Linking Small FArmers to the Market while caring for the Environment.

LISFAME

Sample Selection

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CIP provided the FAO-team with census data at parish and community level for the household and community survey. The agro-census data were impossible to gather if not at provincial level.

Initially the sample frame was decided to be limited to Chimborazo, Tungurahua and Quero. These are the areas where the platforms are active. Within these zones, variability was planned to be sought in terms of farm size. After two volcano eruptions the area of Quero was dropped off as it was highly affected and could convey misleading data. In addition, the area of Cotopaxi was included and later dropped for analysis as better explained below.

One key issue discussed with the representatives of the platforms, as well as with farmers' facilitators and CIP's representative, was the selection of a representative sample that would also allow for a control group (farmers in comparable communities, but who do not participate to the platforms). In fact, as with *"any impact evaluation, the main problem is that it is not possible to observe the outcomes for participants if they had not participated"* (Ravallion, 2006). Therefore a "*comparison group*" had to be used to identify the counter-factual of what would have happened without the program. The comparison group is designed to be representative of the "*treatment group*" of participants with the key difference that it did not participate to the platform. The method used in this study was the propensity score matching (PSM)[1] (Ravallion, 2006).

The initial breakdown of surveys to be conducted was as follows: 150 in Cotopaxi; 400 in Tungurahua; and 450 in Chimborazo. This totaled 1,000 surveys. One NGO was identified in each of these regions, which was to be hired to conduct the surveys and to serve as a guide for FAO and CIP for the proper identification of participating (those belonging to the platform) and non-participating communities (those not part of the platform and henceforth referred to as *counterfactual communities*). This was a good strategic decision since each of these organizations had a certain degree of contact with the platform, its beneficiaries, and in most cases, with counterfactual communities. These organizations were *Maquita Cushunchic* in Cotopaxi, *IEDECA* in Tungurahua, and *Fundacion Marco* in Chimborazo (henceforth referred to as FM). These three regions had a combined total of 49 communities participating in the platform: 9 in Cotopaxi, 14 in Tungurahua, and 26 in Chimborazo.

After a series of meetings with the directors of each of these organizations, it became clear that it was advisable to focus in two regions only – Tungurahua and Chimbrazo. Cotopaxi reported a total of 58 participant farmers but indeed only 26 participants resulted and belonging to 9 different associations. Thus, it was opted not to interview in Cotopaxi because the number of participants was very small. The final breakdown of surveys to be implemented by region was 500 for Tungurahua and 500 for Chimborazo, for a total of 1,000. The breakdown of farmers to be interviewed, in terms of participants and non-participants was as follows: 334 participating farmers; 333 non-participants from participating communities (in order to identify spill over effects); and 333 non-participants from non-participating communities (counterfactual communities).

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[1] In PSM, the treatment group (platform participants) is matched to a control group based on observable characteristics using a propensity score which is calculated using a probit on the probability of participation in platform. The benefit of this procedure over the other methods is that the PSM procedure confines attention to a matched sub-sample where there is common support and unmatched observations are dropped if appropriate (Ravallion 2005)

The selection of the two types of communities, participants and counterfactuals, to be interviewed was done, in general terms, in two steps: 1) a Propensity Score Matching[2] process was used to find a proper counterfactual for each of the participating communities; 2) corroboration of these "matches" during various meetings with key staff (director, agronomists/"tecnicos", "promotores") from each of the interested areas[3].

The selection of counterfactual communities was done on the basis of the some key variables available from the population census[4]. Various meetings with platform coordinators and with farmers and agronomists working in the areas were carried out in order to corroborate whether the counterfactual communities selected through this method were good and solid comparable communities.

The final list of participant communities and counterfactual is reported in at the end of this document, table 1 and 2 and it is comprised of 5 participant and 5 counterfactual communities in Tungurahua, in addition to 13 participant and 12 counterfactual communities selected in the province of Chimborazo. Within these communities a total of 1000 households have been randomly selected, of which 334 are participants to the platform, 333 are non participant farmers but living in participant communities (to check for spillover effects) and 333 are non participant farmers living in non participant communities.

The random selection of farmers within the selected communities is explained below.

Selecting producers from participating communities: Tungurahua

Within each of the 5 final participating communities to be interviewed, the potato producers that belonged to the platform were organized in groups or associations. In 3 out of 5 of these communities, there was more than 1 association that belonged to the platform and these associations were of different sizes, in terms of the number of their members. In total, in Tungurahua, there were a total of 12 associations for the 5 participating communities.

The approach taken to select participating producers was as follows: for any association with less than 15 members, it was choosen to interview all the members; for any association with more than 15 members 2/3 of their total number of members was to be interviewed– this was done on a random basis, by interviewing all members, except each third member from the list provided. Those members that were not selected were then assigned the "alterno" status, in case one of the selected members was not available or willing to do the interview.

It is important to note that the members of the associations typically live close to each other in areas that can be considered 'barrios'. When looking for non-participants, the approach taken was to find non-participant farmers within these same 'barrios' in these communities, when this was not possible or when there were not enough farmers, the enumerators went to nearby 'barrios' within the same community.

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[2] See Smith and Todd (2005) for a recent discussion of this technique.

[3] IEDECA served as the 'administrative liaison' for the platform for half the number of participating communities in Tungurahua. The remaining participating communities worked under CESA, and this is why we needed to contact CESA to help us with the communities that they worked with.

[4] Share of households that burn garbage (indication of no garbage collection); share of households with access to water distribution inside household; share of households with access to electricity; share of households that use electricity for cooking; percentage of families that cook with gas; percentage of families that have their own toilet; the percentage of families that have access to a telephone; percentage of indigenous population in the community; percentage of people working in the third sector (services); percentage of population with respect to total province's population; and percentage of people that work in the industrial sector

Selecting producers from non-participating communities: Tungurahua

IEDECA maintains a directory of all the farmers in all the communities – participating and counterfactual ones. From these lists, a random selection of possible counterfactual farmers was carried out. The random selection was done depending on the number of farmers living in each community and the number of farmers that were needed for interviews in that particular community. For instance, if there were needed 10 farmers from a community of 100 farmers; the 1st, 10th, 20th (and so forth) producer was chosen to be interviewed. Those producers that were not selected were considered to be "alternos" in case some of the chosen ones did not, or were not able to participate in the surveys.

Selecting producers from participating communities: Chimborazo

In contrast to Tungurahua, each participant community in Chimborazo only had one association of producers that belonged to the platform. The number of members in each of these associations also varied, with the smallest association consisting of 6 members and the largest one consisting of 32 members. The approach taken to select participating producers was as follows: for any participating community with less than 10 platform members, all the members were to be interviewed; for all other participating communities with more than 10 members, 85% of their members were to be interviewed– this was done on a random basis depending on the number of members in an association and the number of producers needed for the survey (85% of them). The random selection in these cases was done skipping each 5th from the list. For instance, in the community of Calerita Santa Rosa, the list contained 20 platform members. 85% of these had to be interviewed which yielded 17 members. Thus, all members but the 5th, 10th, and 15th were interviewed. The ones that were skipped were then labeled as "alternos" and were to be interviewed if the ones that had initially been selected did not want to do the interview or if they were not available.

Selecting producers from non-participating communities: Chimborazo

As opposite to IEDECA, FM in Chimborazo did not have access to any lists of the members of the communities – counterfactual or participating communities. They only had the lists of the producers that were members of the platform. During the initial 'socializing' period when FM first made contacts with all the communities, the leaders of the communities were told that it was necessary to have a list of all the members of the community in order to randomly select households to be interviewed. The leaders agreed to have these lists ready for FM, so a random selection of farmers could de carried out.[5]

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[5] A more thorough explanation of how things actually worked will be given in the implementation section.

Final Sample

Table 1: Communities to be interviewed in Tungurahua

Comunidades Participantes a la Plataforma			Comunidades Comparables (counterfactuals)		
Comunidad	**Canton**	**Parroquia**	**Comunidad**	**Canton**	**Parroquia**
Llangahua/El Salado	Ambato	Pilahuin	**Escalera**	Ambato	Pilahuin
Tamboloma	Ambato	Pilahuin	**Pallaloma**	Ambato	Pilahuin
Mulanleo	Ambato	Pilahuin	**Pucara**	Ambato	Pilahuin
Yatzaputzan	Ambato	Pilahuin	**San Antonio**	Ambato	Pilahuin
San Luis	Ambato	Juan Benigno Vela	**Chilco**	Tisaleo	Juan Benigno Vela

Table 2: Communities to be interviewed in Chimborazo

Comunidades Participantes a la Plataforma			Comunidades Comparables (counterfactuals)		
Comunidad	**Canton**	**Parroquia**	**Comunidad**	**Canton**	**Parroquia**
Ballagan	Riobamba	San Juan	**Pucullpala**	Riobamba	Quimiag
Calerita-Santa Rosa	Riobamba	San Juan	**Puruhuay San Gerardo**	Riobamba	Licto
Capilla Urco	Guamote	Palmira	**Pomachaca**	Guamote	Palmira
Curiquinga	Alausí	Tixan	**Santa Lucia**	Alausí	Achupallas
El Cortijo	Riobamba	Quimiag	**Bayo Grande**	Riobamba	Quimiag
Guntuz	Riobamba	Quimiag	**Bayo Chico**	Riobamba	Quimiag
San Vicente de Tiazo	Riobamba	San Luis/Licto	**Tunshi San Javier**	Riobamba	Licto
Shilpalá	Riobamba	Cacha	**La Delicia**	Riobamba	San Juan
Shobol	Riobamba	San Juan	**Guabug**	Riobamba	San Juan
Sumak-Yura	Riobamba	Punin	**Chulcunag**	Riobamba	Punin
Totoras	Alausí	Achupallas	**Guluagayco**	Alausí	Tixan
Tunsalao	Guano	San Andrés	**Pulingui**	Guano	San Andrés