to explain the variation in the amount sent in the experiment using dummy variables for ROSCA membership and other socio-economic characteristics of the participants. These characteristics include a set of dummy variables taking a value of one if the Sender is male, if he/she is divorced, if he/she has ever lived in an urban area, and if he/she holds a first school leaving certificate ("education" in the table). The Table 6 model

also includes the Sender's age, income, number of children and total household size. These conditioning variables are taken from previous papers on experimental trust, including Croson & Buchan (1999), Glaeser *et al*. (2000) and Fehr *et al*. (2003), where the rationale for their inclusion can be found. The reported results do not contain any quadratic or interaction terms, none of which is ever individually or jointly significant.

Since the participants were asked to choose how many of ten coins to send, our dependent variable is not continuously distributed. We therefore report coefficients from Poisson regression equations.[1] We assume that the amount sent has a Poisson distribution, the log of the mean of which is a linear function of our explanatory variables. In many cases, however, we can reject the Poisson assumption of equal mean and variance (the over-dispersion test reported in the table). For this reason, we also report Negative Binomial regression results, along with the log of the corresponding over-dispersion parameter, . In few cases are the differences between the Poisson and Negative Binomial coefficients statistically or economically significant.

Model (1) in Table 6 is a regression of the amount sent on the Senders' socio-economic characteristics and two ROSCA membership dummies: one for cases in which a ROSCA member was sending to another ROSCA member, and another for cases in which a ROSCA member was sending to a non-ROSCA member. The two dummies allow us to distinguish the hypothesis that ROSCA members are more trusting towards everyone in the village from the hypothesis that they are more trusting only towards their fellow-ROSCA members. However, there are two econometric caveats in the interpretation of Model (1). Firstly, it is possible that the ROSCA membership dummies are endogenous regressors, because there is some unobservable factor that drives both experimental behavior and ROSCA membership. Such endogeneity might lead to some bias in the coefficients of Model (1). Secondly, a significant coefficient on a ROSCA membership dummy might reflect a treatment effect (participating in a ROSCA leads people to trust more), or it might reflect a selection effect (people who trust more are more likely to join a ROSCA).

Models (2) and (3) in Table 6 are designed to address these two econometric issues. Model (2) sheds some light on the question of whether a treatment effect or a selection effect is at work, by including as a regressor the number of months the Sender has been in the ROSCA. Some Senders have been in the ROSCA for fewer than six months; others have participated for several years. If a treatment effect is at work, then we should observe a significant coefficient on the length of ROSCA membership. Otherwise, a positive coefficient on a ROSCA membership dummy is more plausibly interpreted as a selection effect. Model (3) addresses the endogeneity issue by fitting Model (2) to the subset of 80 observations in which the Sender was in a ROSCA,

and omitting the second ROSCA membership dummy. This regression is free from bias, because whether a ROSCA member is paired with another ROSCA member is determined at random. A large disparity between the Model (2) and Model (3) coefficients on the socio-economic variables, or between the ROSCA membership dummy in Model (3) and the difference between the two ROSCA membership dummies in Model (2), would suggest some endogeneity bias in Model (2).

Table 6. Determinants of the amount sent

Heteroskedasticity-robust t ratios are in parentheses.

	(1) Full sample		(2) Full sample		(3) Sample with ROSCA members only	
	Poisson	**Negative Binomial**	**Poisson**	**Negative Binomial**	**Poisson**	**Negative Binomial**
Both players are in the ROSCA	0.2027 (4.00)	0.2029 (4.04)	0.1656 (2.36)	0.1662 (2.37)	0.1276 (3.36)	0.1276 (3.36)
Only the Sender is in a ROSCA	0.0692 (1.25)	0.0677 (1.23)	0.0459 (0.70)	0.0447 (0.68)		
Sender duration in the ROSCA			0.0040 (0.85)	0.0040 (0.83)	0.0041 (0.86)	0.0041 (0.86)
Male	0.0032 (0.12)	0.0021 (0.08)	0.0054 (0.20)	0.0043 (0.16)	0.0093 (0.36)	0.0093 (0.36)
Age	0.0006 (0.54)	0.0007 (0.56)	0.0006 (0.54)	0.0007 (0.56)	0.0004 (0.40)	0.0004 (0.40)
Divorced	-0.2033 (-3.41)	-0.2062 (-3.45)	-0.1961 (-3.20)	-0.1991 (-3.25)	-0.1464 (-2.52)	-0.1464 (-2.52)
Household Size	0.0063 (1.02)	0.0065 (1.04)	0.0070 (1.12)	0.0072 (1.13)	0.0026 (0.44)	0.0026 (0.44)
Number of Children	-0.0082 (-1.15)	-0.0081 (-1.12)	-0.0084 (-1.20)	-0.0082 (-1.17)	-0.0124 (-1.82)	-0.0124 (-1.82)
Number of years in village	-0.0019 (-1.76)	-0.0019 (-1.78)	-0.0019 (-1.77)	-0.0019 (-1.80)	-0.0024 (-2.22)	-0.0024 (-2.22)
Lived in an urban area	-0.0989 (-3.20)	-0.1003 (-3.19)	-0.1031 (-3.24)	-0.1042 (-3.22)	-0.1161 (-3.52)	-0.1161 (-3.52)
ln(income)	0.1269 (1.31)	0.1260 (1.31)	0.1220 (1.27)	0.1214 (1.28)	0.1772 (2.12)	0.1772 (2.12)
Education	0.0676 (2.23)	0.0674 (2.20)	0.0720 (2.32)	0.0718 (2.28)	0.0807 (2.92)	0.0807 (2.92)
Intercept	3.6357 (6.38)	3.6408 (6.43)	3.6606 (6.48)	3.6641 (6.53)	3.4385 (7.13)	3.4384 (7.12)
ln( )		-5.3525		-5.3744		-15.0848
R^2	0.426	0.426	0.430	0.430	0.410	0.410
Over-dispersion test (p-value)		0.008		0.009		0.500
Observations	100	100	100	100	80	80

Several socio-economic characteristics are significant determinants of the amount sent in all model specifications, and coefficients on individual characteristics vary very little across the different specifications, suggesting that there is little endogeneity bias in Models (1) and (2). Those senders who are divorced can be expected to send 15-20% less on average, and those who have ever lived in an urban area can be expected to send about 10% less. Those with formal education can be expected to send about 7% more. The positive effect of education on experimental trust has been noted elsewhere, for example in the Dutch study of Bellemare & Kröger (2003). The most surprising result is the coefficient on the number of years lived in the village, which is significant at the 5% level in some models. An extra ten years in the village can be expected to reduce the amount sent by about 2%. (The addition of a quadratic term in the variable does not produce a significant coefficient.) This effect is separate from the age of the Sender, which has no significant impact on the amount sent. Newcomers from other villages are more trusting of other villagers than are the established village members themselves. One possible explanation is that we have selected a village with a lower overall trust level than its neighbours. In this case, there is significant variation in levels of trust across villages in the same region.

Conditional on these factors, ROSCA membership is associated with a higher degree of trust. When both the Sender and the Recipient are ROSCA members the amount sent is about 20% higher than when neither is, and about 13% higher than when only the Sender is in a ROSCA. Both of these differences are statistically significant in all model specifications. Correspondingly, there is a 7% difference between the amount sent by ROSCA members to non-ROSCA members and the amount sent by non-ROSCA members; however, this difference is statistically insignificant. Again, the consistency of results across model specifications suggests that there is little endogeneity bias in Models (1) and (2). Duration is never a significant determinant of the amount sent, either in the full sample or in the ROSCA Senders-only sample.[2] This suggests that the experience of being in a ROSCA does not in itself inculcate trust. Some of the participants have been ROSCA members for only a few months, and their experimental trust levels are not significantly lower than long-term ROSCA members. A more likely explanation for the ROSCA effect is that common membership reflects the fact that people can already trust each other, in other words that we have a selection effect rather than a treatment effect. On average, ROSCA members also send a little more to non-ROSCA members, which suggests that members are inherently more trusting people, but our sample is not large enough to establish the significance of this difference.

(b) *The relationship between experimental and survey trust*

Table 7 presents regression equations designed to explore whether there is a significant correlation between experimental trust and responses to the various survey questions, conditional on observable participant characteristics. We present results from ten alternative models, each incorporating a dummy variable based on a different trust or trustworthiness survey question. The dummy variable takes a value of one if the survey participant agreed strongly with the statement and zero otherwise. The other regressors are taken from Model (1) in Table 6.[3] As can be seen in Tables 4-5 above, very few participants chose to disagree with many of the statements, and so most of the variation in the level of survey trust is captured by the presence or absence of strong agreement with the survey question. A final regression in Table 7 replaces survey trust with a dummy variable for whether the participant has ever been a victim of crime. In no case are the coefficients on the significant socio-economic variables in Table 6 – marital status, having lived in an urban area, education and years lived in the village – substantially different in Table 7.

Table 7. Determinants of the amount sent conditional on survey responses

	(1) Trust in fellow ROSCA/group members		(2) Trust in fellow villagers		(3) Trust in people from neighbouring villages		(4) Trust in people in general		(5) Would lend bicycle/ hoe to fellow villager		(6) Would lend bicycle/ hoe to ROSCA member	
	Poisson	NBREG	Poisson	NBREG	Poisson	NBREG	Poisson	NBREG	Poisson	NBREG	Poisson	NBREG
Survey question (strongly agree)	0.2173 (3.87)	0.2159 (3.87)	0.1009 (3.71)	0.1026 (3.74)	0.0605 (1.97)	0.0626 (2.00)	0.0438 (1.19)	0.0460 (1.23)	0.1022 (2.99)	0.1029 (3.01)	0.1501 (2.85)	0.1510 (2.89)
Both players are in the ROSCA	0.0464 (1.01)	0.0477 (1.04)	0.1982 (4.57)	0.1996 (4.63)	0.2128 (4.36)	0.2140 (4.40)	0.1982 (3.96)	0.1986 (4.01)	0.1808 (3.91)	0.1817 (3.96)	0.1537 (2.96)	0.1541 (2.99)
Only the Sender is in a ROSCA	-0.0885 (-1.72)	-0.0881 (-1.71)	0.0617 (1.30)	0.0614 (1.30)	0.0709 (1.37)	0.0702 (1.36)	0.0604 (1.13)	0.0585 (1.10)	0.0731 (1.47)	0.0725 (1.46)	0.0145 (0.25)	0.0134 (0.23)
Male	0.0104 (0.41)	0.0097 (0.38)	-0.0089 (-0.34)	-0.0101 (-0.38)	0.0035 (0.13)	0.0021 (0.08)	0.0028 (0.10)	0.0014 (0.05)	0.0256 (0.96)	0.0247 (0.91)	0.0134 (0.50)	0.0129 (0.47)
Age	0.0006 (0.51)	0.0006 (0.53)	0.0009 (0.84)	0.0009 (0.85)	0.0011 (0.92)	0.0011 (0.95)	0.0007 (0.67)	0.0008 (0.69)	0.0005 (0.45)	0.0005 (0.46)	0.0006 (0.55)	0.0007 (0.57)
Divorced	-0.1962 (-3.59)	-0.1980 (-3.62)	-0.1404 (-2.31)	-0.1412 (-2.33)	-0.1807 (-3.12)	-0.1827 (-3.16)	-0.1972 (-3.30)	-0.1997 (-3.34)	-0.1784 (-3.55)	-0.1804 (-3.59)	-0.1802 (-3.37)	-0.1823 (-3.40)
Household Size	0.0029 (0.50)	0.0030 (0.51)	0.0071 (1.04)	0.0073 (1.05)	0.0064 (1.04)	0.0066 (1.06)	0.0056 (0.91)	0.0058 (0.93)	0.0038 (0.64)	0.0040 (0.66)	0.0031 (0.49)	0.0031 (0.49)
Number of Children	-0.0096 (-1.40)	-0.0096 (-1.39)	-0.0076 (-0.97)	-0.0075 (-0.95)	-0.0074 (-1.03)	-0.0072 (-1.00)	-0.0083 (-1.15)	-0.0081 (-1.12)	-0.0076 (-1.10)	-0.0075 (-1.09)	-0.0090 (-1.31)	-0.0091 (-1.31)
Number of years in village	-0.0019 (-1.78)	-0.0019 (-1.80)	-0.0020 (-2.10)	-0.0020 (-2.11)	-0.0023 (-2.08)	-0.0023 (-2.12)	-0.0019 (-1.80)	-0.0019 (-1.83)	-0.0014 (-1.35)	-0.0014 (-1.35)	-0.0019 (-1.75)	-0.0019 (-1.78)
Lived in an urban area	-0.0879 (-2.90)	-0.0883 (-2.89)	-0.0989 (-3.48)	-0.0994 (-3.47)	-0.1071 (-3.49)	-0.1083 (-3.48)	-0.0984 (-3.15)	-0.0994 (-3.13)	-0.1005 (-3.30)	-0.1012 (-3.28)	-0.1041 (-3.39)	-0.1052 (-3.39)
ln(income)	0.0843 (0.83)	0.0828 (0.81)	0.1259 (1.51)	0.1261 (1.53)	0.1037 (1.05)	0.1021 (1.04)	0.1229 (1.25)	0.1221 (1.25)	0.1020 (1.17)	0.1020 (1.18)	0.0760 (0.87)	0.0755 (0.87)
Education	0.0608 (2.18)	0.0608 (2.16)	0.0563 (2.04)	0.0560 (2.03)	0.0580 (1.93)	0.0573 (1.89)	0.0676 (2.23)	0.0675 (2.21)	0.0578 (2.09)	0.0577 (2.07)	0.0564 (1.99)	0.0563 (1.97)
Intercept	3.8442 (6.49)	3.8532 (6.49)	3.5764 (7.45)	3.5737 (7.54)	3.7409 (6.47)	3.7487 (6.54)	3.6545 (6.31)	3.6591 (6.36)	3.7155 (7.36)	3.7148 (7.43)	3.8589 (7.52)	3.8623 (7.60)
ln( )		-6.0923		-5.9035		-5.5063		-5.4114		-5.8081		-5.7483
R^2	0.506	0.506	0.488	0.488	0.446	0.446	0.433	0.433	0.480	0.480	0.474	0.474
Over-dispersion test (p-value)		0.111		0.069		0.017		0.010		0.054		0.044

Table 7 (continued)

	(7) Would help neighbors at harvest		(8) Expect help from neighbors at harvest		(9) Neighbors would lend bucket		(10) Wallet lost in town returned intact		(11) Victim of crime in the past	
	Poisson	NBREG	Poisson	NBREG	Poisson	NBREG	Poisson	NBREG	Poisson	NBREG
Survey question (strongly agree)	-0.0438 (-1.04)	-0.0433 (-1.00)	0.0551 (2.01)	0.0547 (1.97)	0.0054 (0.17)	0.0057 (0.17)	-0.1239 (-2.47)	-0.1241 (-2.47)	-0.0780 (-1.59)	-0.0795 (-1.63)
Both players are in the ROSCA	0.2039 (3.94)	0.2039 (3.97)	0.2122 (4.43)	0.2127 (4.48)	0.2001 (3.97)	0.2002 (4.00)	0.2057 (4.07)	0.2062 (4.11)	0.2058 (4.08)	0.2060 (4.13)
Only the Sender is in a ROSCA	0.0664 (1.21)	0.0647 (1.18)	0.0720 (1.32)	0.0712 (1.31)	0.0666 (1.22)	0.0649 (1.19)	0.0749 (1.35)	0.0736 (1.34)	0.0761 (1.39)	0.0748 (1.38)
Male	0.0043 (0.16)	0.0031 (0.11)	0.0054 (0.21)	0.0047 (0.18)	0.0039 (0.15)	0.0028 (0.10)	0.0055 (0.21)	0.0042 (0.16)	0.0059 (0.22)	0.0052 (0.19)
Age	0.0004 (0.39)	0.0004 (0.41)	0.0003 (0.23)	0.0003 (0.24)	0.0006 (0.52)	0.0006 (0.54)	0.0011 (0.93)	0.0011 (0.95)	0.0005 (0.48)	0.0006 (0.50)
Divorced	-0.1987 (-3.31)	-0.2015 (-3.35)	-0.1969 (-3.35)	-0.1996 (-3.39)	-0.2027 (-3.43)	-0.2055 (-3.48)	-0.2097 (-3.58)	-0.2121 (-3.61)	-0.1998 (-3.64)	-0.2024 (-3.70)
Household Size	0.0063 (1.02)	0.0065 (1.04)	0.0065 (1.07)	0.0066 (1.07)	0.0060 (0.96)	0.0062 (0.98)	0.0083 (1.35)	0.0085 (1.36)	0.0056 (0.90)	0.0058 (0.92)
Number of Children	-0.0077 (-1.08)	-0.0075 (-1.05)	-0.0088 (-1.27)	-0.0086 (-1.24)	-0.0082 (-1.14)	-0.0080 (-1.11)	-0.0092 (-1.28)	-0.0092 (-1.25)	-0.0090 (-1.29)	-0.0089 (-1.27)
Number of years in village	-0.0018 (-1.79)	-0.0018 (-1.81)	-0.0013 (-1.29)	-0.0014 (-1.32)	-0.0019 (-1.74)	-0.0019 (-1.77)	-0.0023 (-2.25)	-0.0024 (-2.28)	-0.0016 (-1.61)	-0.0016 (-1.63)
Lived in an urban area	-0.0950 (-3.12)	-0.0962 (-3.10)	-0.0959 (-3.32)	-0.0967 (-3.29)	-0.0988 (-3.20)	-0.1002 (-3.19)	-0.0995 (-3.24)	-0.1011 (-3.24)	-0.0893 (-2.93)	-0.0902 (-2.91)
ln(income)	0.1300 (1.30)	0.1287 (1.29)	0.1341 (1.48)	0.1334 (1.49)	0.1264 (1.30)	0.1255 (1.30)	0.1241 (1.29)	0.1239 (1.30)	0.1234 (1.25)	0.1222 (1.25)
Education	0.0724 (2.32)	0.0723 (2.29)	0.0647 (2.21)	0.0641 (2.16)	0.0674 (2.22)	0.0671 (2.19)	0.0688 (2.31)	0.0686 (2.28)	0.0634 (2.11)	0.0632 (2.08)
Intercept	3.6568 (6.17)	3.6644 (6.20)	3.5469 (6.72)	3.5513 (6.78)	3.6375 (6.36)	3.6433 (6.42)	3.6423 (6.44)	3.6434 (6.48)	3.6564 (6.28)	3.6630 (6.33)
ln( )		-5.3840		-5.4976		-5.3534		-5.5195		-5.4329
R^2	0.431	0.431	0.448	0.448	0.426	0.426	0.450	0.450	0.437	0.437
Over-dispersion test (p-value)		0.009		0.017		0.008		0.019		0.012

The most distinctive model in Table 7 is the one incorporating the level of trust in fellow ROSCA/group members (column 1 in Table 7). Recall that this is one of the two questions for which support among ROSCA members is significantly higher than support among non-ROSCA members. Those participants indicating strong support for the suggestion that fellow ROSCA/group members can be trusted sent about 21% more than others. In this model, the coefficients on the two ROSCA membership dummies are not individually significant at the 5% level.[4] This specific trust question replaces ROSCA membership as the main determinant of experimental trust, and explains slightly more of the variation in experimental trust. While the vast majority of ROSCA members indicate strong support for the statement that other ROSCA members can be trusted, and send more money on average in the Trust Game, those few non-ROSCA members who report strong support for the statement that others in their social group can be trusted also send more money, and not significantly less than ROSCA members.

In all of the other Table 7 models, the coefficients on the ROSCA membership dummies are very close in value to those in Table 6. When the other survey responses are statistically significant, they are capturing individual characteristics that are more or less orthogonal to ROSCA membership. (This orthogonality is confirmed in an unreported Probit regression for ROSCA membership.) Among the models incorporating the Table 4 trust questions, the point estimates and levels of significance on the survey response dummy fall as the radius of trust expands. Someone who strongly agrees that fellow villagers can be trusted will, on average, transfer 10% more money than someone who does not strongly agree with this statement. The corresponding figures for trust in people from neighbouring villages and trust in people generally are 6% and 4%, the latter being insignificantly different from zero. However, we should not necessarily expect the generalised trust question to be correlated with experimental trust in a Trust Game played in a single village with no strangers. We do not interpret the lack of a strong correlation between the generalised trust question and experimental trust as evidence that the generalised trust question is invalid.

Among models incorporating one of the context-specific trust questions from Table 5, positive responses to the questions about lending another villager or a fellow ROSCA member a bicycle or hoe (columns 5-6) and about expecting help at harvest time (column 8) are all associated with significantly larger transfers. Of these, it is the ROSCA-specific question that produces the largest coefficient. This confirms that the conditional correlation of survey trust and experimental trust declines as the radius of survey trust expands. The trustworthiness question (column 9, being trusted with a bucket) does not produce a significant coefficient. Those who

regard themselves as particularly trustworthy are no more likely to behave in a trusting way in an experimental setting. Those who report themselves to have been a victim of crime (column 11) send slightly less on average, but the difference is not statistically significant. More surprisingly, those who strongly agree that a wallet lost in town would be returned intact (column 10) send significantly less on average. In other words, the few participants who declare strong context-specific trust in townsfolk exhibit less trust in their fellow villagers.

(c) *Reciprocity*

Table 8 reports two Poisson regression equations in which the dependent variable is the log of the amount returned by the Recipient (a measure of trustworthiness or reciprocity), conditional on the log of the amount sent.[5] Other explanatory variables are the same as those in Model (1) of Table 6. The second model in Table 8 also includes the duration of the Recipient's ROSCA membership; however, this is not statistically significant, again suggesting that ROSCA membership reflects a selection effect rather than a treatment effect. Negative Binomial regression results are not reported, as the over-dispersion test never produces a significant test statistic. We do no not report regressions incorporating any of survey trust dummies, none of which is significant at the 5% level.

The table shows that on average a 1% increase in the amount sent prompts a 3% increase in the amount returned; the standard error associated with this estimate is very low. The table also shows that trust in fellow ROSCA members is well founded. For a given amount sent, a typical ROSCA member will return about 9% more than a non-ROSCA member. Having primary education significantly increases reciprocity, although this effect is slightly smaller than the corresponding effect on trust in Table 6. One puzzle is that the coefficients on years in the village and the urban area dummy in Table 8 are positive and significant, whereas in Table 6 they are negative and significant: these characteristics are associated with lower trust but higher reciprocity. One possible explanation is that those newly arrived from other villages, who are a little more trusting on average, are also inclined to reward trust a little less on average.

Table 8. Determinants of the amount returned

Heteroskedasticity-robust t ratios are in parentheses. In no case is the over-dispersion test statistic significant, and all reported coefficients are from Poisson regressions.

	(1)	(2)
ln(amount sent)	3.1523 (19.86)	3.1379 (19.56)
Both players are in the ROSCA	0.0855 (3.41)	0.1292 (2.47)
Recipient duration in the ROSCA		-0.0048 (-0.99)
Male	0.0263 (1.27)	0.0233 (1.08)
Age	0.0002 (0.16)	0.0002 (0.15)
Divorced	0.0120 (0.26)	0.0161 (0.35)
Household Size	-0.0051 (-0.79)	-0.0046 (-0.76)
Number of Children	0.0003 (0.04)	-0.0011 (-0.14)
Number of years in village	0.0024 (2.36)	0.0023 (2.30)
Lived in an urban area	0.0614 (2.18)	0.0561 (1.98)
ln(income)	-0.0018 (-0.05)	-0.0076 (-0.23)
Education	0.0519 (2.31)	0.0463 (2.03)
Intercept	-2.1264 (-7.07)	-2.0628 (-6.55)
R^2	0.850	0.852
Observations	100	100

6. Summary And Conclusion

Results from Trust Game experiments and a survey of attitudes towards trust in a village in rural Cameroon (the first of their kind in the region) indicate that a substantial part of the variation in levels of trust can be explained by observable individual characteristics. Some of these results match those of previous studies in developed countries; for example, a higher level of education is associated with a higher level of experimental trust, *ceteris paribus*. However, one key determinant of trust and reciprocity in the village is specific to its rural setting: membership of a common ROSCA is associated with much higher levels of trust. ROSCA members are much more confident that they can trust each other. (Possibly, they are also prone to trust non-ROSCA members more, but our sample is not large enough to establish the statistical significance of this effect.) Such trust is well founded, because fellow ROSCA members also behave in a more trustworthy way in the experiments. The prevalence of ROSCAs in the area corresponds with the fact that the average level of experimental trust in our village is much higher than among participants in most previous experiments in developing countries. In this case, a high level of ROSCA participation indicates a more efficient rural economy in which trust in one's neighbours can reduce transactions costs. Our results suggest that this is more likely to be a selection effect than a treatment effect. In this case, ROSCA membership is an important indicator of trust and trustworthiness that is of potential use in the allocation of microfinance by NGOs, government and donors.

As in many other studies, the level of survey trust diminishes as the radius of trust widens. There is more trust in fellow members of a common social group (for example, of a ROSCA) than there is in other villagers, and more trust in villagers than there is in those outside the village. This is a feature of both general and context-specific questions about trust. Only in the narrowest radius, encompassing just fellow group members, is survey trust correlated with ROSCA membership. Regression results indicate that reported trust in fellow group members is a close substitute for (and possibly superior to) actual ROSCA membership in explaining variations in experimental trust. However, for wider radii of trust there is no strong correlation with ROSCA membership, and reported trust is not a substitute for membership in explaining experimental behaviour. To the extent that wide-radius trust explains some of the variation in experimental trust, it captures individual attitudes that are orthogonal to ROSCA membership. Generalised trust questions, such as those used in the *World Values Survey*, do reveal useful information about attitudes; however, they do not capture all dimensions of trust.

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Appendix 1: The Questionnaire

This set of questions is designed to provide some information on trust, cooperation and decision making in this village. Any information you provide will be held as strictly confidential and used for study purposes only.

Please circle the most appropriate response A, B, C, D or E, for questions 1 to 10.
A = Disagree Strongly
B = Disagree
C = Neither Agree nor Disagree
D = Agree
E = Agree Strongly

How much would you agree or disagree with the following statements about this village?

1. People who live in this village can be trusted.　　　　　　　　　A B C D E

2. Most people who live in your neighbouring villages can be trusted.　　A B C D E

3. Generally speaking, most people can be trusted.　　　　　　　　A B C D E

4. You would be willing to lend your bicycle or hoe to someone else in this village.
　　　　　　　　　　　　　　　　　　　　　　　　　　　　A B C D E

5. You would be willing to lend your bicycle or hoe to someone in the same ROSCA as you (or to someone close to you – for non-members of ROSCAs)　　A B C D E

6. If your neighbours need your help during cocoa or coffee harvest seasons, you would be willing to help them.　　　　　　　　　　　　　　　　A B C D E

7. Assuming that you help other people harvest their crops, they would help you harvest your crops when you need help.　　　　　　　　　　　　　A B C D E

8. Suppose your bucket got broken and you need to fetch water before the next market day. Your neighbour would be willing to lend you theirs.　　　A B C D E

9. You would expect to get your wallet/purse returned (with nothing missing) if you lost it in the street in town X.[6]　　　　　　　　　　　　　A B C D E

10. People in the same ROSCA (group) as you can be trusted.　　　A B C D E

11. Have you been a victim of crime in the past five years?
    Yes   No (If yes, how many times? Where? What happened?)

Demographics

1. Gender: Male   Female

2. Age: 16-20   21-30   31-40   41-50   51-60   61-70   71 +

3. Marital Status: Single   Married   Divorced   Widow/Widower

4. Occupation: Farming   Business   Other

5. With whom do you live with?
   Alone   Partner   Children   Partner and Children
   Friends   Extended family   Household size……….

6. How many children do you have?

7. How long have you lived in this village?   ………. years

8. Have you ever lived in an urban area?   Yes   No

9. Do you belong to a ROSCA?   Yes   No

10. If yes, for how long have you been a member?   ………. years

11. Annual income of household from occupation (last year's income).
    a)   < CFA 300,000
    b)   CFA 300,000 - CFA 500,000
    c)   CFA 500,000 - CFA 750,000
    d)   CFA 750,000 - CFA 1,000,000
    e)   CFA 1,000,000 - CFA 1,500,000
    f)   > CFA 1,500,000

12. Academic qualifications: a)   None
                              b) First School Leaving Certificate (F.S.L.C.)
                              c) GCE O-Level (or equivalent)
                              d) GCE A-Level (or equivalent)
                              e) Degree

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1824

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Notes

1. The results have been generated using STATA 9.0 and TSP 4.5.

2. This is also true of duration interacted with the dummy for both the Sender and the Recipient being members of a common ROSCA, although we do not report the models including such an interaction term.

3. We could also use Model (2) in Table 6, but this makes no substantial difference because ROSCA membership duration is insignificant in all cases.

4. However, the coefficient on the dummy for a ROSCA Sender and a non-ROSCA Recipient is now negative. Conditional on survey trust, a non-ROSCA participant sends on average slightly more than a ROSCA Sender does to a non-ROSCA member, and slightly less than a ROSCA Sender does to a fellow ROSCA member, although neither difference is individually statistically significant. The difference between amount sent by ROSCA Senders to their fellow ROSCA members and the amount sent by ROSCA Senders to non-ROSCA members (the sum of the absolute values of the two dummy coefficients) is still 13%, and still statistically significant.

5. We do not report regression equations for the proportion returned. The amount received is discretely distributed at uniform intervals, so the proportion returned is discretely distributed at non-uniform intervals.

6. The town was named in the survey, but is not named here so as to protect the anonymity of the village. The town is the nearest large town to the village, and is approximately 40km away.