

Fondazione Franceschi

Young Professional Grant 2014-2015

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Final report

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1. Introduction

The work for the project directed by Gianluca Grimalda and Francesco Bogliacino addressed two issues: the use of participatory decision-making at the community level to better manage common resource, and the evaluation of the policy implemented by the Colombian Government to compensate victims (internal refugees) through the assignment of land titles. In Colombia, in many villages there are problems of water management. Poor farmers have bad practices: they do not restrict the access to river by the cows, contaminating the water. Our interest was attracted by a project financed by the Dutch Embassy and implemented by a local NGO (*Patrimonio Natural*) in a small village in Cundinamarca (the surrounding of Bogotá). The program is called *Incentivos* and asks to the community to pay a small financial reward to farmers that introduce enclosure to protect the water sources. This is a non-enforceable contract. Evidence shows that contribution is not zero but it is not sufficient to cover the cost of the enclosure. This is very similar to a trust game, thus we start thinking at a mechanism that could raise the level of trust, and we end up with a voting mechanism. This is a no compulsory mechanism and we thought that it was very simple to implement and new to the literature. We perform experimental activity in three small villages in the region. (Hereafter, we call this part of the project Junín, as the name of the small village where *Incentivos* was implemented.)

The second part of the project includes a set of experiments performed in Montes de María (from now on this will be the title of this part of the project). This is a region in the North of the country, which has been severely hit by violence, especially due to the penetration of paramilitary group in the area in the 1990s-2000s. The number of internal refugees due to the conflict is very high. Nowadays, there has been a process of land titling to the victims in the mark of the *Ley de Víctimas* approved by the government.

This final report proceeds as follows. Section 2 postulates the theoretical hypothesis; Section 3 explains the experimental procedures; Section 4 presents the main results; finally Section 5 concludes.

2. Theoretical hypothesis

2.1 Junín

The use of trust game in the experimental literature is widespread. It was introduced by Berg et al. (1995). In a nutshell this game captures the basic characteristics of trust, namely that giving trust increases the social surplus, but expose the trustor to the free riding of the trustee. The trust game is a very simple game (thus easy to understand regardless of the education level). The trustor receives a sum of money and decides to send an amount from zero to 100% of the endowment to the trustee. The sum sent is tripled. The trustee can decide to share a part of the money or take it with her/him.

The game has a unique equilibrium according to the theory of self-interested rational individuals, in which nothing is transferred and trustees always free ride.

In our version we test whether the introduction of a consultative voting mechanism related with the behavior of both the trustor and trustee increases the level of trust and trustworthiness.

Although the voting is not enforceable, and as such does not alter the Nash equilibrium prediction, we claim that the procedural fairness of the method could affect participants' behavior. In fact, although a long-standing tradition in the social sciences holds that individuals are normally concerned exclusively with the final outcomes of a given social interaction (Lind and Tyler, 1988), recent approaches attribute significant relevance to the procedural aspects that accompany such outcomes (Olkien, 2010).

2.2 Montes de María

In this case our main variable of interest is the land titling by the farmers. As we explain the introduction, some of the participants benefitted by the new law introduced by the Government, while others do not.

We test whether levels of trust and trustworthiness are significantly different between those that received and those that do not receive the land title.

Secondly, according to a recent strand of literature, poverty induces a state of scarcity, which operates as a cognitive tax (Mullanaithan & Shafir, 2013; Mani et al. 2014). If this is the case the process of land restitution may weaken the negative effect of poverty on those benefitted.

Finally, we test whether those that receive a land title are more responsive to social norms. We use a combination of experimental procedures: to test the first hypothesis we use a variant of the trust game used in Junín. To test the second hypothesis, we use a set of cognitive test as in Mani et al. (2014), as we will explain in Section 3 below. Finally, to test responsiveness to social norm we use a very simple dictator game with punishment.

The dictator game is a game in which a sender is given a monetary endowment and decides how to share it with a receiver. The receiver is a pure dummy player, i.e. does not take a decision. The punisher is a third party, which is not involved in the transaction but can decrease the payoff of the sender if (s)he considers it unfair. Third party punishment is considered by some authors as a second level altruism which is fundamental to establish social norms (Heinrich & Boyd, 2001; Boyd et al. 2003).

In our case, we compare the level of punishment between those that receive and those that do not receive the land title.

3. Experimental procedures

3.1 Junín

Participants in this research were adults recruited in small villages of Cundinamarca for a total of 92 subjects. They were approached through various channels (including word of mouth and presentations during community meetings in the City Hall and the local church). We introduced ourselves as University staff researchers conducting a research project, for which we were involving subjects in incentivized decision-making tasks and in filling a questionnaire (we never mentioned the word experiment because we think it is value loaded). Subjects have to sign an informed consent to participate.

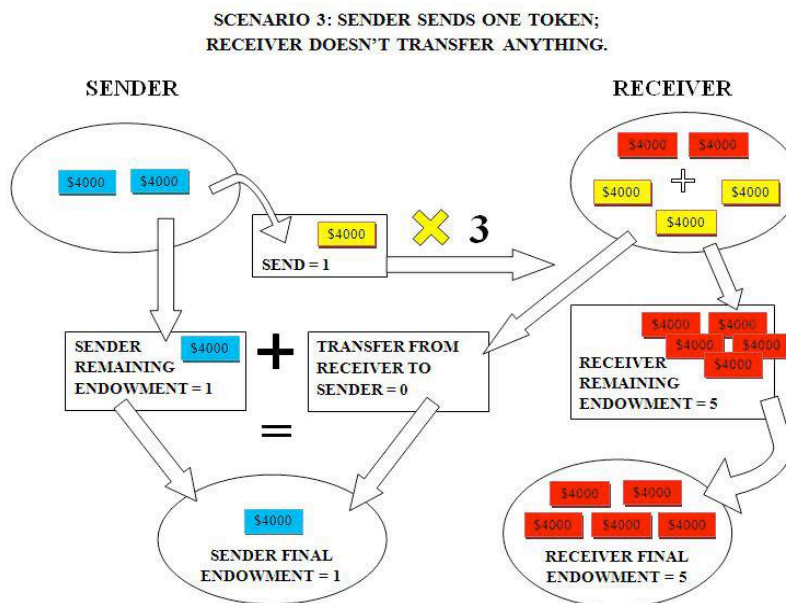
All the sessions took place during weekends. We always guaranteed confidentiality and anonymity ensuring sufficient distance among the tables and/or the use of separators (boxes). The activities were supervised by a fluent Spanish speaker, while assistants were distributing the materials, recording the decisions in the computer and assisting in case someone was in difficulty to read and write.

We implemented a simplified version of the trust game (similar to Charness et al. 2011). The sender and the receiver are given two tokens each at the beginning of the interaction; the sender then decides whether to transfer 0, 1 or 2 tokens to the receiver. The amount

transferred is tripled by the researcher. The receiver then decides whether to keep all the tokens in her possession, or to share them with the sender. Each token was worth around 2 USD.

The participants received a random code at the beginning of the session. Once they took a seat, the supervisor of the sessions explained the rules of the interaction using a board. After a first explanation, the five possible scenarios were illustrated again through of a set of graphs in which the sequence in each case is explained (e.g. Figure 1 below).

Figure 1. An example of the graphs with the scenarios of the interaction



Source: authors' elaboration.

To check for comprehension, we first submit three pairs of questions, with open response. Each pair of question is related to one of the five scenarios and asks about the final amounts earned by the sender and the receiver. After giving time to answer, the correct responses were explained on the board. Afterwards, another set of four questions (with multiple answers) is submitted and the number of errors recorded.

At this point the role of sender and receiver is assigned randomly. In the second decision the role is exchanged but the random matching is done without replacement, to avoid repeated interaction. The absence of multiple interactions is explained to the participants. The receiver decision is elicited with the strategy method (Selten et al. 2003). After the first

two choices, the sessions either continue to the third and four decisions (control condition) or to the voting treatment. In the latter a decision sheet is submitted in which the participant can vote on what she considers the most appropriate action that participants should perform for the three main decisions taken – namely, sender’s transferred amount, receiver’s return when the sender transfers one token, receiver’s return if the sender transfers two tokens. The actions approved by the majority rule were then publicly announced. It is explained that the further decisions continue to be anonymous and that the consultation is not binding. We had three sessions per village, so we randomly assign one of them to the baseline condition and the remaining two to the voting condition.

Decisions three and four follow the same rules as one and two, with random allocation and matching without replacement. At the end of the session, one of the four decisions is randomly drawn and while the participants fill in a questionnaire the assistants prepare the envelopes with the payments.

The overall experiment took up to two hours, with minimal variation. The exchange rate was 1 token = 4000 Colombian Pesos. Average payment was 13275 COP with standard deviation 5020 COP. To have a term of comparison, the hourly minimum wage is around 3000 COP, thus stakes are relatively large and certainly meaningful for participants.

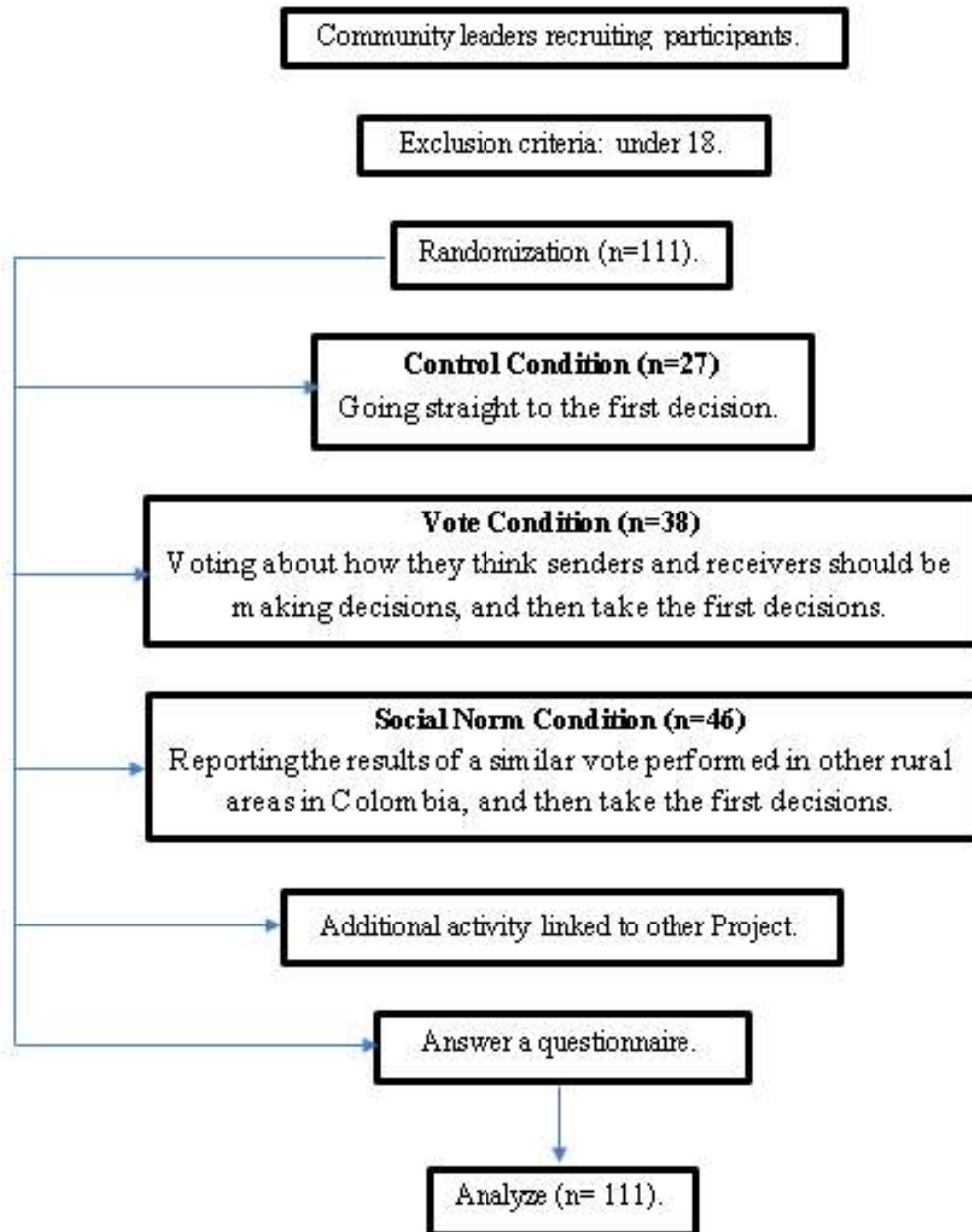
3.2 Montes de María

3.2.1 Experiment 1

Sessions carried on July of 2014, had place in La Pava, Bolívar (Montes de María). A few days before, the main researcher held a meeting with some of the communitarian leaders of the zone, to talk about the research (without discussing details of the treatments) and to know the feasibility of it. Once it was approved, those communitarian leaders were responsible of inviting people from their communities to participate in an activity part of a Project about land restitution, in which they will have to make some decisions. Besides, it was important to mention that the researcher will pay back the money spend on transporting to the zone. To guarantee the heterogeneity of the groups (people of different communities) in each session, communitarian leaders had to send certain amount of people on specific

days. We work from 21th to 25th of July. Nine sessions were made, in which 111 people participated. The flow diagram of this experiment is in Figure 2 below.

Figure 2. Flow diagram of experiment 1



The sessions' development was in charge of three persons: main researcher, director of the whole activity, and two research assistants, in charge of the registration phase, materials' distribution, database completion, preparation of payments and further guidance of the

participants. The main researcher and research assistants prepared all the materials previously to each session. We will explain this further in this document.

All sessions took place at Cedecampo, the local building by a NGO, which was closed and guarantee security for participants and researchers. As the participants arrived, they were welcomed at the kiosk, the place inside Cedecampo where everything was previously organized for the development of the session. Each participant was using a separate Table, with her own materials.

When all participants are ready, the main researcher introduces himself, reads the informed consent, explains how the registration phase will be like, shows the envelopes, generally speaks about the phases of the session, asks participants to stand up in a single line (far enough from the registration table). One by one, people approach the research assistants to sign the informed consent (or make a sign if analphabet), take one of the envelopes at random, show the assigned code, the place where they were coming from, and the amount of money needed to get to Cedecampo and to go back home. Meanwhile, the main researcher was making sure the people will sat on the right side of the kiosk in concordance with the assigned code (even or uneven) and asked the participants not to open the envelope and not to talk among them throughout the session.

The envelopes include all the materials that the participants will be using in the whole activity. They were organized into two piles: envelopes with even codes and envelopes with uneven codes. In each pile the envelopes were in randomized order. For each session, a number was drawn to select if the first participant should be even or odd. If for example, in session one the first participant had to take an even envelope, then the second participant had to take an uneven one, the third participant had to take an even code envelope and so on until they all had the material. Besides, the assistants mixed up the envelopes of each pile and let them face down, so the code number could not be seen. Code randomization guarantees random matching through a computer algorithm where the choices are registered.

Once the registration ends and the participants are seated, the session begins. Research assistants were in charge of filling in the algorithm with the previously collected data. Then the explanation of the trust game started.

Trust Game

This activity was presented with words such as sender, receiver, send, receive and transfer. We didn't talk about giving or receiving trust, share, or return, at any time, to avoid value loaded terms and minimize the experimenter effect. Initially, it was explained that half the participants would be acting as senders and the other half as receivers, through a random draw. Then, we talked about what senders and receivers could do. On Figure 3, it's possible to see the initial conditions of the game.

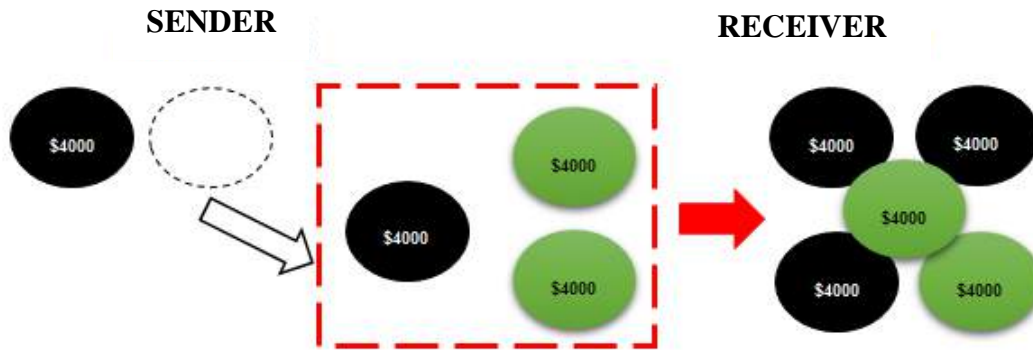
Figure 3. Trust Game initial condition



Source: authors' elaboration.

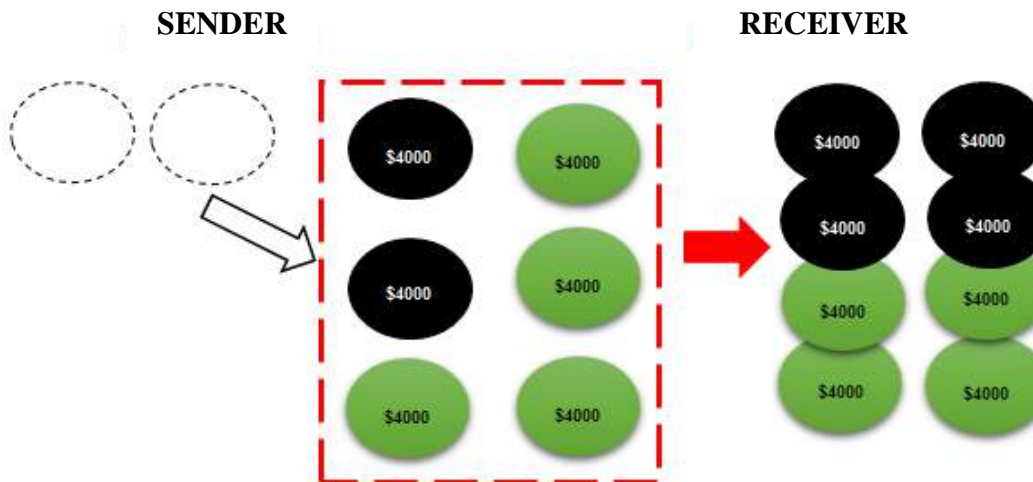
At the beginning the sender and the receiver are both endowed with \$8000, equivalent to two tokens (each one worth \$4000). The sender moves first deciding whether if he/she wants to send or not money to the receiver. If he/she didn't, the interaction ended and both players kept the tokens given to them at the start (Figure 3). If he/she decides to send one or both tokens, the researcher will triple the amount of money sent to the receiver. For example: if the sender chooses to send one token (\$4000) to the receiver, the receiver will receive a total amount of \$12000 (three tokens), reaching a total of \$20000 (five tokens). But if the sender chooses to send two tokens, i.e. \$8000, the trustee will receive 4 tokens more. In this case the endowment by the receiver reaches \$32000 (eight tokens). In Figures 4 and 5 those interactions are shown in detail.

Figure 4. Sender sends one token to receiver



Source: authors' elaboration.

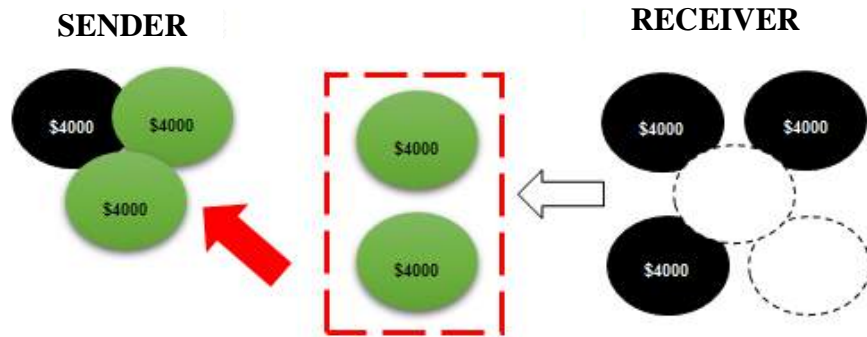
Figure 5. Sender sends two tokens to receiver



Source: authors' elaboration.

In the second step, it is the receiver, which takes her/his decision. The decisions were elicited through the strategy method, i.e. the receiver has to indicate what would like to do in any possible scenario. He/she has to choose, for each case, between transferring part of his/her tokens to the sender, or not. If the receiver decides to share, then they both remain with the same amount of money: \$12000 in the first case and \$16000 in the second. If the trustee free rides, then will leave with all the money received. Figures 6-9 illustrate all the possible scenarios.

Figure 6. Situation #1 – Receiver transfers tokens to sender



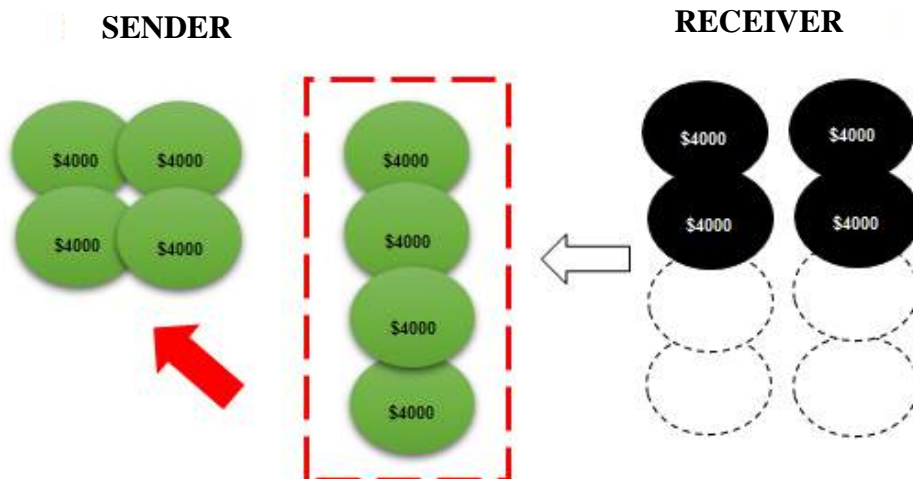
Source: authors' elaboration.

Figure 7. Situation #2 – Receiver doesn't transfer tokens to sender



Source: authors' elaboration.

Figure 8. Situation #2 – Receiver transfers tokens to sender



Source: authors' elaboration.

Figure 9. Situation #2 – Receiver doesn't transfer tokens to sender



Source: authors' elaboration.

Decision sheets were shown to everybody to make sure that everybody understands how to make a choice. Various comprehension questions were asked and response illustrated at the board after letting participants answer.

After the introductory phase, one of three things happen randomly: 1) going straight to the first decision (control condition), 2) voting about how they think senders and receivers should be making decisions, and then take the first decisions (vote condition) or 3) reporting the results of a similar vote performed in other rural areas in Colombia (social norm condition).

After the first decision, roles were exchanged between odd and even codes, guaranteeing no double interaction with the same person.

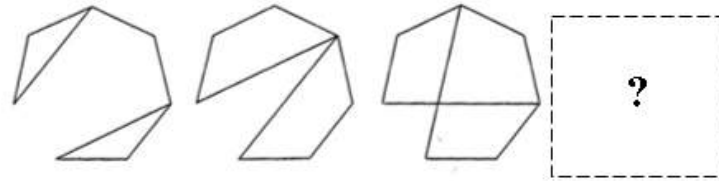
Raven Test

Once the trust game ended, the people participate in one extra activity: the Raven Test. The main researcher tells the participants that for each correct response they will earn \$1000 and that they will have five minutes to answer the questions (10 in total). Each participant receives a page with an example. The main researcher and the research assistants make sure that participants understood the example so they can solve the test themselves.

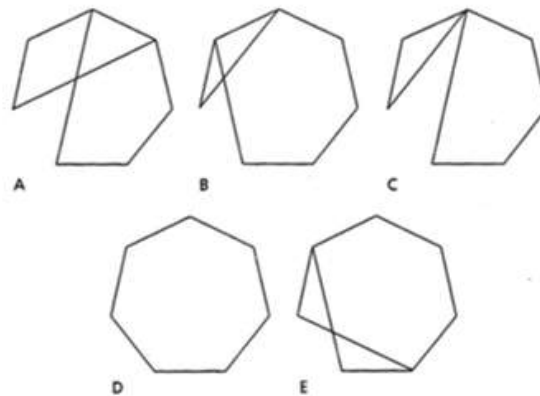
The test is a very simple cognitive test where participants are shown a sequence of figures and should guess which one logically follows, choosing among a set of alternatives.

Expectations ex ante and ex post are elicited. An example of a question is reported below in Figure 10.

Figure 10. An example of a Reven Test question



What comes next in the above sequence?

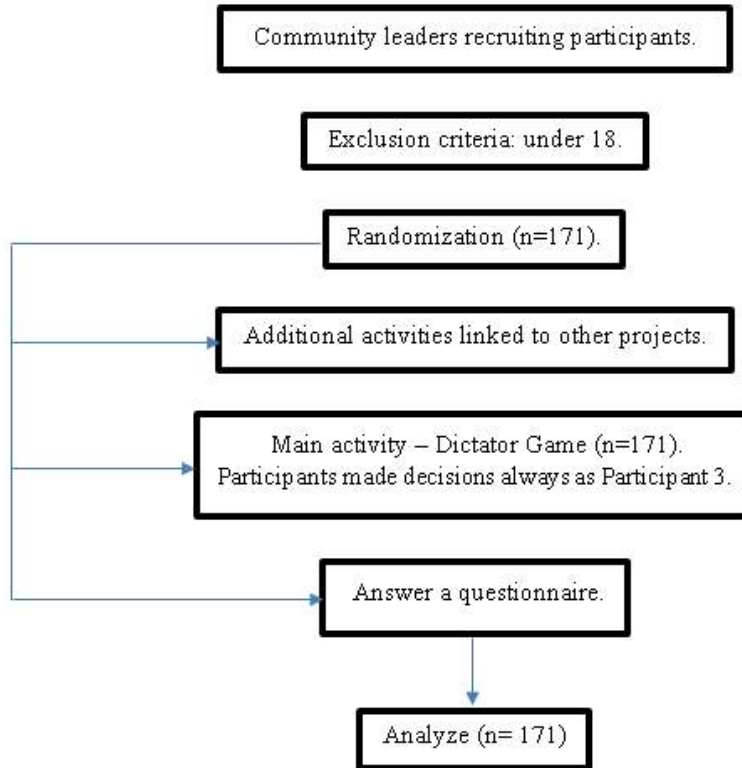


3.2.2 Experiment 2

The second experiment was carried out in September 2014, and also took place in Montes de Maria. Initially, recruitment was made in the same way as implemented on July, excepting that this time participation will be individual to guarantee better comprehension. However, it was necessary to hold sessions in two different places: the first week experiments (from September 8th to 11th) were in Cedecampo (La Pava) and the next week in Mampujancito (as named by its population). The change was necessary due to a safety alert induced by the presence of money. To avoid undesired situations, it was decided not to continue working in Cedecampo, so the Mampujancito communitarian leader offer some space within the community for a few more days. He will be in charge of the selection of the participants. The main researchers and research assistants agreed, so we work there on September 16th, 17th and 18th.

At La Pava, 102 people of different communities participated. At Mampujancito, 69 people participated. In total, during seven days of work there were 171 participants. The flow diagram regarding the second experiment is in Figure 11 below.

Figure 11. Flow diagram of experiment 2



On this occasion registration phase had different elements. As the people arrive, they were invited to take sit in a space isolated from the tables in which the activities were developed, so the confidentiality of the participants was guaranteed. Two main researchers and two research assistants were required to the development of these sessions. The main researchers were in charge of welcoming the participants, read the informed consent, explain in general terms the activities, and supervise the draw of codes by the participants (to anonymize responses).

Again, informed consent and money spent to travel to the place were recorded before starting.

Stroop Test

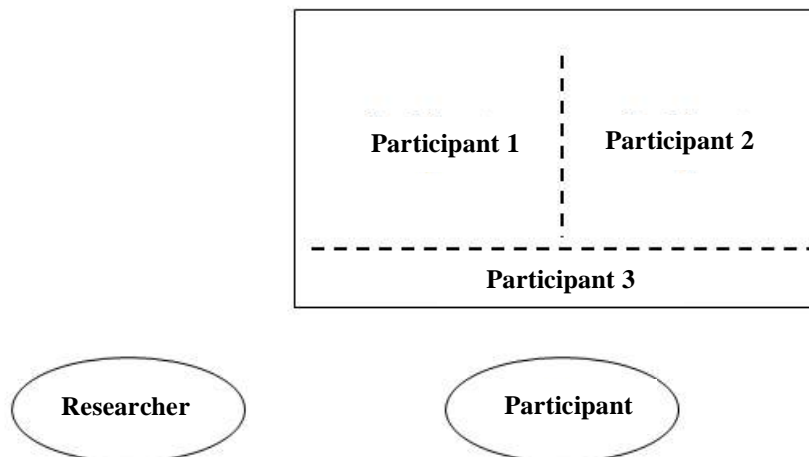
This activity was presented to the participants as the game of numbers. Participants were presented with a sequence of repeated numbers such as “2 2 2”, and should tell how many times the number is repeated (three in this case). This is a standard test of cognitive control (only the first answer is valid). The game was incentivized and comprehension tests were carried out.

Dictator Game

After the Stroop, the dictator game with punishment was carried out. The researcher in charge of the session put a cardboard over the participants’ table (see Figure 12). The first thing to explain was that in this activity interacted three people, but two of them had made their choices already.

We use the terms Participant one, two and three to avoid the use of the term dictator dummy, punisher etc. The dictator and the receiver were in fact students that were asked to make decisions in Bogotá, explaining them that their payment would be received after the decision of the punisher. All the participants in Montes de María were punishers. Matching between punishers and dictators were of course randomly drawn.

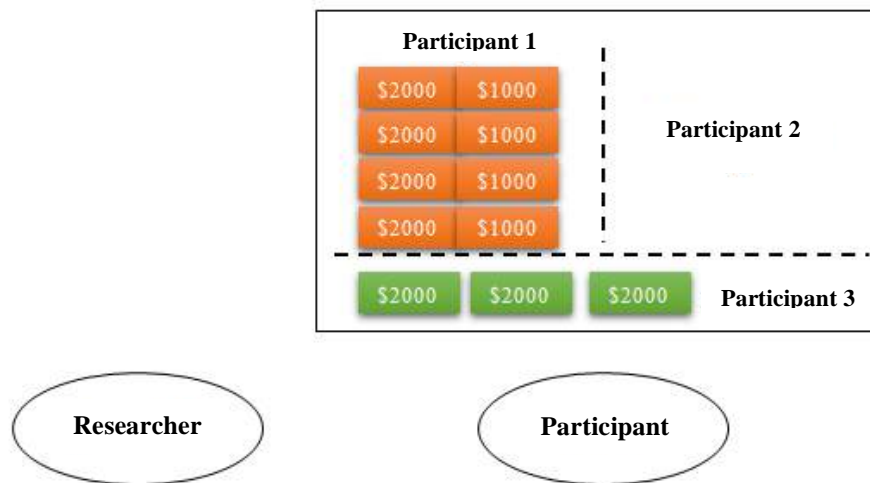
Figure 12. Participant, researcher and material location at dictator game



Source: authors’ elaboration.

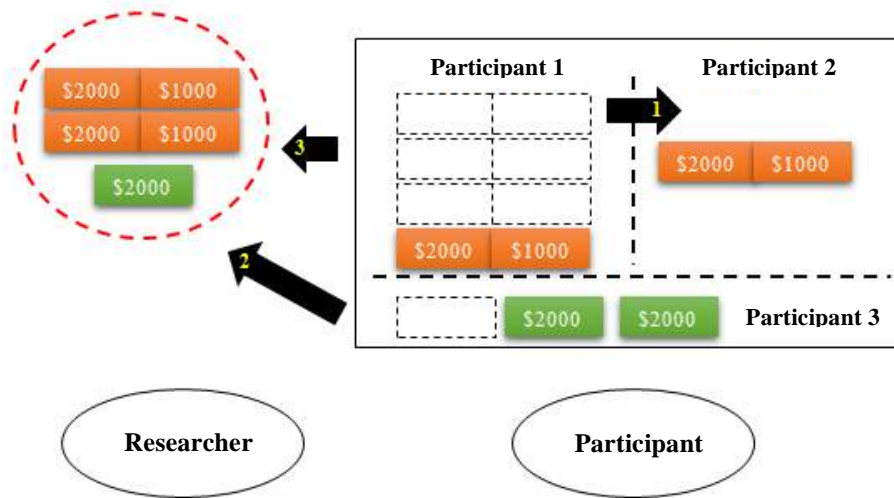
Once these aspects were clarified, the main researcher started to explain the initial condition of the game (see Figure 13.) Participant 1 will have \$12000, participant 2 \$0 and participant 3 \$6000. Participant 1 could do one of five things: sending \$0, \$3000, or \$6000, or \$9000, or \$12000. Now, participant 3 has to decide, for each of the possible scenarios, whether if he/she wanted to spend \$2000 to reduce participant's 1 payment by \$6000. If he/she decided not to do it, will keep the \$6000 originally assigned. To help participants' understanding, main researcher explained step by step the following four examples illustrated in Figures 14-17.

Figure 13. Dictator Game initial condition



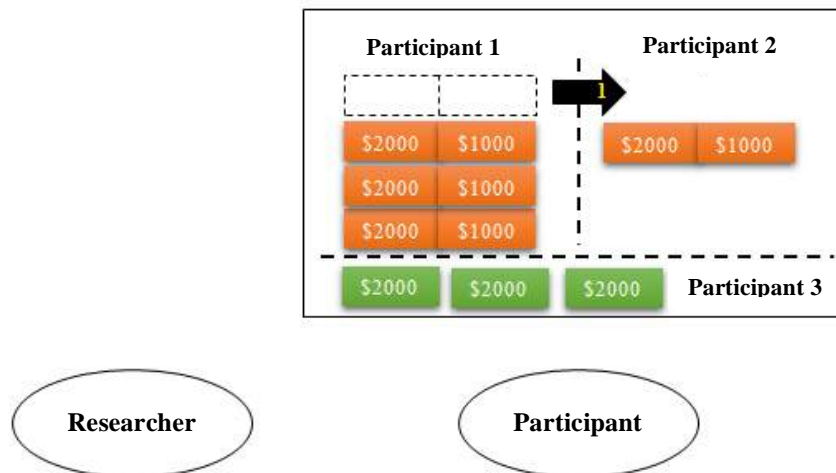
Source: authors' elaboration.

Figure 14. Participant 1 sends 3000 COP to Participant 2. Participant 3 spends 2000 COP.
Participant 1 receives 6000 COP after punishment



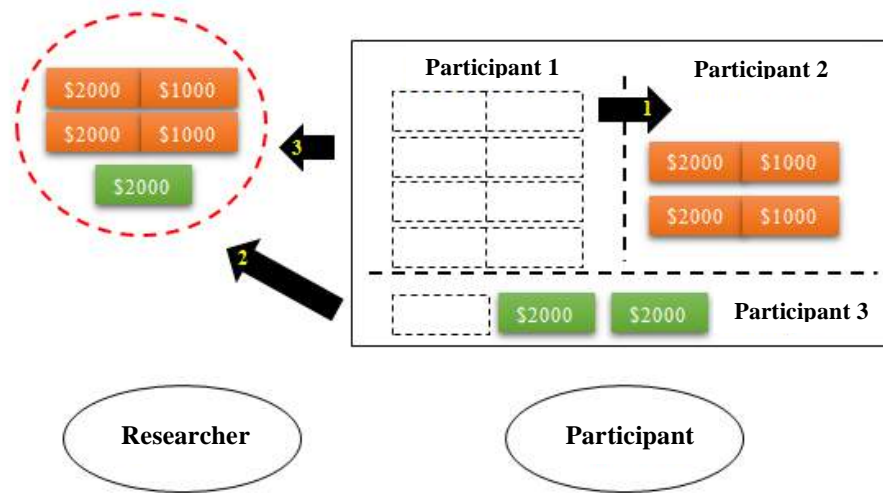
Source: authors' elaboration.

Figure 15. Participant 1 sends 3000 COP to Participant 2. Participant 3 doesn't spend 2000 COP. Participant 1 receives \$9000



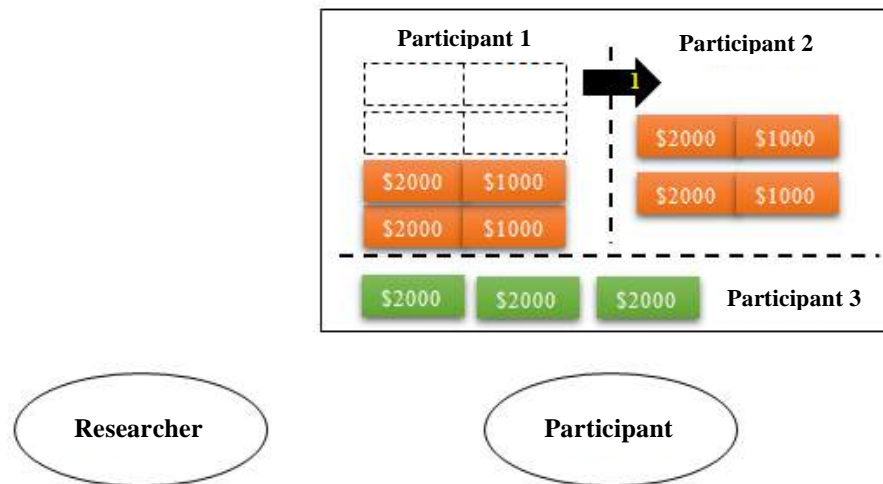
Source: authors' elaboration.

Figure 16. Participant 1 sends 6000 COP to Participant 2. Participant 3 spends 2000 COP. Participant 1 receives \$0 after punishment



Source: authors' elaboration.

Figure 17. Participant 1 sends 6000 COP to Participant 2. Participant 3 doesn't spend 2000 COP. Participant 1 receives \$6000



Source: authors' elaboration.

The main researcher explained the possible scenarios one at a time, and asked the participant to manipulate the material to improve the understanding. Besides, before the decisions were made, participants had to answer a few questions asked by the main

researcher, seeking for a fully understanding of the game and the decisions the participant must take. Finally, the decisions that participant 3 had to take were as follows:

- 1) *Please imagine that participant 1 didn't send anything to participant 2. ¿Would you like to spend \$2000 to remove \$6000 from participant 1? ¿Yes or no?*
- 2) *Imagine now that Participant 1 sent \$3000 to participant 2. ¿Would you like to spend \$2000 to remove \$6000 from participant 1? ¿Yes or no?*
- 3) *Imagine now that Participant 1 sent \$6000 to participant 2. ¿Would you like to spend \$2000 to remove \$6000 from participant 1? ¿Yes or no?*
- 4) *Imagine now that Participant 1 sent \$9000 to participant 2. ¿Would you like to spend \$2000 to remove \$6000 from participant 1? ¿Yes or no? In this case, like participant 1 would end up losing money, he/she will take \$0.*
- 5) *Imagine now that Participant 1 sent \$12000 to participant 2. ¿Would you like to spend \$2000 to remove \$6000 from participant 1? ¿Yes or no? In this case, like participant 1 would end up losing money, he/she will take \$0.*

After the experiment the participants answer a brief questionnaire. All the activities were recorded directly on the computer to avoid need to read and write by the participants.

4. Results

4.1 Junín

Table 1 (below), shows summary statistics for the demographic characteristics. Regardless of the differences across locations (e.g. educational level in La Mesa), in all three villages the sample of participants shows remarkable differences with respect to the classical university students' samples used in many experiments. Socio-economic status is also important. In Colombia utilities bills are calculated according to a one-to-six rating of the dwelling performed by local village councils. The table also shows how the lower socioeconomic strata represent most of the sample. It's worth to remark that one and two are the ones with higher risk of poverty.

Table 1. Descriptive statistics

| | Total | Junín | Cota | La Mesa |
|-------------------------------------|-------|-------|------|---------|
| Sex (%) | | | | |
| <i>Male</i> | 53.3 | 55.5 | 34.4 | 67.6 |
| <i>Female</i> | 46.6 | 44.4 | 65.5 | 32.3 |
| Age (years) | 39.2 | 41.4 | 48 | 29.6 |
| Socioeconomic status (%) | | | | |
| (1-2) | 62.9 | 70.4 | 93.9 | 32.5 |
| (3) | 27 | 22.2 | 7.1 | 47.0 |
| (4 or more) | 10.1 | 7.4 | 0 | 20.5 |
| Household size (people) | 4.9 | 6 | 4,2 | 4,6 |
| Education (%) | | | | |
| <i>Primary</i> | 21.8 | 28 | 37.9 | 2,9 |
| <i>Secondary</i> | 27.5 | 44 | 20.6 | 20,5 |
| <i>At least some university</i> | 28.6 | 12 | 17.1 | 49.9 |
| <i>Technical schools</i> | 21.8 | 16 | 20.6 | 26.4 |
| Occupation (%) | | | | |
| <i>Abstract task (ISCO 1-3, 6)</i> | 26.1 | 20 | 48 | 14.7 |
| <i>Manual task (ISCO 4-5, 9-10)</i> | 22.6 | 36 | 20 | 14.7 |
| <i>Routine task (ISCO 7-8)</i> | 7.1 | 16 | - | 5.8 |
| <i>Retired, unemployed, student</i> | 44 | 28 | 32 | 64.7 |

To assess the exogeneity of the treatment we can test the balancing of socio-demographic variables across the two conditions (respectively we have 62 treated and 29 in the placebo condition). We perform a Mann-Whitney-Wilcoxon rank-sum test: the equality of the distribution is not rejected at 5%: sex, $z = .21$ ($p = .83$); age, $z = 1.46$ ($p = .14$); socioeconomic status, $z = .79$ ($p = .42$); educational level, $z = 1.13$ ($p = .25$); occupation, $z = -.94$ ($p = .34$). The same happens for cognitive errors, where $z = 1.63$ ($p = .10$). The pre-treatment decisions are also balanced across conditions. We test the equality of distribution through the same rank sum test and the null hypothesis is not rejected at 5%: investment, $z = -.79$, ($p = .42$); sharing if the investment is 50%; $z = -.69$ ($p = .48$); sharing if the investment is 100%, $z = -.03$ ($p = .97$).

The decisions in terms of investment were recoded and expressed in terms of percentage – i.e., the tokens sent divided by two, and the returned amount divided by the endowment. In

this second case, we average across the two cases per each individual. The introduction of voting increases sending and return rates conspicuously with respect to the control condition (Table 3). In all sessions the allocation voted was the equitable Pareto efficient one, i.e. the strategies *{send two tokens; always share}* returning four tokens per player. 85,48% voted for *{always share}* strategy. And 48.39% vote for the *{send two tokens}*. Only 14,52% voted for a strategy in which the receiver would not share anything (Table 2). Participants were attracted by the socially optimal outcome. Another apparent thing is the relatively high level of both trust and trustworthiness that emerges in our experiment. Less than 10% of senders sends nothing, and nearly half of the senders send the whole endowment. Less than 15% of receivers do not share the surplus evenly with the sender.

Table 2. Total percentages per vote mechanism

| | | |
|--------------------------|---|--------|
| Sender | 0 | 9.68% |
| | 1 | 41.94% |
| | 2 | 48.39% |
| Sharing, 50% investment | 0 | 14.52% |
| | 1 | 85.48% |
| Sharing, 100% investment | 0 | 14.52% |
| | 1 | 85.48% |

Table 3. Investment and return rates, by condition and round

| | Control | Vote |
|--------------------------------|---------------|---------------|
| First Round | | |
| Amount sent | 1.34 (.55) | 1.41 (.66) |
| 0 (%) | 3,33 | 9,67 |
| 1 (%) | 60 | 38,7 |
| 2 (%) | 36,66 | 51,61 |
| Sharing, 50% investment | .72 (.45) | .79 (.41) |

| | | |
|---------------------------------|---------------|---------------|
| Sharing, 100% investment | .68 (.47) | .69 (.46) |
| Second Round | | |
| Amount sent | 1.44 (.57) | 1.59 (.55) |
| 0 (%) | 3,33 | 3,22 |
| 1 (%) | 50 | 33,87 |
| 2 (%) | 46,66 | 62,9 |
| Sharing, 50% investment | .72 (.45) | .83 (.37) |
| Sharing, 100% investment | .68 (.47) | .82 (.38) |
| Observations | 30 | 62 |

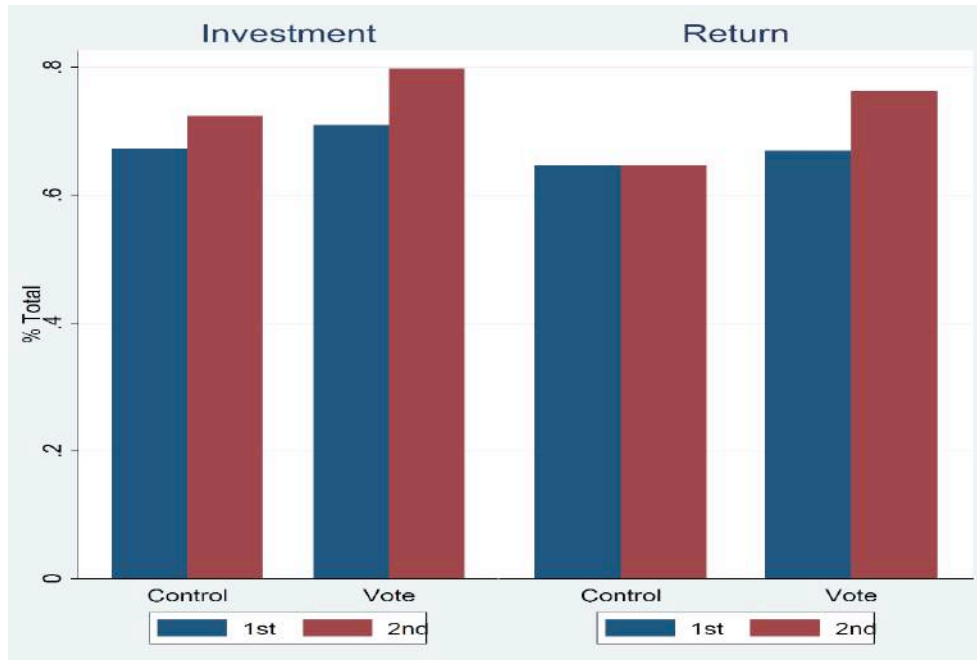
We test the equality of distribution between first round and second round decisions per treatment, using Wilcoxon sign rank tests (Table 4). The null hypothesis is that the actions in the first and second round come from the same distribution. The test takes into account that both decisions were made by the same individual. As can be seen, there is a significant difference for both investment and return on investment (in the case of 100%) in the Voting Mechanism treatment, but no difference in the Control condition. In fact, most subjects involved in both conditions simply replicated their choice across the first and second round (50% control condition; 56,4% vote condition).

Table 4. Wilcoxon signed rank test (equality of distribution between first and second decision)

| Decision/Condition | Control | Voting Mechanism |
|---------------------------------|--------------------------|---------------------------|
| Amount sent | $z = -.60$ ($p = .54$) | $z = -2.37$ ($p = .01$) |
| Sharing, 50% investment | $z = .00$ ($p = 1.00$) | $z = -1.00$ ($p = .31$) |
| Sharing, 100% investment | $z = .00$ ($p = 1.00$) | $z = -2.13$ ($p = .03$) |

Figure 18 show us clearly the investment and return differences by condition and by round. The vote mechanism affects significantly the decisions made by participants.

Figure 18. Investment and return average, by round and treatment



4.2 Montes de Maria

4.2.1 Effects on trust

In Table 5 we report regression analysis for the trust level (investment variable) and in Table 6 for the trustworthiness. It can be clearly seen that those benefitted by the law show a significantly higher level of trustworthiness, even after controlling for many other variables. Differences in level of trust cannot be statistically distinguished between the two conditions.

Table 5. Investment rate

| | (1) | (2) | (3) | (4) | (5) |
|----------------------|----------------------------------|----------------------------------|---------------------------------|---------------------------------|---------------------------------|
| | Investment | Investment | Investment | Investment | Investment |
| | rate | rate | rate | rate | rate |
| Social norm | -0.0419 (0.0842) | -0.0956 (0.0967) | -0.159* (0.0933) | -0.181** (0.0900) | -0.170* (0.0870) |
| Vote | -0.0352 (0.0776) | -0.0618 (0.0920) | -0.116 (0.0878) | -0.126 (0.0873) | -0.102 (0.0891) |
| Land | 0.0236 (0.0871) | 0.0680 (0.0966) | 0.0685 (0.103) | 0.0691 (0.104) | 0.0319 (0.102) |
| Sex | | -0.0721 (0.0789) | -0.0539 (0.0781) | -0.0508 (0.0791) | -0.0193 (0.0805) |
| Age | | 0.00491* (0.00281) | 0.00297 (0.00277) | 0.00331 (0.00282) | 0.00490* (0.00255) |
| Married | | 0.00686 (0.0526) | -0.0172 (0.0581) | -0.0218 (0.0574) | -0.0242 (0.0597) |
| Household size | | | | | -0.0753 (0.0784) |
| Education | | 0.112*** (0.0300) | 0.100*** (0.0318) | 0.0987*** (0.0321) | 0.117*** (0.0346) |
| Socioeconomic status | | | 0.00171 (0.0311) | 0.000352 (0.0274) | 0.00188 (0.0278) |
| Session | | | | 0.00997 (0.0125) | 0.00852 (0.0138) |
| Constant | 0.682*** (0.0619) | 0.358** (0.175) | 0.558*** (0.176) | 0.518*** (0.193) | 0.454** (0.185) |
| Obs | 111 | 93 | 80 | 80 | 77 |
| R-2 | 0.003 | 0.127 | 0.126 | 0.130 | 0.155 |

Note: Logit regressions. Robust standard errors in parentheses. *** p<0.01, ** p<0.05,

* p<0.1.

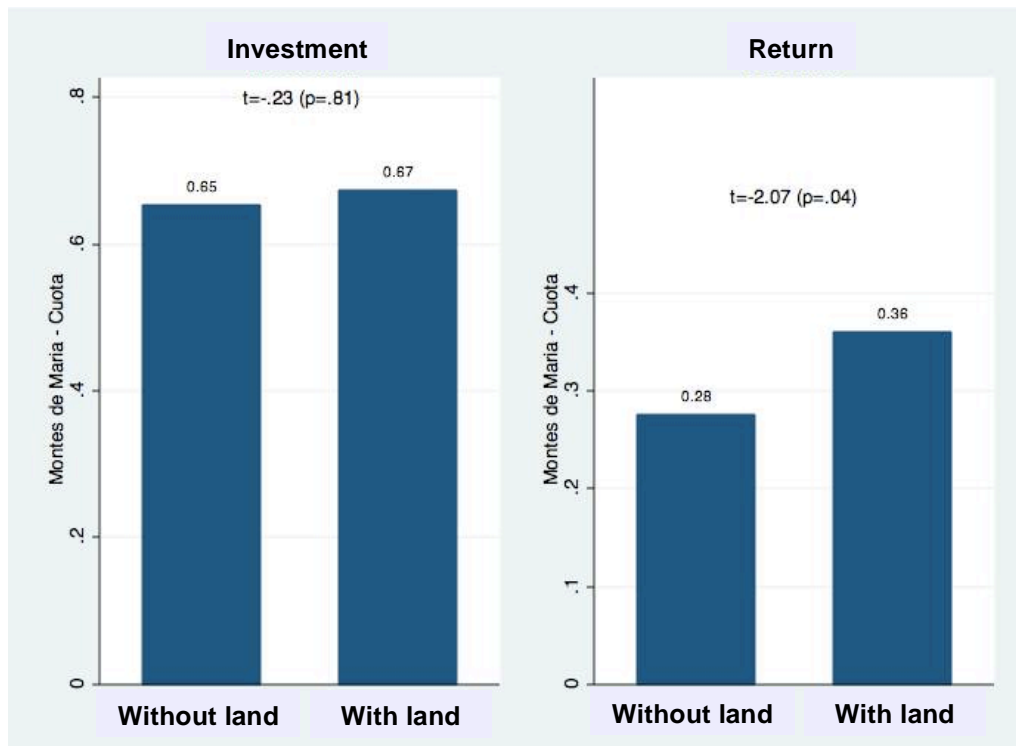
Table 6. Return rate

| | (1) | (2) | (3) | (4) | (5) |
|----------------------|----------------------------|----------------------------|----------------------------|----------------------------|-----------------------------|
| | Return rate | Return rate | Return rate | Return rate | Return rate |
| Social norm | 0.00708 (0.0447) | 0.0226 (0.0514) | 0.0296 (0.0558) | 0.0328 (0.0587) | 0.00434 (0.0597) |
| Vote | 0.0468 (0.0422) | 0.0587 (0.0516) | 0.0431 (0.0561) | 0.0445 (0.0569) | 0.0272 (0.0605) |
| Land | 0.0808* (0.0408) | 0.116** (0.0453) | 0.100** (0.0482) | 0.100** (0.0486) | 0.0997** (0.0499) |
| Sex | | -0.0113 (0.0440) | -0.00636 (0.0456) | -0.00679 (0.0461) | -0.0103 (0.0489) |
| Age | | -0.000678 (0.00154) | -0.000382 (0.00165) | -0.000428 (0.00169) | -0.000306 (0.00189) |
| Married | | -0.0110 (0.0316) | -0.0218 (0.0349) | -0.0212 (0.0358) | -0.0195 (0.0365) |
| Household size | | | | | 0.0531 (0.0486) |
| Education | | 0.0353* (0.0178) | 0.0309 (0.0190) | 0.0311 (0.0194) | 0.0288 (0.0211) |
| Socioeconomic status | | | 0.0148 (0.0158) | 0.0150 (0.0155) | 0.0163 (0.0147) |
| Session | | | | -0.00139 (0.00878) | 0.000182 (0.00895) |
| Constant | 0.254*** (0.0320) | 0.250*** (0.0921) | 0.255** (0.115) | 0.260** (0.120) | 0.230* (0.133) |
| Obs | 111 | 93 | 80 | 80 | 77 |
| R-2 | 0.047 | 0.116 | 0.097 | 0.097 | 0.104 |

Note: Logit regressions. Robust standard errors in parentheses. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Graphically, the trust and trustworthiness are reported in Figure 19, together with a t-test. Both investment and return rates are higher among those participants already benefitted by land restitution. Nevertheless, statistically there aren't significant differences in the investment rates ($t=.23$; $p=.81$, but they arise in the return rate ($t=-2.07$; $p=.04$).

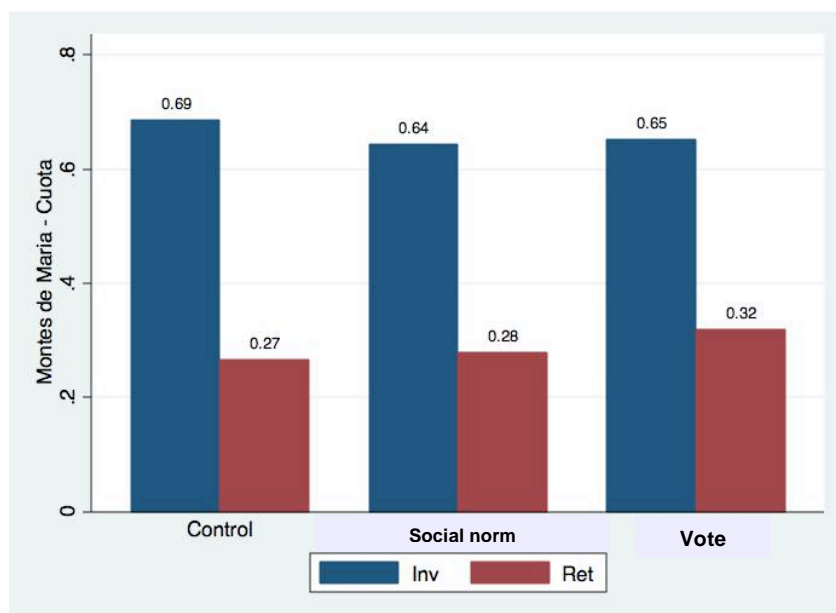
Figure 19. Investment and return rate comparing those with land and those without land



4.2.2 Reactions to social norms

If we look at Figure 20, we will see the comparison between investment and return rates by experimental condition. Rates are clearly not distinguishable across conditions. This means that differently from non-violence exposed areas (such as Junín) in this case many contextual conditions, besides reparation, are needed to restore social capital.

Figure 20. Investment and return rate, bo condition (control, social norm and vote)



4.2.3 Cognitive effects

As explained by Mullanaithan & Shafir (2013), poverty operates as a cognitive tax, increasing the probability to make mistakes and thus the likelihood to enter a poverty trap. We wanted to check if the land titling allows better cognitive performance. We perform the same cognitive tests as Mani et al. (2013).

In general the results are not distinguishable across conditions. This implies that again, the simple reparation is not enough to reduce the problems of poverty. Results for Stroop are shown in Table 7, and for Raven in Table 8.

Table 7. The results for the Stroop Test

| | (1) | (2) | (3) | (4) |
|---------------|----------------|----------------|----------------|----------------|
| | Stroop (%) | Stroop (%) | Stroop (%) | Stroop (%) |
| Land | -7.043 | -6.935 | -7.199 | -6.937 |
| | (5.125) | (5.266) | (5.310) | (5.268) |
| Session | 1.589 | 1.598 | 1.416 | 1.602 |
| | (2.103) | (2.101) | (2.037) | (2.082) |
| Session order | -0.292 | -0.281 | -0.226 | -0.262 |
| | (0.480) | (0.468) | (0.453) | (0.469) |

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| | | | | |
|----------------------------|----------------------|----------------------|----------------------|----------------------------|
| Researcher | 4.432 (3.900) | 4.936 (3.990) | 4.330 (3.937) | 4.828 (3.917) |
| Education | 9.663*** (2.521) | 9.634*** (2.532) | 9.101*** (2.544) | 9.675*** (2.534) |
| Priming | -8.312** (3.564) | -8.261** (3.551) | -8.222** (3.543) | -8.263** (3.567) |
| Scarcity | -23.50*** (3.691) | -23.42*** (3.645) | -23.24*** (3.646) | -23.43*** (3.649) |
| Age | -0.433** (0.175) | -0.428** (0.168) | -0.455*** (0.163) | -0.423** (0.169) |
| Sex | -5.328 (4.157) | -5.191 (4.131) | -4.459 (4.048) | -5.199 (4.161) |
| Socioeconomic status | -0.278 (0.790) | | | |
| Asset | 0.514 (4.808) | 0.291 (5.024) | -0.507 (4.854) | 0.504 (4.887) |
| Mampuján | 2.034 (10.19) | 1.826 (10.15) | 1.852 (9.878) | 1.805 (10.13) |
| Household size | | -1.312 (4.192) | | |
| Emergency | | | -2.501 (2.096) | |
| Equivalized consumption | | | | 6.24e-08 (1.19e-05) |
| Constant | 95.32*** (13.07) | 95.17*** (12.64) | 103.2*** (13.57) | 93.85*** (11.73) |
| Obs | 141 | 141 | 141 | 141 |
| R-2 | 0.417 | 0.417 | 0.423 | 0.416 |

Note: Logit regressions. Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

Table 8 shows how variable age was mostly responsible for significant difference over the performance on the Raven test. Of all the other variables, only education showed some kind of effect.

Table 8. The results for the Raven Test

| | (1) | (2) | (3) |
|----------------------|----------------|----------------|----------------|
| | Raven (%) | Raven (%) | Raven (%) |
| Land | 1.263 | 1.101 | 2.368 |
| | (3.733) | (3.447) | (3.993) |
| Social norm | -1.279 | -2.646 | -2.259 |
| | (4.283) | (3.780) | (4.639) |
| Vote | -2.422 | -1.218 | -1.956 |
| | (4.029) | (3.656) | (4.360) |
| Sex | -3.201 | -1.264 | -2.129 |
| | (3.600) | (3.239) | (3.951) |
| Age | -0.301** | -0.203* | -0.302** |
| | (0.118) | (0.106) | (0.126) |
| Married | 1.025 | 1.025 | 0.674 |
| | (2.123) | (1.845) | (2.142) |
| Education | 1.704 | 3.134* | 1.596 |
| | (1.793) | (1.604) | (1.779) |
| Socioeconomic status | 1.524 | | 1.502 |
| | (0.938) | | (1.038) |
| Session | -0.426 | -0.305 | -0.186 |
| | (0.607) | (0.517) | (0.666) |
| Household size | | -5.701* | |
| | | (3.098) | |
| Emergency | | | -0.271 |
| | | | (0.910) |
| Constant | 26.77*** | 23.52*** | 27.58** |
| | (8.241) | (7.086) | (11.09) |
| Obs | 86 | 96 | 82 |
| R-2 | 0.171 | 0.188 | 0.161 |

Note: Logit regressions. Robust standard errors in parentheses. *** p<0.01, ** p<0.05,

* p<0.1.

4.2.4 Reaction to social norms in the dictator game.

Finally, In Table 9 we report the results of the dictator game with punishment. The dependent variable is a dummy equal to one for those who punish in the first two cases (when the dictator either did not send anything or send only \$3000). Thus we perform a logit regression. As in the case of the trust game, reaction to social norms does not emerge clearly. Those that have been benefited by the Law are more likely to punish but not in a statistically significant way.

Table 9. The results of Dictator Game with punishment

| | (1) strong |
|----------------------|----------------------|
| Land | 0.473 (0.506) |
| Session | -0.385* (0.225) |
| Session order | 0.0451 (0.0590) |
| Researcher | 0.741 (0.459) |
| Education | -0.0365 (0.268) |
| Priming | 0.0141 (0.390) |
| Scarcity | 0.531 (0.402) |
| Age | -0.00150 (0.0178) |
| Sex | -0.0892 (0.425) |
| Socioeconomic status | 0.0649 (0.0816) |
| Asset | 0.413 (0.464) |
| Armageddon | 0.0520 (0.907) |
| Constant | -0.907 (1.316) |
| Observations | 141 |

Note: Robust standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1

5. Conclusions

Colombia has been in conflict for half a century. Confrontations between army, guerrilla and paramilitary groups create thousands of displaced people. A few years ago, the Government started a process to repair victims as part of the incoming Peace Talks. In 2011 the 1448 bill called “Ley de Víctimas y Restitución de Tierras” was issued; it includes land restitution as a fundamental step in the victims’ integral reparation. Some of them have already been beneficiated of it but others haven’t. Our research’s aim was to analyze if those with land and those without it make similar economic decisions or not.

At the same time, during this project we look also at the problem of management of common resources. Like many other countries, Colombia has difficulties related with environmental issues such as water management. Old practices e.g. in agriculture create problems among those who execute them and those who are affected by them. As a result we look at methods to increase personal trust among community members.

In short, results showed that land restitution policy has effects over trust and trustworthiness. The literature is quite consensual about this point, assuring that countries where trust and trustworthiness rates are higher have better economic results. Therefore, land restitution is a good way to improve economic performance in Colombia, and must be carried on. However, many conditions seems to be needed for this policy to reduce significantly poverty rates, since land titling per se does not affect cognitive performance, as expected. Reaction to social norms is also not significant, which means that there must be many conditions to be satisfied to generate social capital in the new communities of displaced people that will be rebuilt.

On the second part of project, we also find evidence about the positive impact of vote mechanism over trust ad trustworthiness.

In those projects we always looked for the maximum experimental control but I learned something: unexpected things will always happen, and often they’re out of our control. Nevertheless the teamwork can solve it preserving the research.

Difficulties arising during the fieldwork allowed me learning a lot and acquiring new skills. I want to thank to Fondazione Roberto Franceschi for the financial support. This opportunity has been absolutely unforgettable and will be key for both my academic and

personal life and I know that I'll always remember it because it allowed me to improve all my skills.

The supervision by Professor Gianluca Grimalda has been absolutely important to me. He is a wonderful person and he has a lot of experience that made me appreciate the experimental approach and made me look at social phenomena in a different way. Gianluca is definitely one of the most committed and perfectionist professional that I've known in my entire life. I hope that Prof. Grimalda will continue involving me in further project because I know I still have a lot to learn from him.

On the other hand, it's my desire to say thanks to Professor Francesco Bogliacino. I really admire him. He knows Colombia more than a Colombian. He was so patient with me and he taught me day by day what is the best way to proceed during the research. I would like to continue working with him as well, to learn further.

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