

Pre-analysis Plan:

An Economic Experiment on Preferences for In-Group vs Out-Group Cooperation

Marco Fabbri*

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1 Introduction

The ability to cooperate with strangers outside the restricted circle of close-knit communities and family members is a key determinant for the development of markets and the creation of well-being. In this project, I study the causal effect that property rights institutions have on social preference for cooperation. More specifically, the project tests how a land rights reform that modifies the system of land rights in a developing country affected the ability to cooperate within participants' communities and with strangers outside these communities. To do so, I run a multilevel public good game experiment and I combine it with the unique implementation strategy of the reform in order to achieve identification.

The pre-analysis present the data sources, the structure of the experiment, and the empirical strategy.

2 Research Strategy

The project makes use of a land rights reform that was implemented in Benin, West Africa, approximately in 2011. The reform was implemented as a randomized control-trial in half of over 600 rural villages including in the randomization pool. To isolate the impact of the property right reform on subjects' propensity to cooperate, I rely on the peculiar process of implementation of the property rights reform, which was implemented as a randomized control-trial at the village level. Specifically, I will elicit allocation decisions from participants in villages that have been affected by the reform (treated villages) and compare them with decisions from participants in

*Department of Business and Economics, University Pompeu Fabra & Barcelona GSE. E-mail address: marco.fabbri@upf.edu.

villages belonging to the RCT pool but not selected for having the reform implemented (control villages).

With the support of local research assistants, I will carry on a fieldwork activity collecting lab-in-the-field experimental and survey data on 32 villages (16 treated and 16 control) randomly selected among those included in the lottery pool. Data will be collected from 18 subjects (9 male and 9 female) in each village who will volunteer for participating in the incentivized experiment, for a total of 576 expected participants. The data collection will start by the end of January 2020. The pre-analysis plan was completed and registered at the AEA RCT trial before the start of the data collection.

3 Design

I plan to conduct a version of a multi-level sequential public contribution experiment similar to Buchan et al. (2009). The design resembles that of a multilevel public goods experiment, except that subjects do not make decisions directly affecting those in their concurrent groups. In this game, subjects have to take two decisions. Each decision will determine earnings that are independent from those generated by the other decision. One of the two decisions will be randomly selected at the end of the experimental session to determine payments. Earnings from the other decision will be discarded. Subjects will not receive feedback after the first decision has been taken. For each decision, subjects will be given 10 coins, and each coin is worth XOF 100. A English translation of the instructions is included in the appendix

- The first decision is similar to a standard linear public goods game. Subjects has to allocate the 10 coins between an Individual account and a Village account. Coins allocated in the Local account will be added to the coins allocated to the Local account of two other participants to the same session. The total amount of coins allocated by the three participants is doubled by the experimenter and equally divided between the three contributors. Final earnings for a subject in the first decision are determined by the share of coins coming from the Village account summed to the coins allocated to the Individual account.
- In the second decision, subjects has to allocate the 10 coins between three accounts: an Individual account, a Village account, and a Country account. The Individual and Village accounts work as in decision 1. Coins allocated to the Country account by each participant will be summed up with the coins contributed to the Country account of the two participants from the same village who are also matched for the Village account; and with the coins allocated to the Global account by six participants belonging to a different village. This total amount is tripled by the experimenter and then equally divided and redistributed among the nine participants. So the earnings of each participant in the

second decisions are the sum of: the coins allocate to the Individual account, the share of the coins coming from the Village account, and the share of the coins coming from the Country account.

In addition to the two allocation choices, participants will answer a set of non-incentivized survey questions regarding: age, gender, religion, marital status, number of family members, participation to household finance management, education, literacy, village of birth, years of residence in the village, income.

4 Empirical Strategy

4.1 Hypothesis

The experiment is designed to study whether the land rights reform affected participants' cooperativeness within and outside the close-knit community. First, I test whether the propensity to cooperate within the community is affected by the land rights reform. The main research question investigates whether, controlling for the individual propensity to cooperate within the close-knit community (as estimated in Decision 1), participants in treated villages allocate more or less coins to the Country account than participants in control. These two hypothesis are formulated as following:

Hypothesis 1 *The formalization and registration of collective informal land rights is not causing more or less participants' cooperativeness within the close-knit community.*

Hypothesis 2 *Holding constant the individual propensity to cooperate within a community, the formalization and registration of collective informal land rights is not causing more or less participants' cooperativeness outside the close-knit community.*

I will also study heterogeneity in cooperativeness in the treated and control villages using data on the level of market integration. As a proxy for market integration, I will use a village distance from the closest paved road (below and above the median in the sample).

I will additionally test whether background data collected in the survey – gender and income – generate differences.

4.2 Specification and analysis

Hypothesis 1 will be tested by estimating the following regression equation:

$$c_{i,c} = \alpha + \delta_{i,v}c_{i,v} + \delta_T T_i + \epsilon_i \quad (1)$$

where $c_{i,c}$ is the individual contribution to the Country account, $c_{i,v}$ is the contribution to the Village account in Decision 1 and it is used as a control for individual cooperativeness, T_i is the treatment dummy, and \mathbf{x}_i is the set of controls specified above.

The heterogeneity analysis will add to this specification interaction terms the following variables and their interaction with the treatment dummy:

- a dummy variable equal to 1 when the distance of the village from the closest paved road is above the median in the sample of villages
- a dummy equal to one for male subjects
- a dummy equal to one for subjects whose income is above the median in the sample

References

Buchan, N. R., Grimalda, G., Wilson, R., Brewer, M., Fatas, E., and Foddy, M. (2009). Globalization and human cooperation. *Proceedings of the National Academy of Sciences*, 106(11):4138–4142.

Appendix: Experimental Instructions

Thank you for coming to today’s meeting. Please note that, if you do not feel comfortable, you are free to leave this meeting at any point of time. During the meeting, you will be requested to make some decisions and you will have the chance to earn a substantial amount of money. All the decisions you will make will remain strictly anonymous. No one other than me will know what you earn today. The payment will be private. You should know that the money comes from research funds and not from our own pockets or from the pocket of politicians. Please note that there is no right or wrong in making the decisions, this is not a test. During today’s session you will receive a code. This ensures that everything you do (your decisions and your answers in questionnaires) will remain anonymous. During the activities, we will speak of tokens. 1 token is worth 50 XOF.

Now you are going to be asked to make some decisions with other people. Some will be in this village participating to the research project today and some will be from other villages in Benin. Many people have already made their decisions and other groups are doing the same research this week. Your choices, and the choices by others, will be matched when you are finished. You will be paid in cash at the end of this research for the decisions that you and the people you have been matched with made. The same instructions are being given to other

people in other villages. That is why we are reading this script. Everyone is hearing the same thing you are.

For each decision you make, you have the possibility to collect earnings. Each decision is separated and independent from the other decisions: this means that the choices you make in one decision will affect only the earnings of that specific decision; the earnings of the other decisions are independent.

After you have completed all the decisions, we will randomly select one. The choices you and other people made in the selected decision will determine your earnings that, together with the 500 XOF you have earned for showing up today on time, will be paid out in cash at the end of the meeting. The choices made in the other decisions will have no effects on your earnings.

Decision 1

In the first decision you will be given 10 tokens. Each token is worth 50 XOF. You can put your tokens into your Personal envelope or into your Village envelope (show the envelopes to participants). The number of tokens you put into any envelope is entirely up to you.

What's the difference between the envelopes?

Whatever you put into the Personal envelope is yours and will not be shared with anyone else. As mentioned before, every token you put into that envelope is worth to you XOF 50 regardless of the other people's decisions.

Now, what about the Village envelope? Any token that you and 2 other people put into the Village envelopes will be increased by additional 0.5 tokens by me. For instance, if in the village envelope you and the other 2 participants in your group put in total 6 tokens in the Village envelope, I will add 3 additional tokens. Or if the three of you put in total 10 tokens in the Village envelope, I will add 5 additional tokens. You and the other 2 people will get an equal share of that amount.

Where do these 2 other people come from?

As I mentioned, you are going to make this decision with 2 other people. They are from this village. I do not know which people you will make decisions with because you will be mixed with lots of other people in order to make a group of 3 participants. All of the people you are mixed with in this decision are from the village and they are participating today's study.

Now it is time for you to make your decision. You will have an envelope marked Personal and an envelope marked Village. You will have 10 tokens (each of which are worth 50 XOF to you and everyone else). You can put any combination of tokens into the two envelopes. Remember that the tokens you put into your Personal envelope are yours and will not be divided among any others. Whatever you and the 2 other people from this village put into the Village envelopes will be increased by half. Each of you will get an equal share of that amount. Once in the

decision room, please make your decision and then place the envelopes on this box so we will know you are finished. DO NOT seal the envelopes. If you have any questions please raise your hand.

Decision 2

You have now finished the first decision. The second decision is slightly different, so please listen very carefully. In this decision you will have 10 tokens and 3 envelopes. Once again you will be paid XOF 50 for each token. In this decision you will be randomly mixed with different groups of people. The first group will be similar to the first decision. You will be mixed with 2 other people from this village. It is very likely that this will be two different people than the first time. The second group will be composed of 9 people. It will include the 2 local people from this village who are also in the first group, plus 6 other people from a rural village in Benin that is not this one.

As with the first decision, the tokens you put in your Personal envelope will be yours and not divided with anyone else. Second, as in the previous decision the tokens you and the 2 others participants from this village put into the Village envelope will be increased by half, and you will get an equal share of tokens. Finally, you also have a Country envelope. The tokens that all 9 people put into those envelopes will be doubled. You will get an equal share of the doubled amount. For instance, if the 9 people in the group collect in total 20 tokens in the Country envelope, I will add 20 additional tokens.

Your task is to put 10 tokens in the envelopes. Now it is time for you to make your decision. You can put any combination of tokens into the 3 envelopes. Remember that the tokens you put into your Personal envelope are yours and will not be divided among any others. Whatever you and the 2 other people from this village put into the Village envelopes will be increased by half, and each of you will get an equal share of that amount. Whatever you put into the Country envelope will be doubled, and you and 8 others will get an equal share of that amount. Please make your decision, DO NOT seal the envelopes and put the materials on top of your box.