'Bringing the Lab to the Field: More than Changing Subjects'

(DRAFT, JUNE 22, 2003)

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'Bringing the Lab to the Field: More than Changing Subjects'

(DRAFT, JUNE 12, 2003)

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Abstract.

This paper discusses why running experiments in the field, outside of the university lab, can help us enrich the analysis we do of experimental data. One of the main arguments of the paper is that people participating in experiments, including students, do not come naked to the lab. They bring a great deal of rules of thumb, heuristics, values, prejudices, expectations and knowledge about the others participating, and about similar games, and use such information to make their decisions. The paper offers a short mention of relevant field experiments, and a more detailed look at field experiments conducted by the author, including a data set of CPR experiments run in 10 villages, between 2000 and 2002, with more than 1300 villagers in about 220 sessions, and replications with about 250 university students in more than 40 sessions. It offers then main lessons from bringing the lab to the field. Also there is a discussion of additional information gathered through different field instruments as well as community workshops with the participants to discuss the experimental data, the external validity of the experiments and their results, through parallels with their daily life. One of the lessons is that the greater variance in certain demographics about the experimental subjects might help explain variations in lab behavior that cannot be fully explained by the experimental institutions we study. Also, certain significant differences in behavior between villagers and students will be discussed.

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"Instructions can be important because they define context, and context matters because memory is autobiographical".

(Vernon Smith, "Method in experiment: Rhetoric and reality". Experimental Economics, Vol. 5, No. 2, 2002.)

1. Introduction.

People that participate in economic experiments do not come naked to the lab. We can ask them to leave in the front door as much as possible, try to have them read unframed instructions that lack or even wash out context, and yet they will be looking for clues to represent the game they are facing with something they are familiar with, so that they can walk out with some cash in their pockets.

In many cases our experiments involve complicated tasks, or levels of uncertainty and asymmetries of information regarding outcomes or expected behaviors by others, which will force players to find rules of thumb that help them minimize losses or increase earnings. Emotions will also play a role in the experimental decision making just as they do in uncontrolled economic settings (Elster, 1998; Rabin, 1998), and how those emotions affect choices would be part of a personal history that might not be affected by an experimental institution or environmental variable. Rather, the experimental design might trigger or inhibit some of these elements and therefore their role needs be studied. McCabe and Smith (2001) explore a cognitive model of exchange that encompasses several factors that humans will not be able to turn off when coming into the lab, but rather will use to educate their decisions, as will be discussed later. Their modules in cognition could then be looked at from within the experiment but also through the context in which the experiment is run. This is not only the case for experiments run in the field but also with students where their academic major, their prior personal experience, their teacher or class most related to game theory, their family environment, all will be used to bring clues about what to do.

Further, when we run experiments with people from non-students subject pools, we usually recruit them from subsets of people that are somehow familiar with the task and the model or question we are asking as researchers. Workers make part of experiments on gift-exchange relationships (Carpenter, Burks and Verhoogen, 2003), managers make experimental decisions about planning and production (Cooper et.al, 1999); Fehr/Costa Rica CEOs), bike messengers participate in experiments where effort affects wage similar to what they face for their performance based payroll (Fehr and Gotte, 2002), fishermen and villagers are invited to games where they face the incentives to cooperate and defect, or the possibility of sharing or trusting at a personal cost, just as they do when a fishing or crop harvest turns out well or not (Barr, 2001; Barr and Kinsey, 2002; Smith, 200?; Henrich et.al 2001; Ensminger, 2000; Cardenas et.al 2000; 2002; Cardenas, 2002, 2003). Major arguments in favor of running experiments in the field are discussed in a survey paper by Harrison and List (2003), who offer a set of classifications of experiments according to factors such as the subjects, the information they have, the commodity, the task, the stakes, or the environment of the experiment.

In this paper I take a step in another complementary direction by having field data enrich our experiments in at least two ways. One, by learning how the field context in which the experiment is conducted may explain variations in our experimental data[3]; and secondly, by opening the possibility that participants in the experiments help us enrich our analysis, given that they possess private information researchers do not have about their behavioral responses to the variables controlled in the experiment. By gathering some findings and puzzles from experiments in the field lab as well as in the campus, we may expand and enrich our research tools for understanding the role of behavior, institutions and environmental factors involved in social interactions.

In the next section I will expand in a simple manner Smith's (1982) model of a microeconomic systems by identifying examples of elements brought by players from outside the lab which, if

[3] This approach might be found more often in some experimental papers where certain demographic data is being used to explain behavior.

accounted for, may enrich the understanding of what happens within the experiment. Section 3 will present some regularities observed in experiments run by the author and others, which support the argument that participants may use information from outside of the lab to guide their decision making. Section 4 presents a deeper exploration of a large data set of group experiments run in the field with about 1,500 villagers in different rural communities that face the commons dilemmas. By using additional tools in the field, in which the villagers also participated to discuss the experimental data the institutional setting as well as the environment, and by exploring some household data gathered with conventional survey methods, I will explore the possibility of such information expanding the understanding of experimental data in these settings. Further, the analysis of replications of these experiments with students will also provide some lessons and paradoxes that along the previous sections open new questions and lines of research that will be discussed at the end in the conclusions.

2. The lab and the field as an expanded microeconomic experimental system (EMES).

Smith (1982) offered a basic framework and the sufficient conditions for a microeconomic experiment, which we lay out through the components inside the dotted line in Figure 1. I will label such framework as an Expanded Micro-Economic Experimental System (EMES). The individual decision which we observe as behavior in our experiments is expressed as a message that produces outcomes -also observable- and such behavior is a function of the institution and the environment we design in our experiment. I argue, however, that the (I) Institutions and the (E) Environment variables involve some that are brought by individuals from outside as prior individual experiences, or as norms of behavior that are common in the local context in which the lab is brought to.

Still consistent with Smith, the environment, encompasses a set of characteristics associated to each individual making decisions, and as Smith suggests, are private to the player. The environment in the microeconomic system includes a number of agents and their preferences, endowments and resource constraints, and information available to them.

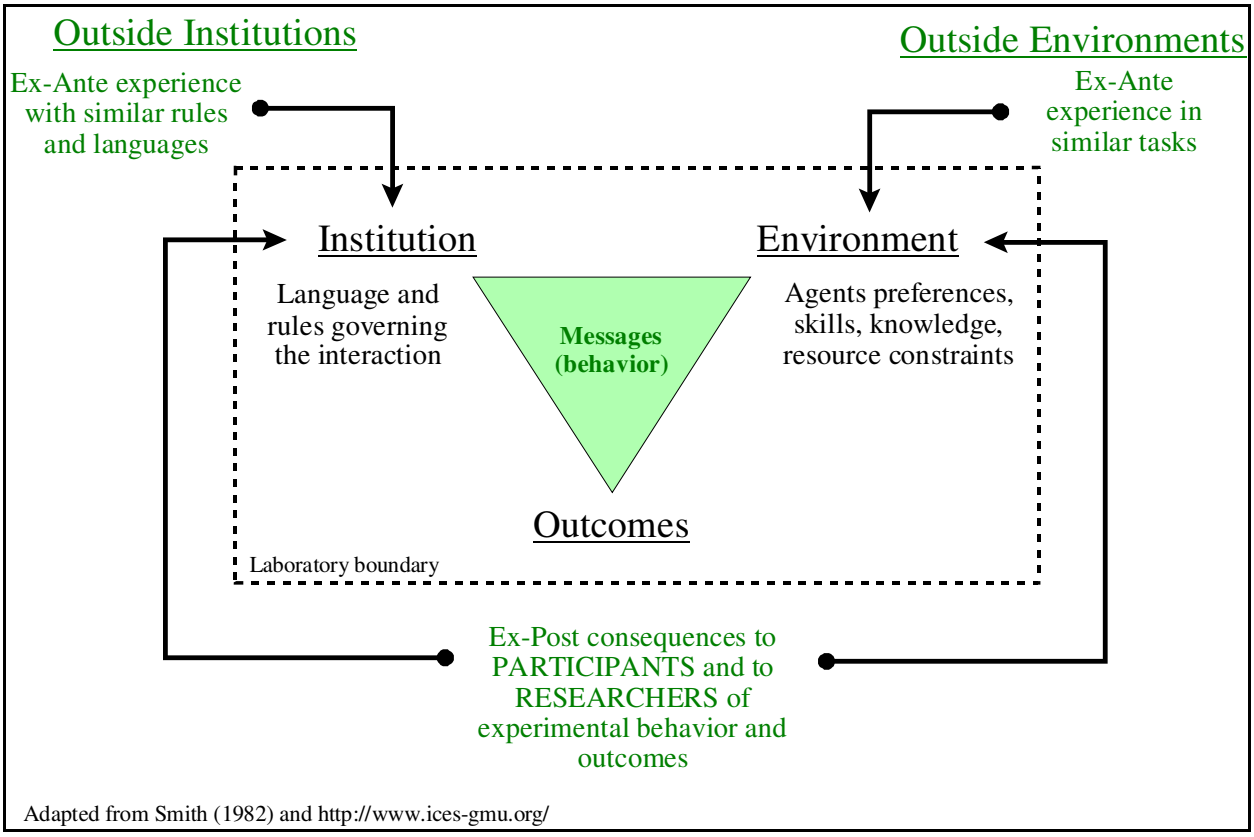

Figure 1 An expanded framework for experimental microeconomic systems (EMES) (adapted from Smith (1982).

By carefully controlling the privacy and confidentiality of decisions, and by avoiding strong framing in the instructions, laboratory experiments have been quite successful in understanding how these institutional and environmental variables introduced in the design, explain regularities in behavior and outcomes, observed throughout many replications of experiments. Such isolation has served its purpose, and responded effectively to the question of the internal validity of experiments. But isolation has also been subject to interesting debates, including that of external validity (Loewenstein, 1999, Loomes, 1999a, 1999b). Such question has been effectively addressed, for instance, by the clarity and replicability of competitive market settings where theory, field observation and experimental data seem to converge..

Other experimental settings have shown, however, that behavior can be very sensitive to manipulation of conditions, and divergences with the original theories have created a demand for

new alternative models. Ultimatum, Dictator, Trust, Public Goods, Common-Pool Resource games have shown among other i) divergence from canonical models of self utility maximization of material rewards, ii) sensitivity to experimental conditions such as information available, framing of the instructions and composition of the environmental variables, and nonetheless, iii) certain regularities in behavior across settings or even subject pools[4].

In many of these games that involve trade-offs between one's payoffs and payoffs of others, we observe that preferences are interdependent[5] and therefore the externalities within the experiment open the question for other-regarding preferences playing a role in explaining deviations from the canonical model prediction. Reciprocity, fairness and altruism are examples of better predictors of behavior when preferences are interdependent within experimental groups.

How these factors affect experimental behavior may be controlled for within the experimental design, but individuals who participate in the experiments surely have had prior experiences in related situations and may have internalized norms of behavior that could become handy when facing the task presented in the lab. Further, participation in the experiment may have ex-post effects that can be part of the information individuals use for their decisions. As opposed to college students[6] where anonymity and privacy before, during and after the experiment are more common, experiments in the field lab involve groups of people that have a better good-will accounting (McCabe and Smith, 2001) of each other as they share the same company, trading floor, warehouse, village, or fishing lake. Therefore, information that comes from the field into the experiment (See Figure 1), and information that leaves the experimental lab back into the field make part of the microeconomic system and, as a working hypothesis, should be accounted for when studying experimental data, specially if the lab goes to the field where the boundaries of

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[4] The equal split observed in many replications of Ultimatum and Dictator games is an example.

[5] Smith (1982) discusses this issue within his *Precept 4 (Privacy)* by exploring the case of interpersonal utilities, but suggests that we provide subjects with less information about outcomes of others to avoid the problem.

[6] Unless there are experiments run within a same class where students know each other and where they may use information afterwards about behavior or outcomes in an experiment.

the experiment are more permeable, as it is discussed below. Guth, Kliemt and Peleg (1999) say it well for our arguments: *'...in the real world human decision-making is located somewhere between the extremes on which standard models focus. It is influenced by the expected future and by the experienced past'.*

3. Experimental evidence of an extended microeconomic system.

One of the major advantages of running experiments in locations different from the campus lab, and in settings different from industrialized western settings, is that a greater variability of conditions can help explain the role of institutions in behavior[7]. Some of the reported experimental data, even if gathered from students as the subjects, can provide some light on the kind of information people bring into the lab to help them make their decisions.

As Vernon Smith suggests in the quote at the start of the paper, such information is autobiographical, and can come from individual experiences, or from the local context of the person and the others within the same experimental session. The personal experience can be with similar tasks, or with institutions, rules or languages similar to that replicated in the experiment. Also, the good-will accounting (McCabe and Smith, 2001) players may have about the other players in their experimental session, can come from pre-experimental situations and in many cases seem to be playing a role in their behavior within the experiment, as well as affecting the updating of the same good-will accounting that may happen outside and after the experiment[8].

Henrich et.al (2001) study 15 small-scale societies through a set of experiments and argue that group level information about returns from cooperation in similar tasks, and integration to the market help explain more prosocial behavior by participants in their experiments, measured by

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[7] Other arguments in favor of running experiments outside of the university are discussed by Harrison and List (2003). See Cardenas and Carpenter (2003) for a more detail recollection of experimental work on developing countries and the advantages of doing so.

[8] Privacy, although guaranteed by the experimenters through consent forms, cannot be assured when villagers, neighbors, coworkers, share information about earnings and even decisions. I have observed this phenomena systematically in many villages when we invite people to discuss the results.

mean offers in an Ultimatum game. They argue, however, that individual level data about the players does not help explain variations in behavior. In any case, the local context around the lab setting is playing a role in suggesting norms to the players, and also in giving clues of how to play the game. Ensminger (2000) reports in her public goods experiment in Kenya that once players recognized it as the *harambee*[9] game, a norm of more cooperative behavior emerged within the game.

Cooper et.al (1999) created an experimental design where planners and firms interact in an economic system heavily planned, and they had students as well as Chinese managers and white collar workers participate in the games. They find among others that when the context was explicitly posed as a case of planners partially informed and firms choosing outputs, actual managers from China behaved more strategically than under the unframed experimental design, and argue that their bringing prior experience ab out planned economies and economic decisions induced a different behavior.

Studies where certain demographic characteristics of participants provide also support for the expanded microeconomic experimental system. Gender has been part of the explanatory variables to be tested, with ambiguous results though. Eckel and Grossman (1999) provide a survey of the literature studying gender. Croson and Buchan (1999) explore the role of gender in a Trust game and compare results by gender across a sample of subjects from China, Japan, Korea and the United States, and find no significant differences across countries, and slightly higher levels of reciprocity by women.

In the field, Barr and Kinsey (2002) argue that the role women play in social sanctioning is more effective than in the case of males, and such behavior is clearly expressed in their experiments where also women show more cooperative behavior. Ruffle and Sosis (2002) explores

[9] Similar terms exist in the Latin American context (*Minga*, *Convite*, *Mandato*) for tasks where voluntary contributions, mostly in labor and kind, help produce a public good such a maintaining a road, an irrigation system, building a school, etc.

cooperation and in-group effects for Israeli cities and Kibbutz, suggesting from his data on one-shot game anonymous cooperation experiments that Kibbutz members were more likely to cooperate with another anonymous member of a Kibbutz than with an anonymous person from the city. However, he finds that the longer the person has stayed within a Kibbutz, the less level of cooperation is observed with another fellow Kibbutz member.

Accounting for the particular major of the student participating has also been a focus of attention. Early experiments in the 1980s asked whether economics majors showed higher levels of free-riding with modest strong results (Gerald Marwell and Ruth E. Ames, 1980; R. Mark Isaac et al., 1985, reported in Ledyard, 1995). More recently, Charles Cadsby and Elizabeth Maynes (1998) reported that nurses showed higher levels of cooperation than economics and business students in a threshold public goods game. These results would also be consistent with the work by Robert H. Frank et al. (1993) on the behavior of economics majors being closer to game theoretical predictions. In another study, Axel conducted an experiment with a unique opportunity historically by observing behavior of university students in a now unified Germany, but taking into account that some of them were raised at one or the other side of the Berlin wall. They found that East German participants behaved less cooperatively than West German ones in both public goods (ten rounds, 5 person) and solidarity (one-shot, 3 person) games, and attribute this to students raised in East Germany being raised at the end of a centrally but inefficient economic system where opportunistic behavior regarding public goods was more frequent.

Peter Kollock (1998) provides data from a set of prisoner´s dilemma experiments studying how group identity has a direct effect on cooperative behavior. The behavior of college students changed depending on the information they received about the other players (being from the same fraternity, from any other fraternity, from the same campus, from another campus, from the police department). Significant changes in behavior were found consistent with the existence of strong in-group/out-group effects (see John Orbell et al., 1988).

Previous experiments in the field conducted by the author also provide support for the arguments

discussed before. Group composition and task experience were found to be associated with experimental outcomes in a a set of experiments where groups of eight participants went to a sequence of non-communication and then face-to-face communication rounds in a CPR experiment. In Cardenas (2000) I show that the fraction of players that reported an extractive activity (e.g. fishing, wood logging) as main economic activity was positively correlated (Pearson coefficient = 0.5732, p-value=0,0832) with the gains in group efficiency achieved in the communication stage as compared to the previous stage. Likewise, the fraction of players reporting land as their main income source, was negatively correlated (pearson = -0,7156, p-value=0,0200) with the same group level outcome. Also, in Cardenas (2002, 2003) an exploration at group and individual levels of how the actual wealth of the participants may explain the willingness to cooperate in the experiment, and how wealth inequality within groups seemed to constrain the possibilities of the group to increase social efficiency through communication.

Notice that in these experiments involving group externalities, individuals face a more difficult task in the sense that there is uncertainty regarding the behavior of others in their group, and a wider set of possible outcomes which depend on a non-linear payoffs function, as opposed to Ultimatum or Dictator games where the range of choices are simpler and there is more information about the distribution of possible outcomes. Experience in previous similar tasks, suggest our audio and video data from these experiments, seem to guide the behavior and agreements during the communication rounds, but also the prior information they have about themselves and others in the group may enhance or inhibit the willingness to cooperate as it seems to be used to administer the good-will accounting they have about the others and therefore judge their best response in the next round.

4. Lessons and paradoxes from cooperation experiments in the field.

A closer to look to some experimental data from the field and the campus labs will offer more detailed evidence suggesting the existence of such relationships between the basic microsystem

and the field context of the participants which form the expanded microeconomic system. In some cases the relationships are clear explanatory variables of experimental behavior observed, but in others the relationship is more of a puzzle to be explored.

a. One first puzzle: hyper-fair offers in ultimatum games with the strategy method

One of the advantages of the strategic method in experiments such as the Ultimatum game is that it allows us to gather more data about intentions of players. In this particular game the respondent offers a strategy of responses (accept, reject) for each of the possible offers by the first player. This is particularly important because offers by the first player seem to show a high frequency of fair offers and rejection rates are quite small. Fairness is a very powerful motivator in the Ultimatum game, as shown in replications of the game in different cultural settings. In Cardenas and Carpenter (2003) we gather a set of results from studies using this game in different countries, including the sample by Henrich et.al (2001). From a sample of 21 UG games, the mean proposal by player one is almost 40% of their initial endowments, a standard deviation of 0.0761, a minimum mean offer of 26% and a maximum of 58%. The mean of the mean rejection rates for this same sample is of 10.7% (Std.Dev=0.1101).

But a more careful look at strategies by respondents, and comparisons of UG data between subject pools can offer some interesting results. Bahry and Wilson (2003) find in a set of the UG with the strategy method run in two former soviet republics, Tatarstan and Sakha, that respondents, reject unfair offers but also offers that unfair to player one making the offers. Most offers divided the initial endowment in half. The authors argue that such strong norm of equality might be the residual of the Soviet era.

I conducted the same UG under the strategy method in a small village in the Pacific coast of Colombia where no residual effect of such political regimes can be argued to have existed, and also found the same pattern of rejecting offers that were unfair to either player. However, when we replicated the exact same design and payoffs with college students in Bogotá, such hyper-

fairness vanished.

Figure 2 shows the frequencies of offers by players and students in the UG and in Dictator

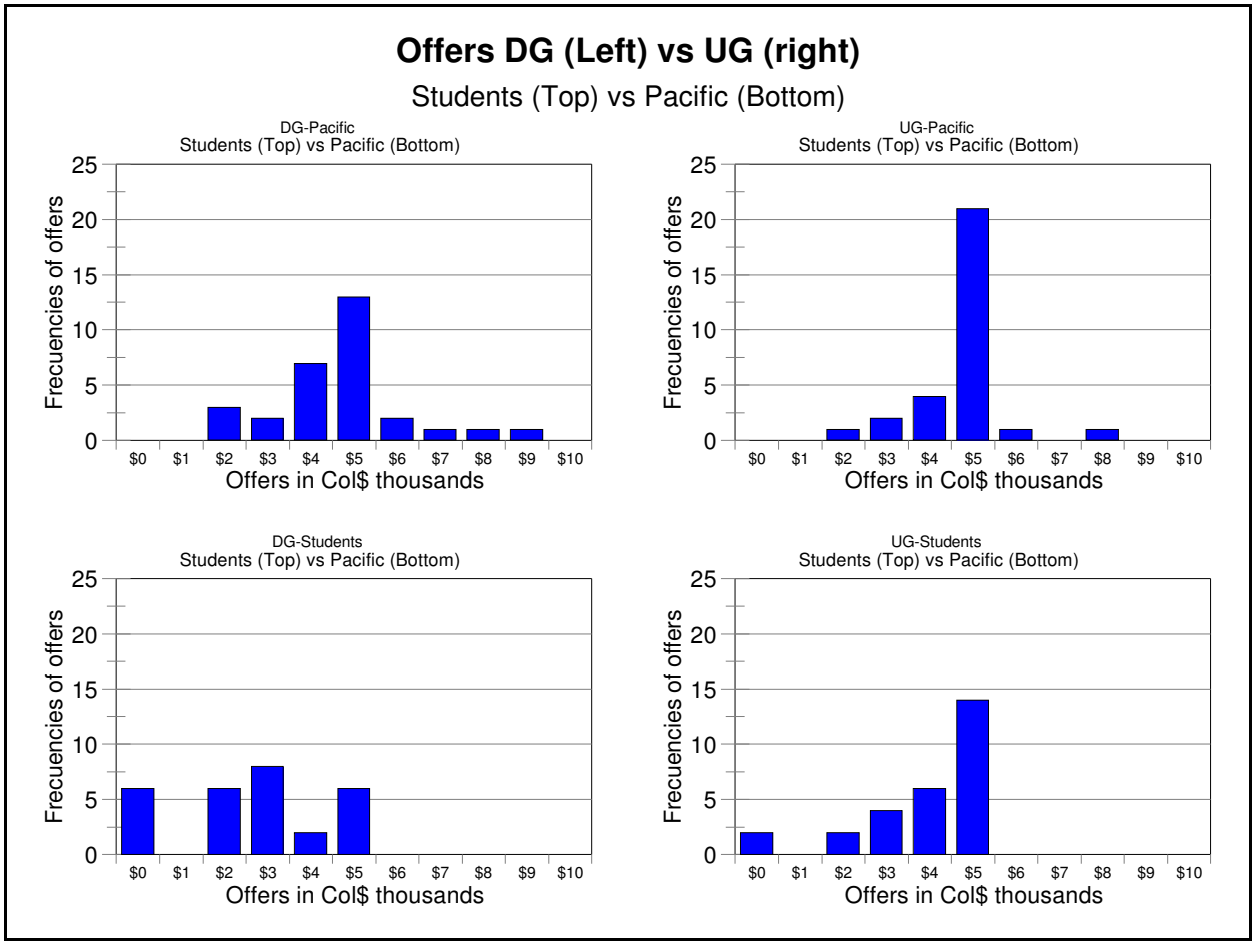

Figure 2. Dictator offers (Left panels) and Ultimatum offers (right). Top panels show data for students and bottom panels for villagers.

games[10]. The left panels show offers in the Dictator game and the right panels the offers for the Ultimatum. The top panels show the offers by students and the bottom ones for villagers. Clearly students were more likely to send very low offers in both cases, and the few cases in which

[10] In this design players participated in both DG and UG in sequence. They had the same role (player one or respondent) in both games, but results of the DG were known to players two only after the two games were conducted to eliminate carry-on effects.

players send offers above 50% occurred only for the villagers who in general showed a more frequent offer of an equal split.

Data about respondents' strategies also show some contrasts. In Figure 3 I show the frequency of acceptance of offers in the strategies by all players and compare students to villagers as well. Students were more likely to accept offers that were unfair to player 1, consistent with the hyper-fairness argument (Bahry and Wilson, 2003). But also notice that villagers were also more likely to accept unfair offers to them. Aggregate earnings overall, however, resulted higher in the case of this village than for the students pool because there were significantly more fair offers in the

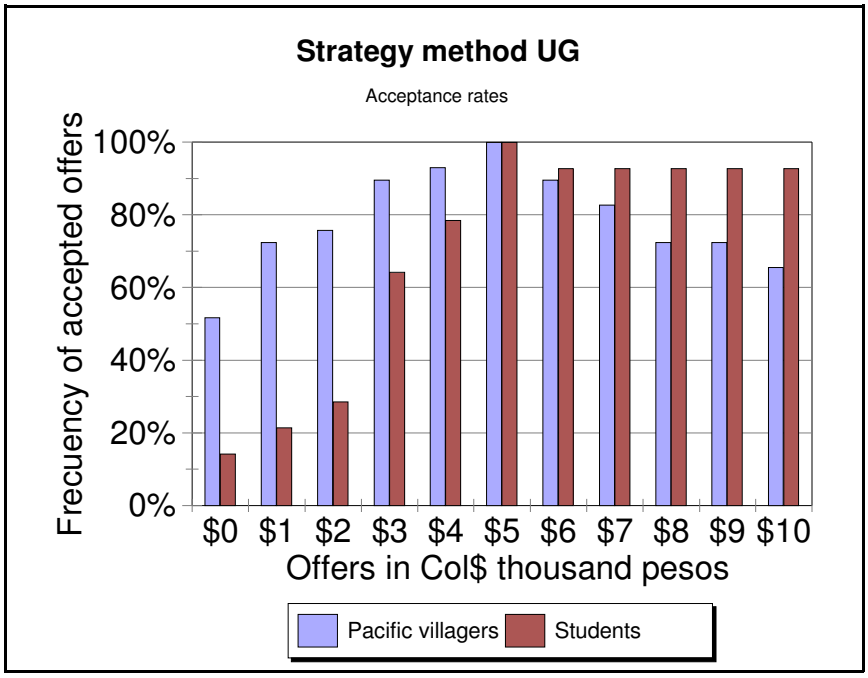

Figure 3. Acceptance rates in the Ultimatum game (strategy method) for students and villagers.

Pacific coast[11].

Follow-up questions, debriefings and conversations with the villagers showed interesting

[11] In the case of the DG, offers added to Col$141,000 for villagers and only Col$74,000 for students. In the case of UG, offers by villagers added to Col$143,000, very similar to the DG, and for students such sum increased to Col$110,000.

explanations for such paradoxical results. Players 2 who would accept very low offers argued that players were entitled to make the offer, because God, their conscience, or their good luck justified so, and that they should be entitled to keep what they wanted. Meanwhile, players who would reject offers very unfair to player one, argued that they would not feel good that such thing happened since being player two should not give them the right to keep more money than player one. In general a sense of deservedness justified the strategy chosen. In the case of students the arguments where more similar to a self-oriented notion of fairness and efficiency as expressed in the follow-up questions.

For a few cases in the Pacific coast, some respondents who would accept low offers argued that they would do it also because it would ensure that the money stayed in the village and not being brought back to Bogotá by the researcher. This opens the question of meta-games where researchers and their externally brought money may play a more active role in the experiments. However, the lower acceptance of very high offers would contradict such rationale. I will get back to this issue of meta-games later on as it makes part of the framework proposed.

b. Another puzzle: Cooperation and face-to-face communication in the campus and the field labs.

The original work by Ostrom, Gardner and Walker (1994) on Common-Pool Resources opened a major area of experimental research. Replication of similar experiments in the field has confirmed, among other results, the basic finding that under a non cooperative game setting in which players cannot communicate with each other and where decisions remain private and confidential, average decisions do not confirm the prediction of rent dissipation or the so called "tragedy of the commons" (Hardin, 1968), neither they achieve a socially optimal solution. A major part of the literature on CPR and VCM experiments also suggests that if the game is repeated, a significant fraction of players are willing to cooperate in the initial stages, but that such cooperation seems to erode over time as there are no coordination mechanisms, and

negative reciprocity induces those same players to start increasing their level of appropriation of the common-pool, or for the case of public goods, they reduce their individual contributions (OGW, 1994; Ledyard, 1995).

Our replication in the field lab of a group dilemma such as these, with a design of two stages of 10 rounds each, and groups of 5 players who must decide their individual level of extraction of a common-pool (choices are between 1 and 8 units) offers also confirmation of these findings. In our design the social optimum solution occurs when every player chooses 1 unit of extraction and the symmetric Nash equilibrium prediction is when every player chooses her maximum allowed extraction, i.e 8 units. The data for a set of 173 sessions with 865 villagers and replications in 46 sessions with 230 students, during the first 10 rounds of the same incentives, experimental institution and environment, shows that in average, the group outcome confirms similar results from the campus lab, although the decay in cooperation (increase in appropriation in our case) is

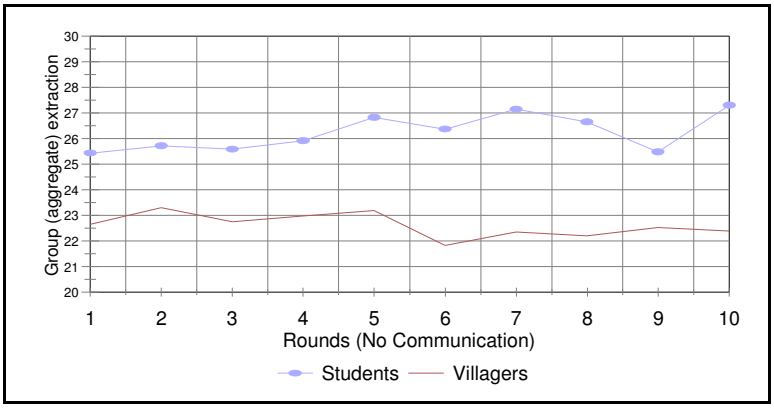

Figure 4. Group extraction during the first 10 rounds (no-communication) for students and for villagers.

not as severe as in other works[12]. Figure 4 shows the average of the aggregate (group) extraction levels for both students and villagers. Recall that if all players follow the prediction of the Nash equilibrium the total extraction should be of 40 units, while the social optimum would be achieved if the total extraction was of 5 units. The difference, although significant statistically (Wilcoxon Mann-Whitney z-value=11.046, p-value=0.000) for the group extraction across subject polls, shows similar patterns with a shift towards higher extraction for students. However, a look at the individual level data, and a look at the evolution of decisions over time may offer some interesting insights.

As shown in figure 5 with the distribution of individual decisions for the same sample, the students data suggests a unimodal skewed distribution where most of the decisions approach the Nash equilibrium prediction and fewer decisions are closer to the lower extraction levels. Meanwhile, the data from the field experiments suggests a bimodal distribution where there are

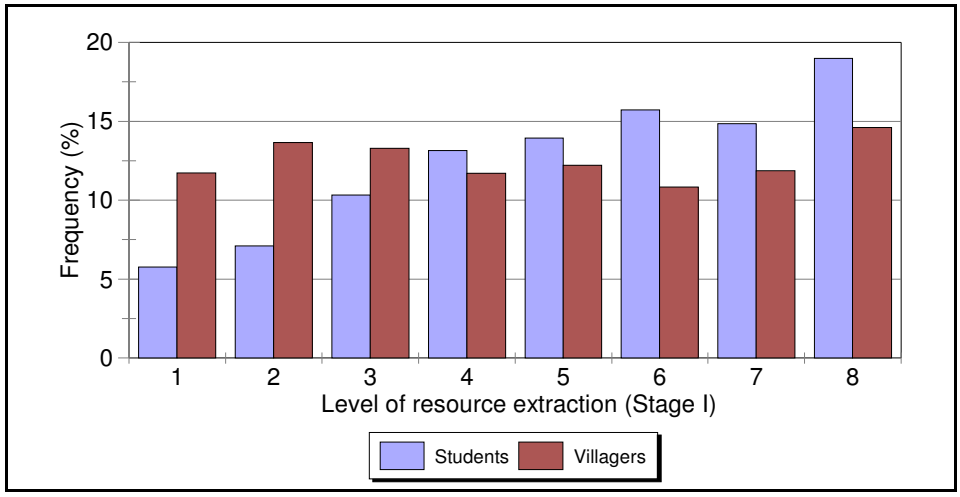

Figure 5. Distribution of individual decisions during first stage (no communication), 10 rounds, students vs villagers. Wilcoxon Mann-Whitney z-value=12.919, p-value=0.000)

two peaks, one closer to the cooperation level and another close to the maximum extraction. This

[12] These 219 sessions were conducted, for the first 10 rounds exactly equally. The sample was then divided in different treatments for the second stage of the game where we introduced different insstitutions on self-governance and external regulations that are beyond the scope of this paper.

difference yielded a higher level of group and individual earnings for the villagers. A look at the evolution of such distributions over rounds (Figure 6) shows that students seem to behave much closer to previous experimental work with students, with an increasing number of decisins towards the highest level of extraction. However the right panel of the figure shows how the data from the villagers is, if we can say, noisier and more difficult to analyze. Although the frequency of decisions that are closer to the maximum extraction in this case seems to be significant, it is also the fraction of decisions that are closer to the social optimum levels.

Debriefing of decision making with the villagers suggests that there was a permanent tension within the mind of many between trying to reduce extraction to see earnings increase, and responding with higher extraction levels when they observed that the rest of the group was increasing theirs. However, it is also interesting, looking at the individual groups data, that there seems to be an upper threshold of aggregate extraction that induces an immediate reduction by the majority of players without any coordination or communication during this first stage. Notice that increasing individual extraction, at any level of group extraction, is a dominant strategy in this experimental design[13]. It is the case also that a lower threshold also induced most players to increase their extraction when the level of cooperation was sufficiently high as the gains from free-riding seemed higher.

The familiarity with the task, discussed earlier in the paper, also suggests that a significant fraction of players may have used their experience in their decision making

[13] In this sense there is a difference with the classical common-pool resource design (OGW, 1994; Cardenas et.al, 2000) where interior solutions do not produce a dominant strategy. However, this design shares with the common-pool design the non-linearity of the payoffs surface while the linear public goods involve a constant marginal returns from free-riding, while such rate is decreasing in this and the classical commons case.

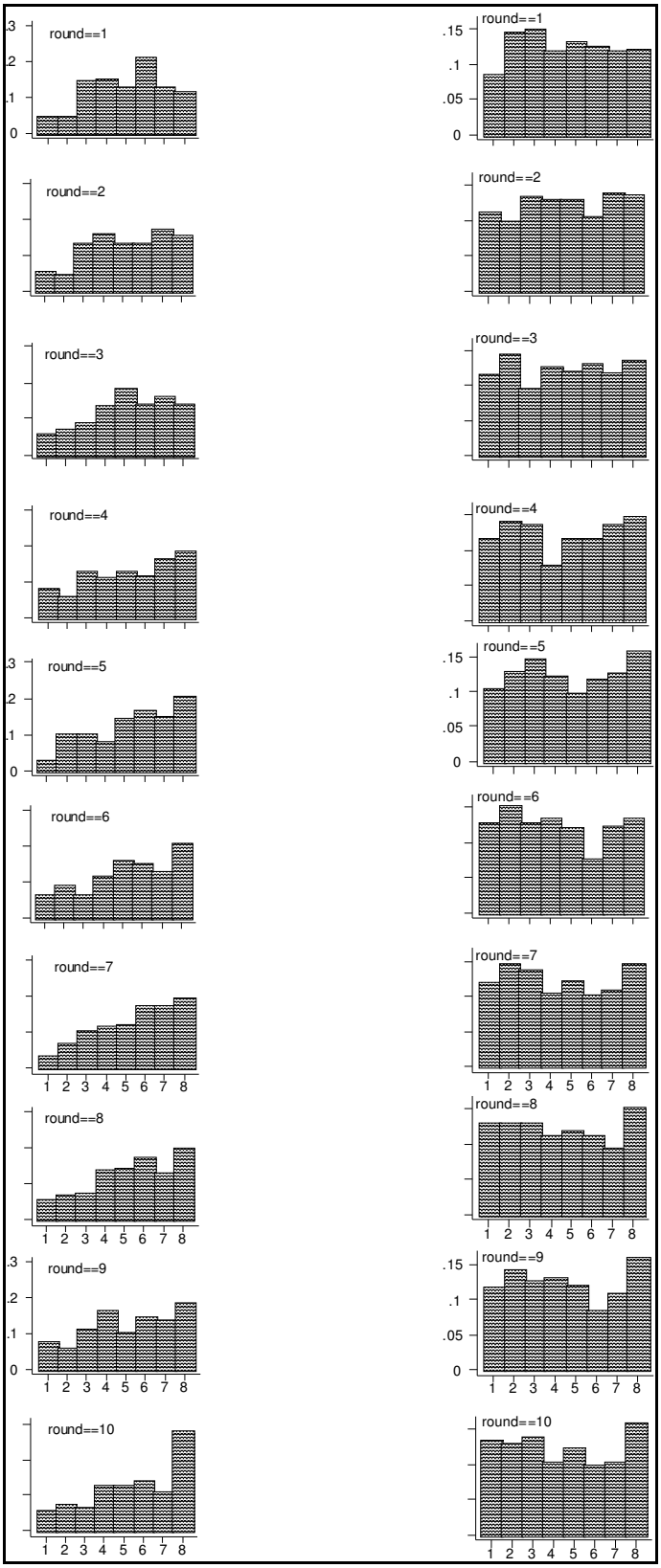

Figure 6. Evolution of the distribution of decisions over time. Students vs Villagers, first stage, 10 rounds, no communication.

c. The puzzle of re-visiting the same village: meta-games or social norms learning?

The available funding for this research allowed us to return to some villages we had visited in previous months under another project, three in particular, and replicate the same experiments and explore other treatments. Comparing such new data set with the same design, and for the same 10 initial rounds, shows some striking results that enrich our discussion about an expanded microeconomic system in which local dynamics outside of the field lab may play key roles in our analysis. Elsewhere (Cardenas and Carpenter, 2003) we discuss in more detail such findings and their implications regarding the use of experimental methods for interventions, and development in general. Here let me just compare the data from the first and the second visit for these three villages[14], and discuss the implications within the scope of this paper.

The following Figure 7 shows the distribution of decisions for all three villages during the first 10 rounds where no communication was allowed. The left panel shows the data for those three villages during the first visit, and the right panel shows the distribution for the same design in the

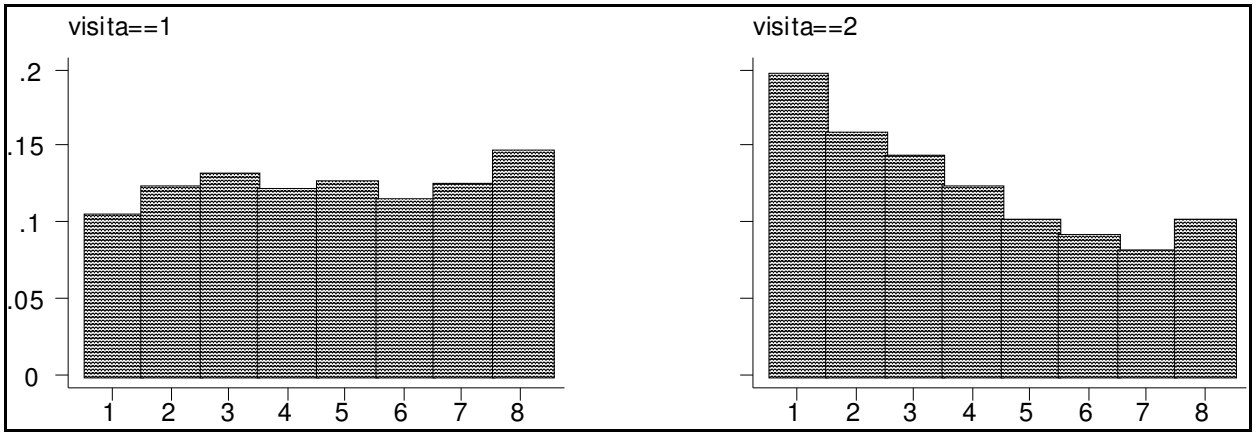

Figure 7. Distribution of decisions (level of extraction), 10 rounds, no-communication, for same 3 villages during first visit (left) and second visit (right).

[14] The comparable sample for these 3 villages included a total of 80 sessions in the first visit (400 participants), and 32 sessions during the second visit (160 participants). The comparison is for the data from the 10 rounds in the first stage.

same villages for the second visit[15]. The difference in distributions deserves some discussion. Clearly during the second visit there was a norm or rule of thumb for these players. In fact a closer look at the data along rounds, right from the beginning of round 1 this type of distribution appeared, and was sustained along this first stage of the game. It was only in round 10, as usually found in the last round effect, the peak to the right of the graph decreased shifting to a larger fraction of free-riding decisions, looking closet to a uniform distribution.

As we usually do, couple days later we conducted community workshops in these three villages and discussed such radical change in decisions. The consensus was that "they now knew how to play the game", which by the way they knew from the first visit as the debriefings showed how players had understood the structure of the incentives by the end of the experiments. Thus, one could argue that what they knew this second time is that "trust and cooperation could be sustained and would be profitable" and that "cheap talk", outside of the lab, does produce effects before coming into the lab.

A second argument in favor that such norms emerged not only within the rationale of the players (individual learning) but within the village (group learning), emerges from comparing the data for the participants who had been in both visits with those who came to the second visit for their first time[16]. In Figure 8 there are the two frequency distributions for the two sub-samples, showing that the distribution of strategies were similar regardless of whether the had the individual learning or the group learning.

[15] The second visit occurred 6, 15 and 20 months later for the three villages. The length of time between visits does not seem to explain the differences.

[16] The recruitment for the second visit was made under the same manner, and when asked if people that had been in the first time was allowed, we agreed but also encouraged other people to also come.

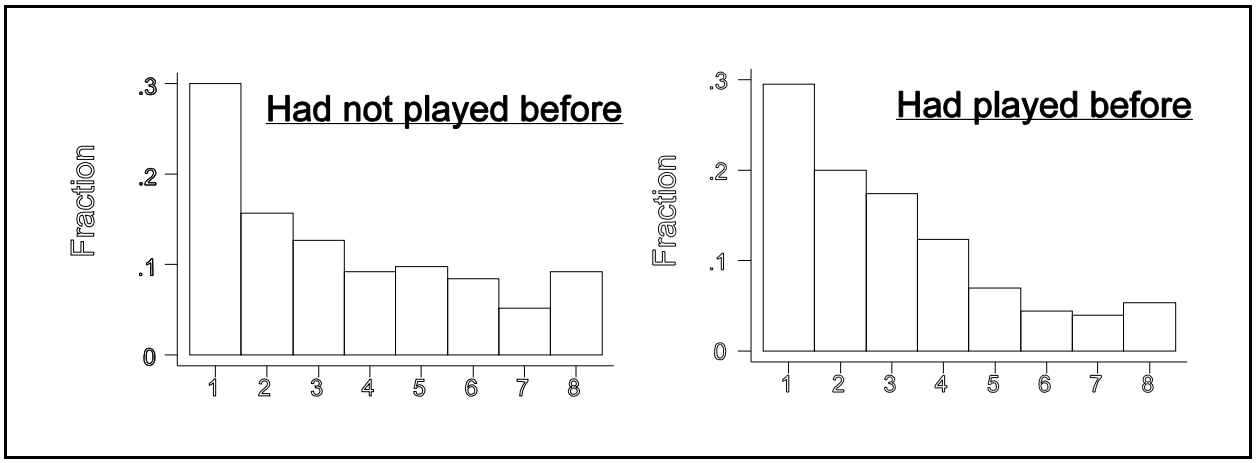

Figure 8. Distribution of decisions (extraction), first 10 rounds no-communication. Left panel: people that did not participate in the first visit, right panel: experienced players.

An alternative explanation, although not mutually exclusive with the previous one, has been suggested by Andreas Ortmann[17] associated with the debate over meta-games where the experimenter, by bringing external money, becomes a player in the game. His argument is that once the rumor in the village spread about a second round of experiments, people would rapidly distribute the rule of thumb of choosing low levels of extraction to make sure more money from the researcher remained in the village.

Further, argues Ortmann, given that the experience during the first visit is that despite the promise kept by the researcher to maintain decisions private, many people shared information about their decisions, fear from being discovered choosing fee-riding strategies given the group norm being spread, would impose great costs to such players. Notice the specially high incentives for those "experienced" players once they have heard the spread rule of thumb to choose low levels of extraction in the second visit. However the data suggest that strategies across experienced and fresh participants in the second visit is distributed very similarly.

[17] Personal communication.

I would argue that such explanations do not rule out the possibility of the individual and group learning of cooperative or prosocial norms as part of the expanded microsystem proposed. Basically the pre-commitment before the experiments started, even if only instrumentally for reaping more cash from the experimenter, shows to be effective along with the cost of social punishment outside of the lab -but within the extended microsystem, which illustrate how groups device self-governed mechanisms to produce collective action.

5. Conclusions and the research ahead.

This paper has emerged from a set of phenomena observed by the author in the last few years of running experiments in the field, and from the increasing literature on experimental work in the field. The intention has been to derive lessons for researchers in both campus and field labs, so that we can understand better what we observe on behavior and outcomes as a result of designing and controlling for institutions and environmental conditions in our experiments. The need to continue strengthening the internal and external validity of experimental economics is the main justification for the effort, and given that there are still variations in the experimental and field data to be explained by our models in many settings of economic and social exchange.

A major proposal along the paper is to expand our basic microeconomic system (Smith, 1982) into a more complete one -which I have labeled Expanded Micro-Economic System- that encompasses information that may flow as a result of participants bringing their own prior experience, rules, norms, prejudices and other information that could be used strategically within the lab, as well as information that may flow from the lab to the outside field, and which may influence the decision-making as well as a result of players' expectations about the effects of their decisions outside of the lab, which might be significant at least for the case of experiments run in the field. Such expansion of the microsystem can also involve our campus labs, as students also bring elements from outside the lab to help in their rationality and task. Experiments in which there are less risk and uncertainty or less conflict between one's preferences and

consequences to others, such as competitive markets e.g. double-auctions, there will probably be less information used by the players to guide their experimental decision-making.

In summary, the paper offers a set of evidence suggesting that players, students or not-students, bring elements of information to guide their decision, and such information can be about their individual, group or context characteristics. Examples mentioned here include cultural background, group identity, gender, prior experience, wealth or social status, all of which come from the outside of the experiment, and enter to the environment (E) and institutions (I) that our experimental microsystem involves. Further, there might be information (messages) that our experimental microsystem sends to outside of the lab, and that can provide additional information to participants when entering the experiment either as ex-ante information or in future participation in similar or different experiments[18]. Thus, instructions individuals use in the experiment include not only what researchers read to them, but 'instructions' they have read before coming into the lab. How they combine them remains unsolved.

At least three major future research questions result from bringing the experimental lab to the field and which might become interesting areas of inquiry in the coming future.

One emerges from the fact that people we invite to participate in our experiments bring into the lab important information that they combine with the experimental institutions (I) and environmental (E) variables we induce in our design. How much of the external I and E they leave out of the field lab, and how much they use into their decision making should be matter of research. We need to continue designing tools to separate and study external and lab factors that explain behavior, particularly if they are confounded in people`s decisions in the lab. Framing of experiments can be enhancing or contradicting with what the actual context of the players is. Such was the case with the experiments in the People's Republic of China (Cooper et.al, 1999)

[18] In Cardenas and Carpenter (2003) we discuss in more detail the few systematic evidence available on studying the question of experienced vs fresh students. This should be also matter of careful research, and in the same line of research suggested here, it would benefit if those students were more actively involved in the discussion of how their evolving rationality and rules of thumb when returning to the lab for one more session.

where the managers who faced instructions framed as a planned economy for firms decisions, they chose more strategic actions.

A second lesson for those interested in field experimental work emerges from the fact that our participants may well be part of the research analysis as they possess private information researchers do not have about their lab behavior, as well as their field behavior, and that cannot be fully observed in the behavior they show in the experiment[19]. Even in the case of campus labs, students participating in experiments could become part of the research process, provided that a well controlled design and assuring the privacy of decisions do not induce certain strategic behavior by participants ex-ante, based on their expectations about participating in the discussion and the revealing of certain information that may impose social costs such as we have observed in the field[20].

This brings a third line of inquiry suggested here, that of meta-games where experimenters become players in the game as their bringing endowments of research cash induces certain strategic behavior that might not happen if such external resources were not brought from outside. The concern on what kind of role experimenters may play in these experiments is still an open question. Although Frank (1998) reports that the experimenter effect in UG might not exist, when he compared cases in which he burned in front of players payoffs not earned to the control case, there is still room for players being influenced by other possibilities for an experimenter effect. For instance, participants may assume that researchers can link behavior data to individuals within a certain group where they play a certain role, or there are possibilities for

[19] Let me give you an example of how we need to establish dialogues between participants and researchers to better understand not only behavior and outcomes but also experimental designs. Abigail Barr (personal communication), in her experiments on risk pooling in Zimbabwe, had to drop the mechanism of flipping a coin to decide which option in a lottery would be awarded to each player, because women do not know how to flip a coin like men do and therefore argued it would not provide a fair toss.

[20] Such invitation should be made, I would argue, after the experimental sessions were concluded and either at random or as a voluntary activity once the researcher has a fair idea of certain patterns in the data and remaining questions.

players assuming that the field experimental data may have a future use for government or donor agencies now that the notion of social capital for development has become central[21]. Further, many of the experimenters working in rural areas have maintained or plan to maintain a long run relationship with the communities which may impose a supra-level set of non-material incentives that must not be at least ignored in our analysis.

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[21] Abigail Barr (personal communication) has shared these same concerns based on her experimental work in Africa.

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