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# UNIVERSITÀ DEGLI STUDI DI TORINO

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# Cooperative membership as a signal of trust and trustworthiness: results from a field experiment in the Philippines

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## Abstract

We test the hypothesis that cooperative membership is a trust and trustworthiness reinforcing device and, as such, it affects (in a trust game) both trustors' and trustees' contributions and beliefs. Through trust games played by sugar farmers in the Philippines we find that i) cooperative membership is a signal of (and induces higher levels of) trust and trustworthiness since players' behaviour is largely influenced by the information on their counterparts' cooperative membership status ii) this signalling effect is superior in magnitude and robustness to the direct membership effect (for which causality is often difficult to isolate) iii) an *in group bias* is at work since, contrary to non members' expectations, the positive affiliation-trustworthiness link works only between coop members.

**Keywords:** investment game, trust, trustworthiness, randomized experiment.

**JEL Codes:** C93, O12, D03.

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## 1. Introduction

Market transactions generally occur in a framework of asymmetric information and incomplete contracts.<sup>1</sup> The counterparts of an economic transaction (consumers vs. sellers, suppliers vs. buyers, investors vs. financiers, etc.) are not perfectly informed about reliability and trustworthiness of their opponents and formulate a guess about these attributes. Forecast errors have adverse economic consequences since contracts are necessarily incomplete and cannot foresee and regulate all possible contingencies. As a result, especially in a low income environment where rules and institutions for contract enforcement are weak, (i) many transactions and business agreements are not even started when levels of trust<sup>2</sup> and trustworthiness are too low and (ii) the economic value of the realized deals may depend on the intensity of the same two characteristics if crucial economic investment in the business relationship depends on the expected counterpart trustworthiness. Even though several papers have documented the strong positive association between trust and economic performance (Zack and Knack, 2001; Knack and Kiefer, 2007), the former variable remains, according to Fehr (2009), a partially endogenous variable affected by informal institutions.

The arguments provided above contribute to explain why economists are foremost interested in investigating the “law of motion” of trust and trustworthiness and its crucial determinants. A typical framework in which this research can be carried on is (trust) investment games.<sup>3</sup> In the standard sequential game framework of Berg, Dickhaut and McCabe (1995) two players are endowed with a sum of money and can play as trustor or trustee. The trustor is the first mover and has to decide if and how much money to send to the counterpart (trustee) knowing that the latter will get it tripled and can decide (as a second mover) if and how much to return back. The Nash equilibrium of the game, when standard Nash rationality is common knowledge, is given by the *[do not send, do not return]* strategy pair. However, such equilibrium is dominated in terms of individual and total payoffs by situations in which players exhibit higher levels of trust and trustworthiness.

Our claim is that cooperative membership can influence the level of trust and trustworthiness measured in a trust game in two ways. On the one hand, members of a cooperative are expected to display higher trusting/trustworthy behaviour since cooperative life implies a series of actions in which members make

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<sup>1</sup> The issue has been widely discussed in the incomplete contract literature since the pioneering contributions of Grossman and Hart (1986) and Hart and Moore (1990). The incomplete contract paradigm has been applied to many different issues such as political economy, fiscal federalism, industrial organization, public procurement, regulation, privatization, transition economies, international trade, or law and economics.

<sup>2</sup> Trust is defined by Hong and Bohnet (2007) as “investor’s willingness to make herself vulnerable to others’ action”. The relationship between trust and contract incompleteness is well evidenced by Fehr (2009) who argues that “an individual (let’s call her the trustor or investor) trusts if she voluntarily places resources at disposal of another party (the trustee) without any legal commitment from the latter”.

<sup>3</sup> For a survey on the literature of trust game experiments see, among others, Fehr (2009).

themselves vulnerable to their counterparts (exactly as in the investment game). Hence, with their pattern of reciprocal obligations, cooperatives may stimulate and reinforce trust and trustworthiness of affiliates. This is what we call *direct* effect of cooperative membership. On the other hand, due to the importance of the above mentioned characteristics, and in order to achieve organisational success, cooperatives may select their members by admitting only those who have higher trust and trustworthiness so that membership approval and persistence is a signal that members have been considered trustworthy and have behaved trustworthily for a given period of time. This is what we call the *indirect* effect of cooperative membership.

We perform our experiment on a sample of poor sugar farmers in the Philippines. The main assumption we want to test in this paper is that *in a low income economic environment cooperative membership is perceived as a signal of high trust and trustworthiness and, as such, it may influence players' strategies in an investment game*. In other words, we want to test whether cooperative membership plays an indirect effect (*signalling*) on trust/trustworthiness net of its direct effect (*membership*).

Note that the signalling effect works even if the direct membership effect on trust is not clearly identified. In our case cooperative members might well show higher trust/trustworthiness levels than non-members just because they have been self-selected (selection bias) or survived in the cooperative (survivorship bias). However, with this study we do not focus on the identification of the *direct* impact of cooperative membership; instead, we just control for it in order to isolate the *indirect* channel through which it can influence trust/trustworthiness levels.

But why cooperative membership may signal high trust/trustworthiness?

A deeper inspection of the pattern of reciprocal obligations within the organisation under scrutiny (a cooperative of sugar producers in the Panay island in the Philippines, see section 2) may clarify further our point. Cooperative members experience participation to an organization which deals for them with some crucial features of their business such as technical assistance, marketing and delivery of products to local and foreign markets. Membership acceptance and persistence in cooperative requires, by itself, a degree of trustworthiness of members which are required to abide by cooperative rules. For example, the cooperative generally (and specifically in the case under our scrutiny) requires from members the sale at predetermined prices of all (or a considerable part of) their product/harvest, irrespectively of the price which affiliated farmers could get by selling it directly on the market. In essence, cooperative members learn through affiliation years to rely on an institution which provides them payment and other services in exchange of an affiliation fee and the obligation to confer their production.

Since the cooperative does not always reciprocate instantaneously affiliated producers in all its obligations, the latter learn to trust it when in the medium run they verify the coop trustworthiness, and experience the

benefits from the cooperative behavior. In this sense the cooperative affiliation (versus non affiliation) status is a signal of a relatively higher attitude to accept, trust and respect (demonstrating one's own trustworthiness) a system of collective rules. The longer people persist in such affiliation, the more cooperative habits have been interiorized and the more farmers demonstrate to be able to remain in this system of rules. In this respect, another important issue we address in this paper is whether this positive implication of cooperative affiliation produces its effects only within the cooperative environment (toward other members) or also outside it (toward non members).

In order to test our assumption, we implement a slightly modified trust game à la Berg, Dickhaut and McCabe (1995), by letting participants play twice, once with a cooperative affiliated and once with a non affiliated counterpart (for details on the experiment design see section 3). The only information provided about the counterpart is the cooperative affiliation status. As it is obvious, findings from our experiment are likely to be influenced by framing effects, that is, players' different behaviour versus affiliated and non affiliated counterparts may be in part induced by the experiment design and, more specifically, by the membership information we give. Actually we make one specific characteristics, cooperative membership, salient by purpose since we want to see how member and non member players react to it.<sup>4</sup>

However, even though our findings were totally or partially determined by framing effects, the result would remain highly relevant both in positive and normative terms. This in fact implies that, if a coop member signals her membership, she may obtain higher payoffs in market transactions, under the assumption that information is asymmetric (in real life as it is by construction in the experiment) and such transactions have the investment game characteristics.<sup>5</sup> Such conclusion is valid independently from the problem of establishing the correct causality nexus between cooperative membership, trust and trustworthiness.

The paper is divided into seven sections (including introduction and conclusions). In the second section we describe characteristics of the economic environment in which the experiment is run (the Panay cooperative of Philippines sugar producers). In the third section we outline in detail the experiment design. In the fourth section we present the theoretical framework and the hypotheses we test in our field experiment. In the fifth and sixth sections we provide descriptive and econometric findings. The seventh section concludes.

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<sup>4</sup> Note as well that, if it could be in principle assumed that our results are affected by an experimenter's demand effect it would not be clear in which direction such effect may bias respondents' behavior. This is true because there is not a unique clear cut effect of the information on membership status on players' strategies. For instance, cooperative members may be expected to be more cooperative with everyone or just with other cooperative members since there may be discordant views about the bonding or bridging characteristics of cooperative membership.

<sup>5</sup> By applying a similar approach to the relationship between microfinance and trust Becchetti and Conzo (2010) argument that the only circumstance under which our reasoning does not apply is if counterparts are perfectly informed about the trust and trustworthiness characteristics of their opponents and if the cooperative is known to select relatively more trustworthy members. In such case the signalling effect is not produced even though such assumptions produce observationally equivalent results in our experiment. Consider however that these two assumptions are quite restrictive since it is reasonable to assume that a relevant part of economic transactions is developed in an asymmetric information framework.

## 2. Panay

Panay Fair Trade Center (PFTC) is a cooperative organization based in the island of Panay, in the Visayas archipelago in the center of the Philippines. It was born in 1991 and at the time of the experiment (2009) it had more than 350 members involved in the production of mascobado sugar and banana chips. The organisation's goal is to promote small producers capacity building and to enable them to get a higher share of the value created by reducing intermediation margins and allowing them to participate to profits from the sale of the final product. There are three eligibility criteria to become member: (i) having less than three hectares of land, (ii) being a local resident, and (iii) paying an annual fee of 50 Pesos. The first criterion is meant to avoid that an excessive difference in the size of land can generate conflicts among producers.

PFTC is formally a private company (as required by the Philippine law to become exporter and work with different communities) but it uses to define itself as “a company owned by the grassroots Panay organizations”, since its shareholders are small first level cooperatives or producers' associations. It was founded to connect peasants and women organizations in the countryside with marginalized urban communities through economic circuits where the former provide raw agricultural materials and the latter are hired as workers and process them.

The company provides continuous assistance to its members and finances projects (such as for instance the construction of new mills) to develop sugar cane cooperatives. In eighteen years of activity it has almost never lost its partners after their affiliation, given that only five people left the cooperative during all its history (two of them passed away and the remaining three emigrated). This implies that the survivorship problem in our data is negligible. Since its foundation in 1991 PFTC has constantly increased the number of its producers, even though the eligibility criteria and the recruitment process have never changed. Over time members have learned to work together for a common target: in the last years some groups have collectively bargained the rent of their lands with the landlords and succeeded in obtaining more favorable prices.

Furthermore, affiliation to the cooperative allows obtaining a higher and stable price than a person would obtain autonomously for two reasons: first, because PFTC pays a countercyclical mark-up on price to the farmers; second, because PFTC produces sugar and redistributes the extra profit among members.<sup>6</sup> In other

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<sup>6</sup> These characteristics allowed PFTC to gain access into the fair trade channel by obtaining the fair trade certification for their products. IFAT (the main association gathering producers and fair trading organizations) defines Fair Trade criteria as follows: i) Creating opportunities for economically disadvantaged producers; ii) Transparency and accountability; iii) Capacity building; iv)

words, while individually farmers would gain only from the sugar canes sales, as coop members they enjoy the additional gain from the production of the final product, the sugar. Not surprisingly, the slogan adopted is “five fingers, death punch”, to remind that being team players can generate “superadditive” results.<sup>7</sup> The cooperative has also thought the value of fairness since PFTC tries to distribute the benefits among farmers. For example, some parts of the processing of sugar and banana chips, which take only 3-4 months per year, are assigned to the members on a rotational basis.

To sum up, some of the most important features of the economic environment in which our experiment is held are consistent with the hypothesis we want to test. In the specific case of the Panay cooperative membership trains participants to trust in several ways. First the annual fee is provided by members under the expectation of (technical assistance, extra profit redistribution, financial) services from the cooperative. Second, there are delays between harvest and cooperative payments. Third, the same cooperative ethos and training are based on the slogan that membership cooperation allows to achieve higher results than acting on individual terms.

### 3. The research design

In what follows we describe the experiment design by sequentially focusing on the sampling scheme, the characteristics of the game, the matching procedure and its implementation.

#### *3.1 The sampling scheme prior to the experiment*

From the list of PFTC affiliated mascobado sugar producers (224 out of 350 total members, the remaining 126 producing bananas for the chips) in the two villages of Kamada and Jafaba, we randomly selected 150 famers. These individuals form the so-called “treatment group”. Similarly, we randomly selected from the same villages 150 farmers who are affiliated to neither cooperatives nor producer groups. We did so by choosing these producers from a list of names of farmers living close to treatment group farmers and thereby more likely to have similar characteristics (education, income, job, etc.). Given the restricted area considered for the experiment, this turned out to be extremely easy.

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Promoting Fair Trade; v) Payment of a fair price; vi) Gender Equity; vii) Working conditions; (*healthy working environment for producers. The participation of children (if any) does not adversely affect their well-being, security, educational requirements and need for play and conforms to the UN Convention on the Rights of the Child as well as the law and norms in the local context.*); viii) The environment; ix) Trade Relations. For characteristics and role of FT see Maseland and De Vaal (2002), Rueben (2008) and Hayes (2004).

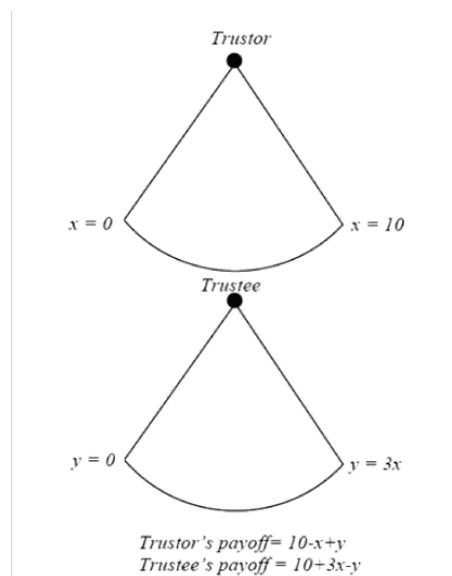
<sup>7</sup> Note that these specific characteristics make the cooperation/non cooperation choice, continuously renewed by producers, very similar in terms of payoff to that of the investment game. The main difference between the experiment and the actual cooperative life is that farmers do not play against an individual but against the cooperative. In spite of these substantial differences, the above considered similarities make quite reasonable the assumption that cooperative membership may be viewed as a trust and trustworthiness reinforcing device for members also in interpersonal investment games.

### 3.2 The standard trust game

Our experiment is based on a standard two-player Investment Game (Berg, Dickhaut and McCabe, 1995). At the beginning of the game both players are endowed with 10 tokens. The exchange rate is 1 token per 20 pesos which corresponds to around 0.3 Euros, since the average exchange rate between the two currencies during the experiment period (November 2009) was 65 pesos per Euro. Thus, the total amount provided at the beginning of the game was 200 pesos, equal to around 3 Euros. The maximum amount the trustor (trustee) can win in the game is 600 (800) Pesos, plus 10 (20) extra Pesos for surprise questions on first and second order beliefs (see the end of this section). These sums correspond to 80% (135%) of an average farmer's weekly salary. Hence, while in most investment games played by students in high income countries the money at stake is negligible, in this case it represents a significant amount leading us to presume that players take into account quite seriously the economic consequences of their strategies.

According to the standard version of the game, the first mover, the trustor, must decide how much of her endowment to send (choosing an integer between one and 10) to the second mover, the trustee. The amount sent is tripled when delivered to the trustee, who must decide how much of the tripled sum to send back to the trustee (Figure 1). Assuming that players have purely self-interested preferences, the subgame perfect Nash equilibrium of this game is the [do not send, do not respond] strategy vector.

Figure 1



In our experiment, we slightly modify the standard trust game to focus on the signalling effects which cooperative membership may generate on trust/trustworthiness. First, farmers do not play simultaneously but, according to an *ex-ante* matching procedure which allows both of them to play twice, once against a

counterpart who is member of the cooperative (*M-player* hereon) and once against a non-member (*NM-player*) (see section 3.3). Second, we adopt a *strategy method* for the trustees by eliciting their response conditional to any possible strategy chosen by the trustor. Third, we elicit trustors' first order beliefs and trustees' first and second order beliefs with surprise questions at the end of the rounds. Finally, at the end of the game, we ask players to motivate their choices (see section 3.4) and collect farmers' socio-demographic characteristics<sup>8</sup> which we use as additional controls in our empirical analysis.

### 3.3 The matching procedure

The 300 selected farmers are randomly divided into 150 trustors and 150 trustees keeping the proportion of an equal number of members and non members in each of the two roles; each individual plays twice (the round order is randomly alternated) so that the total number of rounds amounts to 300. Importantly, players maintain their role (trustee or trustor) in each of the two rounds which makes it possible to calculate within effects. The game is played in anonymity so that players do not know anything about their counterpart, except for the cooperative/non cooperative membership status revealed by the experimenter at the beginning of the game. More in detail, the 2x2 matching scheme is structured as follows:

- each of the 75 M-trustors is matched with i) an M-trustee; ii) an NM-trustee;
- each of the 75 NM-trustors is matched with i) an M-trustee; ii) an NM-trustee;
- each of the 75 M-trustees is matched with i) an M-trustor; ii) an NM-trustor;
- each of the 75 NM-trustees is matched with i) an M-trustor; ii) an NM-trustor.

		TRUSTEE		
		M	NM	Tot
TRUSTOR	M	75	75	150
	NM	75	75	150
	Tot	150	150	300

### 3.4 Implementation

The experiment is run by two experimenters, each of them accompanied by a local field-assistant. It consists of two parts, the trust game and a brief questionnaire with questions on qualitative and quantitative wellbeing. The game is carefully explained to participants through a series of standardized instructions (available in Appendix) which do not include simulations in order to avoid that players frame on some

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<sup>8</sup> Examples of studies based on this combination of classical surveys and experiments based on simple games are, among others, those of Glaeser et al.(2000) and Fehr et al. (2003).

specific solutions. In order to avoid confounding discount rate effects, each player knows that she will receive the payment according to her payoff from only one of the two rounds (randomly chosen) and at a 45 day distance from the interview. However, given the non-simultaneous structure of the game (and in order to avoid learning effects), neither the trustors nor the trustees know the exact payoff at the end of each round. The player is informed about the role she plays (*trustor or trustee*) throughout the whole game and - in each round - about the characteristics of her counterpart (i.e. M or NM player). The player then decides how much to *send* (if trustor) or *return* (if trustee) to the M-counterpart in the first round and the NM counterpart in the second round or – since the rounds are randomly alternated – to the NM-counterpart in the first round and the M-counterpart in the second round.

With regard to trustees we adopt the strategy method and ask in every round for their response strategy conditional to a given trustor contribution<sup>9</sup>. This approach, typically used in many investment games<sup>10</sup>, allows us to interview the trustees in a non-simultaneous framework and without a prior knowledge of the trustor's choice. Moreover, this modification provides us also with a more accurate insight about the overall trustee's strategy, which is not fully revealed when, on the contrary, in the standard investment game we just observe her response after the actual trustor's play.

At the end of the two rounds, players' beliefs are elicited through ex-post surprise questions on how much they believe the counterpart has actually *sent* (if trustee) or *returned* (if trustor). Consistently with the literature, we will refer to the answers to those questions as *first order beliefs* (FOB). With another surprise question we ask trustees' to guess what are the counterparts' beliefs about their strategy, that is, we elicit their *second order beliefs* (SOB)<sup>11</sup>. Answers on beliefs of both orders are remunerated by an additional payoff of 0.5 tokens (10 pesos) in case of correct guess<sup>12</sup>. Finally, at the end of the game, we ask both players to select which motivation among the four listed alternatives better explains their choices with respect to each round.

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<sup>9</sup> The question posed to elicit the trustees' strategies is: "*How much do you send back to the trustor if he sends to you 20 pesos? How much if he sends 40 pesos?...How about if he sends all her initial endowment of 200 pesos?*" (see Appendix).

<sup>10</sup> For a comparison of strategy and game methods see, among others, Brandts and Charness (2000), Cason and Mui (1998), Oxoby and McLeish (2004) and Brosig et al. (2003).

<sup>11</sup> We try to formulate the SOB question as simply as possible and repeat it at the end of the game for each of the two rounds. The formulation is: "*in your opinion, how much the trustor thinks you will actually send back to her?*"

<sup>12</sup> The literature is mixed on the use of point or interval elicitation of beliefs (see Blanco et al., 2008). Both of them have pros and cons. The limits of point elicitation is that players may be discouraged to identify the correct guess when too many alternatives are provided. The limits of interval elicitation of beliefs is that it leads to strategic use of beliefs. Consider a case in which the range of the possible counterpart choices is  $x \in [A, B]$  and the bonus is given if the deviation between belief and choice is not larger than  $\pm \gamma$ . If a player's point guess of the counterpart choice is  $B$  (the upper interval of player's choices), it is better to declare  $B-\gamma$  rather than  $B$ . As a consequence it can be typically observed an abnormal peak at  $B-\gamma$  in the distribution of beliefs and this will make difficult to interpret the belief distribution. We opted for point elicitation of beliefs to avoid strategic elicitation and because the range of possible answers is not too large. Our choice is further motivated by the fact that agricultural producers are expected to be less familiar with math and probabilities (and therefore with interval elicitation) than University students.

We use those self-reported answers as an additional source of information about the potential determinants of the players' strategy<sup>13</sup>.

#### 4. Theoretical framework

The theoretical framework is based on standard signaling models with asymmetric information on player's type. Our population is composed by Bad (B) and Good (G) types differing in their degree of trust and trustworthiness. As in the standard two player trust game, trust is defined as the amount of money a trustor sends to an unknown trustee; we define this quantity as  $c^{Tr} \in [0,1]$  (i. e. contribution of the trustor) and assume  $c^{Tr}_G > c^{Tr}_B$ . Similarly, trustworthiness is defined as the amount of money returned by a trustee in a trust game, that is  $c^{Te} \in [0,1]$ , under the assumption that  $c^{Te}_G > c^{Te}_B$ . We finally assume that the degree of trust and trustworthiness are individuals' private information.

##### 4.1 Trustors

The trustor does not know the trustee type and tries to guess her level of trustworthiness on the basis of a signal  $s \in [0,1]$ . The signal is the membership status to a cooperative ( $s_M$  if the counterpart is a member and  $s_{NM}$  when she is a non member). The crucial assumption here is that trustee's cooperative membership is a signal of being a G-type player, that is,  $P [c^{Te}_G | s^{Te}_M] > P [c^{Te}_B | s^{Te}_M]$ . Hence, if we define  $b^{Tr}$  the trustor's first order beliefs on trustee's contribution with  $b^{Tr} \in [0,1]$ , we have that that  $b^{Tr} | s^{Te}_M > b^{Tr} | s^{Te}_{NM}$ , given the previously defined inequality in probabilities and since  $c^{Te}_G > c^{Te}_B$ .

##### 4.2 Trustees

Since we adopt a *strategy method* in the game the trustee does not know the trustor type nor she can infer it from the actual amount received. As described in the experiment design (section 3 and footnote 11), we ask trustees for their response strategy to all the (ten) *possible* amounts of money trustors might send. For this reason, the trustee has to decide how much money to return to the trustor without knowing ex-ante the level of trust of the latter. Trustees also receive the signal  $s$  based on trustor's cooperative membership which may mitigate such an asymmetric information problem. We define  $b_I^{Te}$  as the trustee's first order belief on trustor's contribution, with  $b_I^{Te} \in [0,1]$ . We also define  $b_{II}^{Te}$  as the trustee's second order belief (her belief on what the trustor expects from her), with  $b_{II}^{Te} \in [0,1]$ . From what considered above it comes that

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<sup>13</sup> Consistently with the pattern of the main motivations identified in the literature we selected *i) trust; ii) strategic altruism; iii) inequity aversion; iv) pure altruism* as determinants of trustor's strategy and *i) trustworthiness; ii) inequity aversion; iii) pure altruism; iv) (positive or negative) reciprocity* as determinants of trustee's strategy.

- i) when the trustee knows that the trustor is a member (M) of a cooperative, she should expect more money than when she knows trustor is a non-member (NM), or  $b_I^{Te} | s_M^{Tr} > b_I^{Te} | s_{NM}^{Tr}$  since  $P [c_G^{Tr} | s_M^{Tr}] > P [c_B^{Tr} | s_M^{Tr}]$  and  $c_G^{Tr} > c_B^{Tr}$
- ii) when the trustee knows that the trustor is a member of a cooperative (M), she should believe trustor expects more money from her than when she knows trustor is a non-member (NM). In other words, trustees should believe M-trustors expect more from them than what NM trustors do, or  $b_{II}^{Te} | s_M^{Tr} > b_{II}^{Te} | s_{NM}^{Tr}$  since, from section 4.1, they know that  $b^{Tr} | s_M^{Te} > b^{Tr} | s_{NM}^{Te}$ .

### 4.3 Hypothesis testing

The above mentioned theoretical framework and the discussion on the cooperative membership induces us to formulate two sets of hypotheses:

1) Independently of their own membership status, players' contributions and beliefs are *indirectly* influenced by the cooperative membership status of the counterpart (*signalling effect*):

a) Trustor contribution	$H_{0A}: c^{Tr}   s_M^{Te} = c^{Tr}   s_{NM}^{Te}$	vs.	$H_{1A}: c^{Tr}   s_M^{Te} > c^{Tr}   s_{NM}^{Te}$
b) Trustor first order belief	$H_{0B}: b^{Tr}   s_M^{Te} = b^{Tr}   s_{NM}^{Te}$	vs.	$H_{1B}: b^{Tr}   s_M^{Te} > b^{Tr}   s_{NM}^{Te}$
c) Trustee contribution	$H_{0C}: c^{Te}   s_M^{Tr} = c^{Te}   s_{NM}^{Tr}$	vs.	$H_{1C}: c^{Te}   s_M^{Tr} > c^{Te}   s_{NM}^{Tr}$
d) Trustee first order belief	$H_{0D}: b_I^{Te}   s_M^{Tr} = b_I^{Te}   s_{NM}^{Tr}$	vs.	$H_{1D}: b_I^{Te}   s_M^{Tr} > b_I^{Te}   s_{NM}^{Tr}$
e) Trustee second order belief	$H_{0E}: b_{II}^{Te}   s_M^{Tr} = b_{II}^{Te}   s_{NM}^{Tr}$	vs.	$H_{1E}: b_{II}^{Te}   s_M^{Tr} > b_{II}^{Te}   s_{NM}^{Tr}$

2) Independently of the information on counterparts' membership status, players' contributions and beliefs are *directly* influenced by their own cooperative membership status (*cooperative membership effect*):

f) Trustor contribution	$H_{0F}: c^{Tr}   s_M^{Tr} = c^{Tr}   s_{NM}^{Tr}$	vs.	$H_{1F}: c^{Tr}   s_M^{Tr} > c^{Tr}   s_{NM}^{Tr}$
g) Trustee contribution	$H_{0G}: c^{Te}   s_M^{Te} = c^{Te}   s_{NM}^{Te}$	vs.	$H_{1G}: c^{Te}   s_M^{Te} > c^{Te}   s_{NM}^{Te}$

As already motivated in the introduction, we are mainly interested in identifying and explaining the signalling effect and isolate it from the direct cooperative membership effect.

## 5. Descriptive findings

Sample statistics reported in Table 1 show that participants to the game are aged on average 50 and have 15 years of job experience. Average income is around 45,000 pesos per year. In addition, 30 percent of respondents are women, about 80 percent of them are married and the median number of household's members is 5. Mean and standard errors presented in Table 2 document that members and non members do

not differ significantly in terms of gender, income, education and job experience even though on average members are more likely to be women and have higher income and fewer years of job experience. Consider as well that the same characteristics are introduced as controls in our econometric estimates and are never significant on dependent variables (see section 6).

Descriptive statistics on trustors' contributions are broadly consistent with the signaling hypothesis. *Both member and non member trustors give more to member than non member trustees.* The difference for member trustors is 87.2 against 52.07 pesos, while that for non member trustors is 61.73 against 49.6 pesos. Such difference finds correspondence in trustors' expectations on trustees' responses (Table 3.1). Non member trustors expect 94.93 against 72.4 respectively from members and non members, while the same two numbers are 134.47 and 44.87 for member trustors. Regardless of the member/non member status of trustees, member trustors give more (69.93 against 55.66) and expect more (89.6 against 83.6) than non members.

When it comes to hypothesis testing, parametric and non-parametric tests on the equality of means confirm that trustors give (and expect) more when their counterpart is a member; hypotheses  $H_{0A}$  and  $H_{0B}$  formulated in section 3 are therefore rejected in favour of the alternatives (rows 1a-b, 2a-b in Table 3.2). Member trustors give significantly more than non member trustors, thus hypothesis  $H_{0F}$  is rejected in favour of the alternatives (rows 3a and 3b in Table 3.2). Hence, these parametric and non parametric tests highlight the statistical significance of both the cooperative membership and signalling effects on trustor's behaviour.

In commenting trustees descriptive statistics we must bear in mind that they are drawn from strategy method responses (and, as a consequence, we calculate them as averages of player's conditional responses to each of the ten possible trustor contributions). Such statistics document an *in-group bias* with member trustees giving more to affiliated trustors (186.69 vs. 158.22) and non member trustees giving more to non member trustors (176.05 vs. 167.24) (Table 4.1). Consider as well that what member trustees return to non member trustors is less than what non members return to non members (158.22 vs. 176.05).<sup>14</sup>

As shown in Table 4.2 rows 1a and 1b, the average difference between the amount trustees return to member trustors and the one returned to non member trustees is statistically significant in parametric tests (p-value 0.041) but not in the non parametric ones (p-value 0.099). Thus,  $H_{0C}$  is rejected at 95% confidence level only in parametric tests. Results from both parametric and non parametric tests run on first and second order trustees' beliefs (reported in Table 4.2 rows 2a-b and 3a-b) are consistent with our signalling argument --- $H_{0D}$  and  $H_{0E}$  are rejected in favour of the alternatives.

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<sup>14</sup> This in group bias contrasts the idea that the information on players membership creates a frame which induces in every player, whatever her type, higher trust on member trustees. It is also at odd with the hypothesis that cooperatives select more trustworthy types.

In order to test hypothesis  $H_{0G}$  and to verify whether trustees' response matches with trustors' expectations (first order beliefs), we run additional parametric and non parametric tests on the difference between the average amount returned by a member trustee and the one returned by a non member trustee. Surprisingly, we find this difference is not statistically significant (Table 4.2 rows 4a and 4b). This implies that i) there is no statistical evidence of cooperative membership effects on trustees' behavior (we cannot reject hypothesis  $H_{0G}$ ) ii) the behavior of affiliated trustees does not meet non member trustors' expectations since member trustees do not return on average significantly more than non member trustees (independently of trustor membership status).

The last finding may be due to the fact that trustees return depends not only on their own membership status but also on the trustors' one. In other terms, both the direct (membership) and indirect (signalling) cooperative effects play a role in determining trustee's behavior. In fact, descriptive statistics reported in Table 4.1 highlight an *in-group bias* in the average amount returned by trustee. Additional parametric and non parametric tests support this evidence, showing that member (non member) trustees return on average significantly more to member (non member) trustors than non member (member) trustees do (Table 4.2, rows 4a'-a'' and 4b'-b'').

In essence, descriptive statistics provide evidence consistent with the signalling hypothesis concerning trustors' contributions and expectations on trustees' responses, trustees' first and second order beliefs and member trustees' responses *only toward member trustors*. Therefore, our experiment reveals that the observed *payoff enhancing effect of membership* (members' higher trust and trustworthiness and higher expected members' trust and trustworthiness from all players) finds a potential limit in the behavior of member trustees versus non member trustors. Unless we think that member trustees' choices are due to an end game behavior<sup>15</sup> and won't be the same in repeated games (beyond the scope of our experiment), such choices would lead non member trustees to revise their expectations in the following stages, thereby reducing their trusting attitude.

Consider that the significant effects found in hypothesis testing can be explained by both direct and reverse causality (i.e. trust and trustworthiness are (or are expected to be) associated with membership because membership reinforces them or just because they increase the probability of gaining membership). Econometric analysis will help us to isolate the signalling effect from the cooperative membership effect and to understand whether such associations are robust to the inclusion of additional controls such as demographic variables, market exposure and affiliation years. Furthermore, by looking at within effects (differential sending and expecting behavior of players when playing with members versus non members) we will have a stronger proof of the effect of counterpart membership on players' strategies.

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<sup>15</sup> In such case it should be also explained why the opportunistic end game behaviour occurs only with non member players.

## 6. Econometric findings

Even though we already tested our hypotheses, econometric estimates add relevant information and important insights on: i) the robustness of our results to the introduction of additional controls which may have affected them; ii) the importance of the framing effect in explaining what we found.

### 6.1 *Trustors's contribution*

In our base estimate on trustors we introduce as explanatory variables of the amount sent the usual controls of gender, age, education, marital status, total income and number of people living in the household (the combination of the last two variables provides a proxy of available per capita income in the household).<sup>16</sup> To these variables we add years of job experience. What we find in this first estimate is that any additional year of job experience rises by around .5 percent the amount sent (Table 5, column 1). The result is important since it is clearly not affected by framing effects given that years of job experience are known only to experimenters from the survey questionnaire and not to counterparts. What we observe here is that farmers with longer job experience (and presumably market exposition), net of the income effect which might also be correlated with job experience, display higher trust (Table 5, column 1).<sup>17</sup>

We do not know whether this association comes from i) a survivorship effect (only farmers with higher trust and therefore more confident to realize market transactions in a framework of asymmetric information and incomplete contracts survive in the market); ii) an original selection bias by which only individuals with higher trust choose this job<sup>18</sup> or, alternatively, iii) the fact that years of job experience and market exposition have increased their propensity to trust. Consider however that the verified very limited number of voluntary exits (3 people, see section 2) reduces the plausibility of the first interpretation. What we however observe with certainty is that farmers with more job experience are currently able to trust more their counterparts and that, as a consequence, such farmers create more economic value, provided that behavior in the field experiment is consistent with real life behavior and economic activity has the characteristics (positive effect of trust on economic value) of the investment game.

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<sup>16</sup> Pairwise correlations among age, job experience and affiliation years are very low (between .20) and make us confident that the variables catch different and non collinear effects (evidence is omitted and available upon request).

<sup>17</sup> Our result is in line with findings from Heinrich et al. (2010) documenting that the degree of market exposition significantly affects players' responses in a trust game implemented in 15-small communities all over the world.

<sup>18</sup> Or better, choose to remain in the area without migrating since all people in the area in which we perform our inquiry are farmers.

In our second specification, we control for the direct cooperative membership effect by adding a dummy with unit value if the trustor is member of the cooperative and zero otherwise (Table 5, column 2). The dummy is strongly positive and significant (the magnitude of the effect is 16 pesos) while the significance of the effect of job experience persists. In a third specification we isolate the indirect cooperative effect (signalling) by adding a dummy equal to one if the trustee is member of the cooperative (Table 5, column 3). Note that the significance and magnitude of the trustor and job year effects is unchanged while the trustee's status is positive, significant and large in magnitude (24 pesos).

*This result support our main hypothesis that cooperative memberships has an indirect signalling effect (captured by the trustee dummy), net of its direct one (captured by the trustor dummy), with positive impact on the investment game payoff.* Moreover, the larger coefficient of the trustee dummy relative to that of the trustor dummy highlights the greater impact of the signalling effect relative to the cooperative membership one.<sup>19</sup>

Next, and to verify further that the trustor's direct membership effect is not entirely explained by framing, we drop the trustor's member dummy and replace it with the number of affiliation years (Table 5, column 4). This variable (affiliation years) is not part of the details revealed to players during the experiment. What we find is that each year of trustor's cooperative affiliation is significant and adds 1.2 pesos to what the trustors send.<sup>20</sup> More importantly, when we introduce the trustee's status dummy (Table 5, column 5) we find that the signalling effect captured by such dummy is still robust to the alternative measure of the direct cooperative effect (i.e. the length of trustor's affiliation to the cooperative).

Our final check aims to test the impact of the interaction between the direct and indirect (signalling) cooperative effect on trustor's contribution. We therefore add to the specification in column 3 of Table 5 an interaction (*Trustortrustee*) term between the trustee and trustor membership dummies. We find that i) the matching between two affiliated players positively affects trustors' contribution, ii) the signalling effect (captured by the coefficient on the *Trustee* dummy) is still significant but lower in magnitude iii) the direct

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<sup>19</sup> Note as well that the presence of a framing effect does not imply that the revelation of trustee's cooperative status does not have consequences in farmer's economic life. The fact that a trustor reacts with more trust to information about cooperative status of the counterpart means that in her mind cooperative affiliation is a trustworthiness increasing factor. Furthermore, if focusing on the cooperative status of the counterpart leads players to trust others significantly more, this implies that such framing mechanism may be replicated in real economic life. In the usual framework of asymmetric information and implicit contracts, even in the worst informative case of anonymity, the cooperative status may become a signal of trustworthiness in economic transactions, thereby helping to create more economic value. Following what considered in section 2, the rationale for it is that cooperative affiliation is likely to be perceived by a business counterpart as a signal of capacity to be part and survive in a system of rights and obligations in which the producer demonstrates trust and trustworthiness.

<sup>20</sup> We tried a quadratic specification to check for nonlinear effects of affiliation years but the specification was not significant. We also checked if there are differences on observables (age, education, age at the affiliation year) between young and old affiliated and did not find them. Results are omitted for reasons of space and available upon request.

cooperative membership effect (captured by the coefficient on the *Trustortype* dummy) is no longer significant (Table 5, column 6).

We can interpret the interaction of the two effects as the (trust and trustworthiness induced) value added of the matching between two cooperative members. Moreover, the last regression also shows that part of the signalling effect survives, net of its interaction with direct membership; conversely, the direct membership effect seems less robust since it plays a role only through its interaction with the signalling effect.

To conclude with, trustor findings are supportive of our signalling hypothesis and the value creating effects of cooperative membership (if the asymmetric information setting of the experiment works also in the real economic life and business relationships take the form of trust games). Moreover, they also highlight the superior impact of the former relative to the latter.<sup>21</sup> As already discussed, causality cannot be established directly from these findings (neither it is important for our main signalling result) but some elements support the direct causality nexus: membership criteria have not changed overtime, survivorship bias is almost inexistent given the negligible number of voluntary exits from the cooperative, our method for selecting control producers reduces heterogeneity between treatment and control sample and additional regressors control for the remaining heterogeneity.

## 6.2 Strategic trust (but not only...)

As we know from the trust game literature the contributing behaviour of trustors may depend on various preference forms such as strategic altruism (based on beliefs about other people's trustworthiness),<sup>22</sup> (standard) risk aversion preferences, social risk preferences (betrayal aversion)<sup>23</sup> and various forms of social preferences (inequity aversion, pure altruism, desire of surplus maximization)<sup>24</sup> (Fehr, 2009). We address this point by estimating specifications in which expectations of response from the trustee are regressed on a set of potential determinants of trustor's contribution.

The signalling effect here is very strong. Trustors expect up to 57 points more from member trustees (Table 6, column 3). However, each additional year of cooperative affiliation for trustors lead them to expect 1.9 points more from the trustee (Table 6, column 4) and the result is robust to the trustee type effect.<sup>25</sup> Since each affiliation year implies a 1.25 effect on trustor's contribution (Table 5, column 5), strategic altruism may

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<sup>21</sup> Framing plays a role in these results but cannot explain everything (and, more specifically, the significant effect of trustor membership and that of affiliation years).

<sup>22</sup> The presence of strategic altruism is not rejected if trustors who have given more expect significantly more from trustees.

<sup>23</sup> See Bohnet et al. (2008).

<sup>24</sup> See Charness and Rabin (2002), Engelmann and Strobel (2004) and Fehr, Naef and Schmidt (2006).

<sup>25</sup> Note that affiliation is not significant if we replace years of affiliation with the dummy. This may be explained by the fact that expectations crucially grow with affiliation years.

thereby be considered a main driver of the extra contribution provided by affiliated trustors which expect that such extra contribution will be profitable for her.

Note that years of job experience are not significant in this estimate. This implies that workers with higher job experience give more even though they do not believe that trustees will give more to them. This implies that rationales for their behaviour must be found elsewhere (producers with higher job experience may be less risk or betrayal averse, may be more purely altruistic or less inequity averse, or may have a higher preference for surplus maximization). By regressing declared motivations on our standard set of controls we actually find that years of job experience affect positively and significantly pure altruism.<sup>26</sup> Finally, the value added of the interaction between a member trustor and a member trustee we found when looking at trustor's contribution is confirmed also in terms of trustor's expectations (Table 6, column 6).

### *6.3 Trustor's differential sending and expecting*

What we measured so far is a between effect. As we know from our experiment design (section 3) each farmer in the game plays twice (with a cooperative member and non member trustee). We can therefore verify whether the between effects commented in sections 5, 6.1 and 6.2 are confirmed by a within effect in which player characteristics are, by definition, invariant.<sup>27</sup> In the regression results presented in Table 7 (columns 1 and 2) our dependent variable is the difference in the amount sent by the same trustor when playing with an affiliated versus a non affiliated trustee. What we observe here is that both trustor's status and affiliation years have a positive and significant effect. This result identifies another "bonding channel" by which the trustor member status and seniority widens the gap between her contribution to a member versus non member trustee. In other words, the signalling effect is amplified by the membership status of the trustor. This implies that the trust potential of membership is stronger within the cooperative boundaries than outside them.

Here again, if we consider the magnitude of the observed effects with those obtained in estimates in which the difference in sending is replaced by the difference in expecting (where both trustor's affiliation and affiliation years are significant as well, see Table 7, columns 3 and 4), we find that member trustors expect that their differential sending will pay since coefficients of differences in expectations are higher than those of differences in sending (76.52 against 28.32 in the specification with the dummy for trustor status and 6.763 against 1.695 in the specification with trustor affiliation year for each year of cooperative membership).

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<sup>26</sup> Results are omitted for reasons of space and available upon request.

<sup>27</sup> The sequence of the two games is randomised to avoid time order and learning effects.

To conclude with, while preference heterogeneity and selection bias may be consistent explanations for *between effects* of the direct cooperative membership (affiliated trustors may give more because they are less risk averse, more altruist, are less betrayal averse, are more inequity averse, etc. than non affiliated), they cannot explain *within effects*<sup>28</sup> since, in the latter, players characteristics are fixed (at least, we may assume, in the short run) and the change in the counterpart characteristics is what drives the result. However, as already discussed, independently of what can bias direct cooperative membership effects, the signalling impact of cooperative membership is still confirmed.

#### 6.4 Trustee's response

A first important point when analysing trustee's response is that the trustee affiliation status is not significant while the trustor status is (Table 8, column 3). In other words, what explains most of the variation in the trustee's response is the indirect cooperative membership effect (signalling) rather than its direct effect. This has two consequences. First, the extra trust of non member trustors on member trustees (net of the trustor status effect) is not corresponded. Second, the suspect that the excess trust of affiliated trustors might be generated by a social norm for which all (trustors and trustees) affiliated farmers are expected to behave more generously does not find correspondence in the behavior of trustees which do not follow the same rule.

A third issue to which we may be interested in is whether the excess trust of affiliated trustors versus affiliated trustees is fully reciprocated by affiliated trustees playing versus affiliated trustors. The answer is negative since games in which both players are affiliated generate an extra contribution from the trustor of 24 points (Table 5, column 6) against an extra response of the trustee of 11.4 points (controlled or not for the trustor status dummy) (Table 8, column 6). If we do not believe that trustors are purely altruistic the interpretation is that the hope of being reciprocated leads affiliated trustors to overestimate affiliated trustees' response. In addition, results on trustee's response from the specification of Table 8 column 6 mirror those on trustor's contribution from the specification of Table 5, column 8. This means that also when looking at trustees' behaviour, the signalling effect of trustors' membership status is stronger and more robust than the direct effect of their own cooperative membership. The latter, in fact, seems to play a role only when member trustee knows she is matched with a member trustor.

Consider however that the comparison between trustor and trustee is only indicative because trustees' contributions are measured with the strategy method and therefore represent an unweighted average of trustee's contributions conditional to trustors contributions. The average trustee's contribution recorded

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<sup>28</sup> This is true unless we assume complex structure of counterpart dependent preferences.

with the strategy method would therefore correspond to her unconditional contribution only if the trustors assign to each of the ten possible trustor contributions the same probability.

Last but not least, when we estimate trustees' responses conditional to each of the possible trustors' contributions we find that the trustor status effect is significant only for trustors contributions below average (Table 9). If we split the sample into member and non member trustees we find that the result is driven by member trustees.<sup>29</sup> This seems to reveal that trustees do not want to reciprocate negatively other members.

### *6.5 First and second order trustee's beliefs*

Table 10 illustrates how trustee type, trustees' affiliation years and trustor type contribute to explain trustees' FOB. We find that the superior effect of the signalling hypothesis relative to the direct effect of trustee's membership status is confirmed also here. In brief, trustees expect member trustors to have sent more in comparison with non member trustors. The impact that signalling trustor's membership status plays on trustee's expectations is robust also when controlling for the additional positive effect of trustee's membership status and affiliation years (both of which capturing the direct membership effect). The effects of trustor and trustees membership on trustee's first order beliefs are respectively of around 29 and 22 pesos. When we replace the trustee status dummy with affiliation years any additional affiliation year of the trustee contributes with around 3 pesos. These results mirror those on trustors contributions and therefore tell us that trustees' first order beliefs are roughly correct (or do not err systematically). Here again the significance of the trustee status and of trustee affiliation years weaken the possibility that all the effect is due to framing.<sup>30</sup> Consistently with what we have found so far, the signalling effect of trustor's membership on trustee's FOBs is also robust to the introduction of an interaction terms for both players' membership status; conversely, the direct effect of trustee's cooperative membership is not robust to this check (Table 10, column 6)

When we look at trustees' SOB (Table 11) we find that trustor type matters while trustee type does not, thus confirming the superior robustness of the signalling effects. In fact, the presence of a direct effect of trustee's cooperative membership on their own SOBs is confirmed only when we control for years of cooperative affiliation rather than the trustee membership dummy (Table 11, columns 4-5). We find that any additional affiliation year increases trustees' beliefs on how much trustors expect from them. This implies

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<sup>29</sup> Findings are omitted for reasons of space and available upon request.

<sup>30</sup> This is true unless we imagine very complex framing effects in which the trustee expects that the experimenter expects her to reciprocate more the higher the number of affiliation years. Consider as well that, given the relevance of the sums at stake (see section 3.2), it is difficult that players do something which is against their self interest.

that the longer trustees are affiliated, the more they believe that member trustors will expect from them.<sup>31</sup> However, the direct cooperative membership effect seems to play a role only through its interaction with the signalling effect, again confirming the superior robustness of the latter relative to the first and the added value of member players' matching on trustees' SOBs (Table 11, column 6).

If we put these facts together we have an important rationale for the bonding behaviour of trustees (giving more to affiliated trustors) since we find that *trustees' affiliation affects indirectly their trustworthiness via second order beliefs*, even though it does not affect it directly (trustees' affiliation is not significant on trustees response). In essence, the higher contribution of member trustees to member trustors is in part driven by the fact that they expect that member trustors expect more from them. Put in other terms, we may say that trustees reciprocate (do not want to betray) what they assume are the higher expectations of member trustors on them.

## 7. Conclusions

Our paper tests with a field experiment whether cooperative membership is a trust and trustworthiness reinforcing device. More specifically, we have in mind the following two channels i) cooperative membersexhibit higher trust and trustworthiness levels (direct cooperative membership effect) and – more importantly - ii) members of cooperatives by just signalling their membership status can stimulate more trust and trustworthiness from their counterparts (indirect cooperative membership effect).

If the two channels work and economic outcomes of real life business relationships have the characteristics of trust investment games (their payoffs are enhancing in trustor's trust), cooperative membership has positive effects on the creation of economic value.

Our findings are mixed and find confirmation of the superior impact (and robustness) of the signalling effect relative to the direct membership status. In particular, we find that trustors give more if they are coop members and expect more from member trustees. Trustees expect more from member trustors (first order beliefs) and believe that trustors expect more from them if they are members (second order beliefs).

Such findings may be partially due to a framing effect (the information revealed by the experimenter on the counterpart status may affect their choices) but not only to it given the presence of the direct cooperative membership effects (for example, member trustors give more irrespective of the trustee status and trustors affiliation years positively affect their contributions). Importantly, when looking at trustee's behaviour, we

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<sup>31</sup> In the latter case there is no frame: affiliation years are unknown to the trustor, but known to the trustee: so differences in SOBs, are not uniquely driven by information deliberately made salient by the experimenters to trustors on trustee's affiliation years.

find this is only driven by the signalling effect and not by the direct cooperative membership one. In fact, (independently of the trustors' membership status) member trustees do not give more as expected from trustors (and as they assume trustors expect from them). More specifically, with our econometric analysis we identify an *in group bias* in trustees contributions where members (non members) give more to members (non members). We also provide an interesting rationale for this behaviour: as documented by our econometric findings trustees affiliation years affect their second order beliefs and member trustees believe that member trustors expect more from them. *In a sense, trustees, by giving more to member trustors, reciprocate the higher expectations they believe member trustors have toward them.*

Our final conclusion is that this “bonding” element may be an obstacle in a repeated game framework to the capacity of coop membership in being a trust and trustworthiness reinforcing (and a payoff enhancing) device. Disappointed trustors are in fact not likely to repeat their optimistic view on member players in the following stages of the game or of a real life economic relationship if the behaviour of member trustees is unchanged in such scenario. We may of course think that this aspect of trustees strategy is an end game behaviour which would not be enacted in a repeated game horizon. However the question remains on why, in spite of anonymity, trustees' behaviour is more opportunistic versus non members than members. The moral obligation to reciprocate the higher expectations of member trustors mentioned above may be an answer.

A confirmation that the trust and trustworthiness potential of cooperative membership is stronger between members than outside the coop circle is that membership status and seniority widen trustors' differential sending (that is, the difference in trustor contributions to member versus non member trustees). These two final results lead us to conclude that, irrespective of the causality nexus between the two variables which is difficult to ascertain, can affect the proper identification of a direct membership effect and goes behind the scope of our paper, indirectly signalling trust and trustworthiness through cooperative membership seems to work in a robust and superior way. In other terms, cooperative membership is a signal which produces trust and trustworthiness effects even though such effects appear stronger within (albeit not limited to) the cooperative circle.

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## Variable Legend

Variable	Description
<i>Age</i>	Respondents' Age
<i>TotIncome</i>	Total monthly family income in pesos (monthly income from all the respondent's activities + monthly income from all the activities of respondent's partner + contributions by other members living in the household)/100,000.
<i>Job Experience</i>	Respondent's years of experience in the main activity
<i>Savings/month</i>	Respondent's monthly savings (in pesos)
<i>People in house</i>	Number of household members
<i>Education</i>	Respondent's years of education
<i>Female</i>	Dummy = 1 if respondent is female
<i>Trustortype</i>	Dummy = 1 if the trustor is a member of the cooperative
<i>Trusteetype</i>	Dummy = 1 if the trustee is a member of the cooperative
<i>Trustortrustee</i>	Dummy = 1 if both trustor and trustee are members of the cooperative
<i>AffilYears</i>	Years of uninterrupted membership to the cooperative (affiliation years)
<i>Kamada</i>	Dummy = 1 if respondent lives in the village of Kamada

**Table 1 – Summary statistics of Socio-Demographic and Economic Variables**

Variable	Obs	Mean	Std. Dev.	Min	Max
<i>Age</i>	300	50.91667	32.23124	17	567
<i>Female</i>	300	.3166667	.4659534	0	1
<i>Married</i>	300	.8066667	.3955719	0	1
<i>Job_Experience</i>	288	15.12153	11.35594	1	52
<i>Education</i>	300	8.093333	2.626968	0	16
<i>TotIncome</i>	300	0.6098216	0.4858379	0.001	0.562
<i>People in house</i>	298	4.721477	1.912111	1	11

**Table 2 – Descriptive statistics by cooperative membership**

Variable	Obs	Only Members				Only Non-members				
		Mean	Std. Dev.	Min	Max	Obs	Mean	Std. Dev.	Min	Max
<i>Age</i>	150	50.62	12.91982	17	86	150	51.21333	43.79016	19	567
<i>Female</i>	150	.4	.4915392	0	1	150	.2333333	.4243695	0	1
<i>Married</i>	150	.7866667	.4110335	0	1	150	.8266667	.3798033	0	1
<i>Job Experience</i>	140	12.67857	11.60518	1	52	148	17.43243	10.64719	3	50
<i>Education</i>	150	8.4	2.672254	0	16	150	7.786667	2.553026	1	14
<i>TotIncome</i>	150	0.6657318	0.5836896	0.01	0.562	150	0.5539113	0.3559125	0.115	2.04
<i>People in house</i>	149	4.825503	2.049164	1	11	149	4.61745	1.765271	1	11
<i>Affil_years</i>	150	7.213333	5.014859	2	30					

**Table 3.1 - Trustor's contributions and expectations**

Trustor		Trustee		Total
		NM	M	
NM	Sent	49.6	61.73	55.66
	Expected	72.4	94.93	83.67
M	Sent	52.07	87.2	69.63
	Expected	44.87	134.47	89.67
Total	Sent	50.83	74.47	62.65
	Expected	58.63	114.7	86.67

Note: the upper left cell reports the amount in pesos sent by non member trustors to non member trustees.

**Table 3.2 - Hypothesis testing on trustors' contribution and beliefs**

Test type	Average difference	z- stat	p-value
PARAMETRIC TESTS			
1a) trustor's contribution to a M vs. a NM trustee	23.63		(0.000)
2a) trustor's expectation from a M vs. a NM trustee	56.06		(0.000)
3a) contribution of a M vs. a NM trustor	13.96		(0.001)
NON PARAMETRIC TESTS [Wilcoxon rank-sum equality test]			
1b) trustor's contribution to a M vs. a NM trustee		-5.658	(0.000)
2b) trustor's expectation from a M vs. a NM trustee		-6.751	(0.000)
3b) contribution of a M vs. a NM trustor		2.412	(0.016)

**Table 4.1—Trustee’s response, I and II order beliefs**

Trustee		Trustor		All sample
		NM	M	
NM	Response	176.05	167.24	171.65
	I belief	40.7	59.2	49.9
	II belief	68.33	89.6	78.97
M	Response	158.22	186.69	172.46
	I belief	50.13	89	69.57
	II belief	76.2	131.67	103.93
All sample	Response	167.14	176.96	172.05
	I belief	45.37	74.1	59.73
	II belief	72.27	110.63	91.45

Note: the upper left cell reports the non member trustee’s average conditional response to non member trustors’ contributions. The second and third line non member trustors first and second order beliefs respectively.

**Table 4.2 -Hypothesis testing on trustee’s response, I and II order beliefs**

Test type	Average difference	z- stat	p-value
PARAMETRIC TESTS			
1a) trustee’s response to a M vs. a NM trustor	9.82		(0.041)
2a) trustee’s I order belief about M vs. a NM trustor	28.73		(0.000)
3a) trustee’s II order belief about M vs. a NM trustor	38.36		(0.000)
4a) response of M vs. a NM trustee	0.81		(0.443)
4a') response of M vs. a NM trustee to a M trustor	19.45		(0.005)
4a'') response of M vs. a NM trustee to a NM trustor	-17.83		(0.015)
NON PARAMETRIC TESTS [Wilcoxon rank-sum equality test]			
1b) trustee’s response to a M vs. a NM trustor		-1.647	(0.099)
2b) trustee’s I order belief about M vs. a NM trustor		-7.007	(0.000)
3b) trustee’s II order belief about M vs. a NM trustor		-5.376	(0.000)
4b) response of M vs. a NM trustee		0.041	(0.968)
4b') response of M vs. a NM trustee to a M trustor		-2.408	(0.016)
4b'') response of M vs. a NM trustee to a NM trustor		2.319	(0.02)

**Table 5. Trustors' contributions**

Dep. Var.. <i>amount sent by trustors</i>	(1)	(2)	(3)	(4)	(5)	(6)
Age	-0.00618 (0.0324)	-0.00322 (0.0266)	-0.00322 (0.0267)	-0.00492 (0.0283)	-0.00492 (0.0284)	-0.00322 (0.0267)
Female	2.752 (7.704)	1.653 (7.475)	1.653 (7.488)	2.434 (7.606)	2.434 (7.620)	1.653 (7.502)
Married	-5.864 (10.06)	-2.719 (10.51)	-2.719 (10.53)	-4.679 (10.02)	-4.679 (10.04)	-2.719 (10.55)
Job Experience	0.578* (0.313)	0.656** (0.318)	0.656** (0.318)	0.513* (0.309)	0.513* (0.309)	0.656** (0.319)
Kamada	13.86* (8.186)	4.174 (9.750)	4.174 (9.767)	3.413 (8.064)	3.413 (8.078)	4.174 (9.785)
Education	1.516 (1.607)	1.238 (1.590)	1.238 (1.592)	1.389 (1.552)	1.389 (1.554)	1.238 (1.595)
TotIncome	-0.811 (5.04)	-4.44 (4.34)	-4.44 (4.35)	-4.49 (5.67)	-4.49 (5.68)	-4.44 (4.36)
People in house	1.033 (1.898)	0.801 (1.808)	0.801 (1.811)	0.680 (1.872)	0.680 (1.876)	0.801 (1.814)
Trusteetype			23.93*** (2.668)		23.93*** (2.668)	11.92*** (2.619)
Trustortype		16.11** (7.034)	16.11** (7.046)			4.014 (7.222)
Affil_years				1.251** (0.621)	1.251** (0.622)	
Trustortrustee						24.19*** (4.949)
Observations	290	290	290	290	290	290
R-squared	0.048	0.073	0.157	0.064	0.148	0.178

*Variance clustered for individuals. Robust standard errors in parentheses. \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$ .*

**Table 6. Trustors' beliefs about trustees' response**

	(1)	(2)	(3)	(4)	(5)	(6)
Dep. Var.. <i>amount expected by trustors</i>						
Age	-0.0197 (0.0443)	-0.0172 (0.0403)	-0.0172 (0.0403)	-0.0178 (0.0387)	-0.0178 (0.0388)	-0.0172 (0.0404)
Female	11.04 (11.71)	10.11 (11.67)	10.11 (11.69)	10.56 (11.59)	10.56 (11.61)	10.11 (11.71)
Married	6.105 (14.62)	8.782 (15.33)	8.782 (15.36)	7.917 (14.88)	7.917 (14.91)	8.782 (15.38)
Job Experience	0.804 (0.593)	0.870 (0.597)	0.870 (0.598)	0.704 (0.582)	0.704 (0.583)	0.870 (0.599)
Kamada	2.206 (13.10)	-6.034 (15.18)	-6.034 (15.20)	-13.76 (13.49)	-13.76 (13.52)	-6.034 (15.23)
Education	-1.372 (2.619)	-1.608 (2.604)	-1.608 (2.609)	-1.566 (2.535)	-1.566 (2.540)	-1.608 (2.614)
TotIncome	3.70 (10.6)	0.607 (10.2)	0.607 (10.3)	-1.93 (11.6)	-1.93 (11.6)	0.607 (10.3)
People in house	0.468 (3.083)	0.271 (3.047)	0.271 (3.053)	-0.0710 (3.053)	-0.0710 (3.059)	0.271 (3.058)
Trusteetype			57.34*** (6.064)		57.34*** (6.064)	23.42*** (4.830)
Trustortype		13.71 (11.49)	13.71 (11.51)			-20.45* (10.36)
Affil_years				1.912* (0.982)	1.912* (0.984)	
Trustortrustee						68.31*** (10.72)
Observations	290	290	290	290	290	290
R-squared	0.028	0.033	0.177	0.039	0.182	0.227

*Variance clustered at individual level. Robust standard errors in parentheses. \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$ .*

**Table 7. Trustors' differential sending and expecting when playing/not playing with a coop member**

Dep Variables:	(1)	(2)	(3)	(4)
	<i>Differential sending</i>		<i>Differential expecting</i>	
Age	-0.0270*	-0.0305	0.0240	0.0167
	(0.0142)	(0.0191)	(0.0469)	(0.0545)
Female	-6.117	-4.615	-2.366	1.136
	(5.847)	(5.929)	(13.42)	(12.65)
Married	12.11*	8.185	13.44	4.905
	(6.471)	(6.376)	(17.53)	(17.78)
Job Experience	-0.159	-0.383*	0.551	-0.168
	(0.228)	(0.222)	(0.617)	(0.556)
Kamada	-10.12	-7.255	-13.09	-23.57
	(7.661)	(8.379)	(18.23)	(20.92)
Education	-0.108	0.209	0.0352	0.668
	(1.138)	(1.157)	(2.723)	(2.685)
TotIncome	7.10	8.49	1.32	-1.35
	(5.16)	(7.09)	(9.66)	(16.8)
People in house	-1.827	-1.898	2.247	1.437
	(1.594)	(1.569)	(3.905)	(4.054)
Trustortype	28.32***		76.52***	
	(6.146)		(12.17)	
Affil_years		1.695***		6.763***
		(0.595)		(1.920)
Observations	145	145	145	145
R-squared	0.222	0.140	0.251	0.220

Dependent variables: *difference in the amount sent (expected) by the same trustor when playing with an affiliated versus a non affiliated trustee.*  
*Robust standard errors in parentheses. \*\*\* p<0.01, \*\* p<0.05, \* p<0.1*

**Table 8. Trustees' responses**

Dep. Var. Trustees' mean response to all potential trustors' contributions	(1)	(2)	(3)	(4)	(5)	(6)
Age	-0.113 (0.400)	-0.0953 (0.404)	-0.0953 (0.405)	-0.0491 (0.417)	-0.0491 (0.418)	0.179 (0.270)
Female	-13.16 (8.353)	-12.91 (8.280)	-12.91 (8.295)	-13.18 (8.467)	-13.18 (8.482)	10.12* (5.223)
Married	0.379 (8.654)	-0.233 (8.672)	-0.233 (8.688)	-0.479 (8.811)	-0.479 (8.828)	2.001 (5.961)
Job Experience	0.0650 (0.434)	-0.00829 (0.467)	-0.00829 (0.468)	0.0147 (0.461)	0.0147 (0.462)	0.253 (0.317)
Kamada	17.08 (10.67)	19.82 (12.41)	19.82 (12.44)	26.43* (14.63)	26.43* (14.65)	-9.893 (7.423)
Education	1.472 (1.746)	1.422 (1.764)	1.422 (1.767)	1.421 (1.784)	1.421 (1.787)	-0.496 (1.028)
TotIncome	-3.59 (10.10)	-3.10 (9.91)	-3.10 (9.93)	-3.88 (9.98)	-3.88 (10.00)	-3.86 (5.25)
People in house	-2.004 (2.368)	-1.945 (2.378)	-1.945 (2.382)	-1.718 (2.249)	-1.718 (2.253)	1.106 (1.479)
Trusteetype		-4.916 (9.38)	-4.916 (9.403)			11.44* (6.370)
Trustortype			9.635** (4.009)		9.635** (4.009)	18.85*** (3.082)
Affil_years				-1.420 (1.442)	-1.420 (1.444)	
Trustortrustee						20.78*** (5.985)
Observations	282	282	282	282	282	282
R-squared	0.039	0.041	0.050	0.049	0.058	0.269

*Variance clustered at individual level. Robust standard errors in parentheses. \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$*

**Table 9. Trustees' responses conditional to the level of trustor's contributions**

VARIABLES	(1) imp20	(2) imp40	(3) imp60	(4) imp80	(5) imp100	(6) imp120	(7) imp140	(8) imp160	(9) imp180	(10) imp200
age	0.190 (0.207)	0.167 (0.212)	-0.00372 (0.243)	-0.0395 (0.339)	-0.228 (0.412)	0.0711 (0.477)	-0.0128 (0.597)	-0.514 (0.641)	-0.187 (0.725)	-0.396 (0.894)
female	-2.325 (4.296)	-4.329 (4.740)	-4.524 (6.504)	-8.653 (6.911)	-8.822 (8.712)	-12.86 (9.263)	-11.90 (11.17)	-22.68* (12.81)	-20.26 (14.71)	-32.76** (16.47)
Married	0.166 (4.223)	-2.056 (4.534)	-4.713 (6.156)	-8.685 (7.139)	-2.297 (8.724)	-5.485 (10.25)	3.265 (12.75)	3.762 (14.97)	8.593 (16.37)	5.116 (17.22)
job_experience	-0.0469 (0.196)	-0.0552 (0.227)	0.0260 (0.331)	0.121 (0.419)	0.483 (0.528)	-0.0686 (0.578)	-0.0173 (0.668)	-0.0980 (0.788)	-0.297 (0.870)	-0.130 (0.834)
kamada	-6.283 (6.812)	3.349 (7.103)	8.550 (9.559)	19.25* (10.42)	22.70* (12.63)	24.29* (13.79)	27.03 (16.98)	36.33* (20.14)	28.65 (22.68)	34.33 (24.29)
education	0.222 (0.674)	0.154 (0.853)	0.655 (1.222)	1.449 (1.487)	2.060 (1.950)	2.246 (2.079)	1.488 (2.470)	1.504 (2.707)	1.777 (3.058)	2.670 (3.332)
TotIncome	-1.53 (4.24)	2.80 (6.02)	-3.52 (6.40)	-0.826 (8.18)	-1.65 (10.2)	-3.23 (11.3)	-5.02 (13.8)	-4.75 (16.1)	-13.2 (19.1)	-0.0806 (18.7)
people_in_house	0.496 (1.770)	0.296 (1.516)	-1.541 (1.727)	-1.453 (1.942)	-0.845 (2.247)	-2.510 (2.643)	-1.876 (3.124)	-3.461 (3.715)	-4.931 (4.351)	-3.627 (4.319)
trustortype	7.234*** (2.196)	4.787* (2.576)	8.688*** (3.303)	9.539** (3.918)	9.220** (4.249)	9.716* (4.956)	12.30* (6.267)	7.660 (6.160)	11.03 (6.696)	16.17* (8.960)
trusteetype	14.64*** (5.303)	9.105 (5.665)	12.15* (7.172)	4.218 (7.746)	0.925 (9.074)	-11.23 (10.77)	-14.83 (14.00)	-24.08 (15.18)	-23.28 (18.38)	-16.78 (18.93)
Observations	282	282	282	282	282	282	282	282	282	282
R-squared	0.099	0.053	0.083	0.072	0.058	0.053	0.039	0.061	0.052	0.050

Robust standard errors in parentheses - \*\*\* p<0.01, \*\* p<0.05, \* p<0.1

**Table 10. Trustees' first order beliefs**

Dep. Var.: Trustees' expectations about Trustors' contributions	(1)	(2)	(3)	(4)	(5)	(6)
Age	0.260 (0.272)	0.179 (0.269)	0.179 (0.270)	0.141 (0.261)	0.141 (0.262)	0.179 (0.270)
Female	11.24* (5.778)	10.12* (5.204)	10.12* (5.214)	11.27** (5.345)	11.27** (5.355)	10.12* (5.223)
Married	-0.721 (6.232)	2.001 (5.939)	2.001 (5.950)	0.869 (6.049)	0.869 (6.060)	2.001 (5.961)
Job Experience	-0.0725 (0.289)	0.253 (0.316)	0.253 (0.317)	0.0206 (0.286)	0.0206 (0.286)	0.253 (0.317)
Kamada	2.293 (6.470)	-9.893 (7.396)	-9.893 (7.409)	-15.02* (8.233)	-15.02* (8.248)	-9.893 (7.423)
Education	-0.718 (1.002)	-0.496 (1.024)	-0.496 (1.026)	-0.622 (1.025)	-0.622 (1.027)	-0.496 (1.028)
TotIncome	-1.65 (5.14)	-3.86 (5.23)	-3.86 (5.24)	-1.12 (5.16)	-1.12 (5.17)	-3.86 (5.25)
People in house	1.369 (1.556)	1.106 (1.474)	1.106 (1.477)	0.840 (1.465)	0.840 (1.468)	1.106 (1.479)
Trusteetype		21.83*** (5.784)	21.83*** (5.795)			11.44* (6.370)
Trustortype			28.72*** (3.054)		28.72*** (3.054)	18.85*** (3.082)
Affil_years				2.628*** (0.742)	2.628*** (0.744)	
Trustortrustee						20.78*** (5.985)
Observations	282	282	282	282	282	282
R-squared	0.038	0.096	0.249	0.097	0.250	0.269

Robust standard errors in parentheses. \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$ . Variance clustered at individual level.

**Table 11. Trustees' second order beliefs**

Dep. Var.: Trustees' expectations on how much Trustors expect them to return	(1)	(2)	(3)	(4)	(5)	(6)
Age	-0.0464 (0.498)	-0.0848 (0.504)	-0.0848 (0.505)	-0.162 (0.482)	-0.162 (0.483)	0.179 (0.270)
Female	18.57* (9.657)	18.04* (9.538)	18.04* (9.556)	18.60* (9.416)	18.60* (9.433)	10.12* (5.223)
Married	6.358 (9.916)	7.654 (9.756)	7.654 (9.774)	7.907 (9.705)	7.907 (9.723)	2.001 (5.961)
Job Experience	-0.494 (0.479)	-0.339 (0.494)	-0.339 (0.495)	-0.403 (0.468)	-0.403 (0.469)	0.253 (0.317)
Kamada	15.36 (12.10)	9.554 (12.87)	9.554 (12.89)	-1.513 (15.60)	-1.513 (15.63)	-9.893 (7.423)
Education	-3.209 (1.964)	-3.103 (1.977)	-3.103 (1.981)	-3.115 (1.993)	-3.115 (1.997)	-0.496 (1.028)
TotIncome	17.7** (8.93)	16.6* (8.97)	16.6* (8.99)	18.2** (8.97)	18.2** (8.98)	-3.86 (5.25)
People in house	2.614 (2.157)	2.488 (2.132)	2.488 (2.136)	2.098 (2.111)	2.098 (2.115)	1.106 (1.479)
Trusteetype		10.40 (8.718)	10.40 (8.734)			11.44* (6.370)
Trustortype			39.18*** (5.165)		39.18*** (5.165)	18.85*** (3.082)
Affil_years				2.561** (1.233)	2.561** (1.236)	
Trustortrustee						20.78*** (5.985)
Observations	282	282	282	282	282	282
R-squared	0.065	0.069	0.166	0.084	0.181	0.269

Variance clustered at individual level. Robust standard errors in parentheses. \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$

# NOT FOR PUBLICATION

## PFTC SURVEY FOR COOP MEMBERS

0. Name Midname/ Surname: \_\_\_\_\_ / \_\_\_\_\_

1. Case number \_\_\_\_\_

2. Sex:  [1] Female  
 [2] Male

3. Age: \_\_\_\_\_

4. Civil status:  [1] Unmarried  
 [2] Cohabitant  
 [3] Married  
 [4] Separated  
 [5] Divorced  
 [6] Widowed

5. What is your height: \_\_\_\_\_

6. What is your weight: \_\_\_\_\_

7. How many years have you attended the school? \_\_\_\_\_

8. How many years has your father attended the school? \_\_\_\_\_

9. How many years has your partner attended the school? \_\_\_\_\_

10. How many people do usually live in your house? \_\_\_\_\_

11. How many children do you have? \_\_\_\_\_

12. Please, fill in the table below:

Children tab	Sex	Age	Weight	Height	How old when started the school?	How many years did he/she attend the school?	How many years did he/she repeat? [if not = 0]	Activity			how many hours/day does he/she work on that activity?	Distance of the house from the school
	M or F							help the family	work outside the family	not working		
First												
Second												
Third												
Fourth												
Fifth												
Sixth												
Seventh												
Eighth												

13. Has any of your children quit the school to start working because of economic problems? If so, how many children? \_\_\_\_\_

14. Has any of your children emigrated (cities or abroad) because of economic problems? If so, how many children? \_\_\_\_\_

15. Where was your last child born?  [1] Home  
 [2] Rural clinic  
 [3] Hospital  
 [4] Other

16. Of how many squared meters is your house? \_\_\_\_\_
17. How much would it cost to build your house? \_\_\_\_\_
18. Which is the main building material used for your house?  
 [1] Timbers or bamboo  
 [2] Bricks and concrete  
 [3] Other
19. What type of fuel do you use for cooking?  
 [1] Wood and bamboo  
 [2] Coal  
 [3] Gas  
 [4] Other
20. Do you have water well?  
 [1] Yes  
 [0] No
21. If so, is it drinking water?  
 [1] Yes  
 [0] No
22. Do you have motorcycle?  
 [1] Yes  
 [0] No
23. Do you have a refrigerator?  
 [1] Yes  
 [0] No
24. How much do you usually spend for food for your family in a week in pesos? \_\_\_\_\_

25. Please, fill in the table below:

Consumption TAB	How many times does your family eat the following food?					Which share of each food consumed do you produce by yourself?
	every day [5]	twice a week [4]	once a week [3]	once a month [2]	Never [1]	
<i>Rice</i>						0 - 100 %
<i>Vegetables</i>						
<i>Fresh fruit</i>						
<i>Eggs</i>						
<i>Milk</i>						
<i>Meat</i>						
<i>Fish</i>						

26. How do you consider your standard of living compared to the independent sugar producers who live in this village?  
 [5] Much better  
 [4] Better  
 [3] The same  
 [2] Worse  
 [1] Much worse

27. Description of YOUR PERSONAL earnings. Please fill in the table below:

Activity	Earnings per year (pesos)	Days worked/Year	Hours worked/day
<i>Mascobado</i>			
<i>Other Agriculture</i>			
<i>Other jobs</i>			
<b>TOTAL</b>			

28. Description of YOUR FAMILY's earnings in pesos per year:

- Husband/wife \_\_\_\_\_
- Son/daughter \_\_\_\_\_
- Other members \_\_\_\_\_

29. Do you have other sources of non work income (subsidies, donations, etc.)? If so, how many pesos per month?

- from the cooperative \_\_\_\_\_
- from the state \_\_\_\_\_
- from private persons \_\_\_\_\_
- from development agencies/NGOs \_\_\_\_\_
- remittances from relatives \_\_\_\_\_
- rents \_\_\_\_\_
- other \_\_\_\_\_

30. In your opinion, how much should your family's monthly income be in order to live in a satisfactory way? \_\_\_\_\_

31. How much did you save approximately last year in percent of your earnings? \_\_\_\_\_

32. How much did you spent for natural fertilizers for organic sugar cane last year in pesos? \_\_\_\_\_

33. How satisfied are you with your life?

- [5] Very satisfied
- [4] Satisfied
- [3] Pretty satisfied
- [2] Not very satisfied
- [1] Not satisfied at all

34. Did you vote in the last election (at national or local level)?

- [1] Yes
- [0] No

35. What kind of damages did you have from the 2008 typhoon?

- [1] Person (dead)
- [2] Person (injured)
- [3] House
- [4] Working tools
- [5] Sugar cane plantation
- [6] Other plantations
- [7] Other

36. In case of economic problems, to whom do you ask for help?

- [1] Family
- [2] Friends
- [3] Cooperative members
- [4] Other people
- [5] Nobody

37. How many temporary employees do you have? \_\_\_\_\_ What is their daily wage? \_\_\_\_\_

38. During the past year, how many days of training have you attended? \_\_\_\_\_

39. In what year did you join the cooperative? \_\_\_\_\_

40. How far do you live from the mill (Km)? \_\_\_\_\_
41. How did you join the cooperative?  
 [1] The coop contacted you to convince you to join them  
 [2] You heard about the cooperative by other people and contacted the coop to join
42. Have you ever left the cooperative?  
 [1] Yes  
 [0] No
43. How do you consider the sale conditions of the cooperative compared to the other buyers' ones (in term of price, stability of price, reliability of the buyer, punctuality of payments, etc.)?  
 [5] Much better  
 [4] Better  
 [3] The same  
 [2] Worse  
 [1] Much worse
44. How much land do you personally own in general (house, sugar, rice, etc. in hectares): \_\_\_\_\_
45. If you were to sell your plot of land today, how much could you sell it for in pesos? \_\_\_\_\_
46. How many hectares of land do you cultivate (only mascobado)?  
 Own land: \_\_\_\_\_  
 Inherited land: \_\_\_\_\_  
 Rented land: \_\_\_\_\_  
 Tenanted land: \_\_\_\_\_
47. If you are producing mascobado from inherited land, with how many heirs do you share the land? \_\_\_\_\_
48. If you are renting some land to cultivate mascobado, how much do you pay (yearly per hectare)? \_\_\_\_\_
49. If you are renting some land to cultivate mascobado, how much do you pay (share of harvest)? \_\_\_\_\_
50. If you are renting/tenanting some land to cultivate mascobado, when will the rental contract expire (number of months)? \_\_\_\_\_
51. When did you have the last harvest (year)? \_\_\_\_\_
52. What was your total production of mascobado last harvest (Kg)? \_\_\_\_\_
53. Between producing higher quantity and achieving better quality of mascobado sugar, which one is more important to you?  
 [1] It's the production of high quantity which matters to me, quality is not important  
 [2] Both are important, but quantity matters more than quality  
 [3] The same  
 [4] Both are important, but quality matters more than quantity  
 [5] It's the production of high quality which matters to me, quantity is not important
54. If the cooperative were facing a difficult time, what share of your income would you be willing to sacrifice to help it (in %)? \_\_\_\_\_
55. How much money are you willing to invest in your sugar cane plantation over the next years?  
 [5] Very much  
 [4] Much  
 [3] Pretty much  
 [2] Not much  
 [1] Nothing
56. How many hectares of land did you cultivate with sugar cane before organic? \_\_\_\_\_ And after? \_\_\_\_\_
57. How many hours per week did you work as a sugar cane farmer before organic (in the months of sugar cane production)? \_\_\_\_\_ And after? \_\_\_\_\_
58. How satisfied were you of the earnings from your sugar cane plantation before organic? \_\_\_\_\_ And after? \_\_\_\_\_

# **NOT FOR PUBLICATION**

## **EXPERIMENT FOR PLAYER A**

CASE NUMBER: \_\_\_\_\_

### **FIRST ROUND**

1. In this first round you will play with a person who is member of a Fair Trade Cooperative. How much of your initial wealth of 200 pesos would you give to the other player? \_\_\_\_\_
2. How much money do you think that the person (member of a Fair Trade Cooperative) will give you back? \_\_\_\_\_
3. Why did you give the money to the other person (member of a Fair Trade Cooperative)?
  - I trust him
  - I hope that he will give me back the same or more than that I gave him
  - It makes me feel good that he gains money
  - I don't like a different treatment between me and him

### **SECOND ROUND**

1. In this second round you will play with a person who is **NOT** member of a Fair Trade Cooperative . How much of your initial wealth of 200 pesos would you give to the other player? \_\_\_\_\_
2. How much money do you think that the person (**NOT** member of a Fair Trade Cooperative) will give you back? \_\_\_\_\_
3. Why did you give the money to the other person (**NOT** member of a Fair Trade Cooperative)?
  - I trust him
  - I hope that he will give me back the same or more than that I gave him
  - It makes me feel good that he gains money
  - I don't like a different treatment between me and him

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### **ONLY FOR NOT FAIR TRADE COOPERATIVE MEMBERS**

1. Sex:  [1] Female  
 [2] Male
2. Age: \_\_\_\_\_
3. Civil status:  [1] Unmarried  
 [2] Cohabitant  
 [3] Married  
 [4] Separated  
 [5] Divorced  
 [6] Widowed
4. How many years have you attended the school? \_\_\_\_\_

5. How many people do usually live in the house? \_\_\_\_
6. How many children do you have? \_\_\_\_
7. How many years have you been producing sugar (job experience)? \_\_\_\_
8. Are you organic or traditional producer?  
 [1] Organic  
 [2] Traditional

9. Description of YOUR PERSONAL earnings. Please fill in the table below:

Activity	Earnings per year (pesos)	Days worked/Year	Hours worked/day
<i>Mascobado</i>			
<i>Other Agriculture</i>			
<i>Other jobs</i>			
<b>TOTAL</b>			

10. Description of YOUR FAMILY's earnings in pesos per year:

- Husband/wife \_\_\_\_  
 Son/daughter \_\_\_\_  
 Other members \_\_\_\_

11. Do you have other sources of non work income (subsidies, donations, etc.)? If so, how many pesos per month?

- from the cooperative \_\_\_\_  
 from the state \_\_\_\_  
 from private persons \_\_\_\_  
 from development agencies/NGOs \_\_\_\_  
 remittances from relatives \_\_\_\_  
 rents \_\_\_\_  
 other \_\_\_\_

12. How much did you save approximately last year in percent of your earnings? \_\_\_\_

13. Of how many squared meters is your house? \_\_\_\_

14. Which is the main building material used for your house?

- [1] Timbers or bamboo  
 [2] Bricks and concrete  
 [3] Other

## EXPERIMENT FOR PLAYER B

CASE NUMBER: \_\_\_\_\_

### FIRST ROUND

**1. How much money do you give back in each case:**

<i>If the other person sends you 20</i>	<i>and you receive</i>	<i>60</i>	<i>you would give him back</i>	_____
<i>If the other person sends you 40</i>	<i>and you receive</i>	<i>120</i>	<i>you would give him back</i>	_____
<i>If the other person sends you 60</i>	<i>and you receive</i>	<i>180</i>	<i>you would give him back</i>	_____
<i>If the other person sends you 80</i>	<i>and you receive</i>	<i>240</i>	<i>you would give him back</i>	_____
<i>If the other person sends you 100</i>	<i>and you receive</i>	<i>300</i>	<i>you would give him back</i>	_____
<i>If the other person sends you 120</i>	<i>and you receive</i>	<i>360</i>	<i>you would give him back</i>	_____
<i>If the other person sends you 140</i>	<i>and you receive</i>	<i>420</i>	<i>you would give him back</i>	_____
<i>If the other person sends you 160</i>	<i>and you receive</i>	<i>480</i>	<i>you would give him back</i>	_____
<i>If the other person sends you 180</i>	<i>and you receive</i>	<i>540</i>	<i>you would give him back</i>	_____
<i>If the other person sends you 200</i>	<i>and you receive</i>	<i>600</i>	<i>you would give him back</i>	_____

**2. How much money do you think that the person (member of a Fair Trade Cooperative) will give you back?** \_\_\_\_\_

**3. We will ask the other player (member of a Fair Trade Cooperative) to guess how much money you decided give him back, just knowing if you are member of a Fair Trade Cooperative or not. What do you think he will answer?** \_\_\_\_\_

**4. Why did you give back the money to the other person?** (it is possible to provide multiple responses based on priority order)

- [1] I'm a person people can rely on
- [2] I don't like that he gets much less than me
- [3] It makes me feel good that he gains money
- [4] I don't like a different treatment between me and him

### SECOND ROUND

**1. How much money do you give back in each case:**

<i>If the other person sends you 20</i>	<i>and you receive</i>	<i>60</i>	<i>you would give him back</i>	_____
<i>If the other person sends you 40</i>	<i>and you receive</i>	<i>120</i>	<i>you would give him back</i>	_____
<i>If the other person sends you 60</i>	<i>and you receive</i>	<i>180</i>	<i>you would give him back</i>	_____
<i>If the other person sends you 80</i>	<i>and you receive</i>	<i>240</i>	<i>you would give him back</i>	_____
<i>If the other person sends you 100</i>	<i>and you receive</i>	<i>300</i>	<i>you would give him back</i>	_____
<i>If the other person sends you 120</i>	<i>and you receive</i>	<i>360</i>	<i>you would give him back</i>	_____
<i>If the other person sends you 140</i>	<i>and you receive</i>	<i>420</i>	<i>you would give him back</i>	_____
<i>If the other person sends you 160</i>	<i>and you receive</i>	<i>480</i>	<i>you would give him back</i>	_____
<i>If the other person sends you 180</i>	<i>and you receive</i>	<i>540</i>	<i>you would give him back</i>	_____
<i>If the other person sends you 200</i>	<i>and you receive</i>	<i>600</i>	<i>you would give him back</i>	_____

**2. How much money do you think that the person (NOT member of a Fair Trade Cooperative) will give you back?** \_\_\_\_\_

**3. We will ask the other player (NOT member of a Fair Trade Cooperative) to guess how much money you decided give him back, just knowing if you are member of a Fair Trade Cooperative or not. What do you think he will answer?** \_\_\_\_\_

**4. Why did you give back the money to the other person?**

- [1] I'm a person people can rely on
- [2] I don't like that he gets much less than me

- [3] It makes me feel good that he gains money
- [4] I don't like a different treatment between me and him

**ONLY FOR NOT FAIR TRADE COOPERATIVE MEMBERS**

15. Sex:  [1] Female  
 [2] Male

16. Age: \_\_\_\_\_

17. Civil status:  [1] Unmarried  
 [2] Cohabitant  
 [3] Married  
 [4] Separated  
 [5] Divorced  
 [6] Widowed

18. How many years have you attended the school? \_\_\_\_\_

19. How many people do usually live in the house? \_\_\_\_\_

20. How many children do you have? \_\_\_\_\_

21. How many years have you been producing sugar (job experience)? \_\_\_\_\_

22. Are you organic or traditional producer?  [1] Organic  
 [2] Traditional

23. Description of YOUR PERSONAL earnings. Please fill in the table below:

Activity	Earnings per year (pesos)	Days worked/Year	Hours worked/day
<i>Mascobado</i>			
<i>Other Agriculture</i>			
<i>Other jobs</i>			
<b>TOTAL</b>			

24. Description of YOUR FAMILY's earnings in pesos per year:  Husband/wife \_\_\_\_\_  
 Son/daughter \_\_\_\_\_  
 Other members \_\_\_\_\_

25. Do you have other sources of non work income (subsidies, donations, etc.)? If so, how many pesos per month?
- from the cooperative \_\_\_\_\_
  - from the state \_\_\_\_\_
  - from private persons \_\_\_\_\_
  - from development agencies/NGOs \_\_\_\_\_
  - remittances from relatives \_\_\_\_\_
  - rents \_\_\_\_\_
  - other \_\_\_\_\_

26. How much did you save approximately last year in percent of your earnings? \_\_\_\_\_

27. Of how many squared meters is your house? \_\_\_\_\_

28. Which is the main building material used for your house?  [1] Timbers or bamboo  
 [2] Bricks and concrete  
 [3] Other

